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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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J. NEWELL STEPHENSON, M. S., Editor

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EDITORIAL

FOR NINETEEN SEVENTEEN.

The joy of work, the satisfaction of accomplishment and a full measure of success is the sincere wish of the Pulp and Paper Magazine to its many friends for the New Year.

WHY CANADIAN MILLS SHOULD GROW.

The Paper Trade Journal does not seem greatly alarmed, and perhaps rightly, over the recent statement of Mr. I. H. Weldon, president of the Provincial Paper Mills Company, that Canada has 40 per cent. of the world's pulp wood and will in ten years produce all the newsprint used on this continent.

We not only hope, but firmly believe that the newsprint production of Canada will grow to be an enormous industry. It is now giving every promise and indication of doing so. The growth too, is not abnormally rapid, considering the extraordinary inducements to make large increases in the capacity of present mills and to build new ones.

Canada is certainly very abundantly favored with immense quantities of pulp wood and available water power. With the exception of sulphur and in some locations, coal, the paper maker of Canada is unusually close to his raw materials. New railroads, completed and projected, make the markets easy of access. With pulp and power the principal factors in the production of newsprint it is only logical to expect the future development of this line of manufacture to occur largely in the Dominion.

The growth of the pulp and paper industry in Canada is not likely to stop with a greater capacity for newsprint but to extend to an increase in the production of other grades of paper and cellulose products.

But when we talk of making more paper in Canada we must remember that an industry cannot be permanent that is not assured of a continual supply of raw material. An abundant supply may be mistaken for a perpetual source of material. Mineral wealth can be conserved to a certain extent, but forest resources can be made perpetual. The necessity of providing for future forests is emphasized by the statement of Mr. Wilson of Grand Mere that at the present rate of use and waste, Canada's forests will be gone in 65 years. A farmer does not expect a future generation to live on the crop he harvests in his lifetime, but keeps the land in a condition to bear innumerable crops. He does not let his fields grow up with weeds and brush. Why should the lumberman let useless scrub growth replace our fine evergreen forests? Why should we let fires bake the ground so that it will not grow anything?

PAPER MAKING ON ST. JAMES STREET.

Elsewhere in this issue there is a notice regarding the financing of the Mattagami Pulp & Paper Company by a local financial house. The Pulp and Paper Magazine believes that the Mattagami Pulp and Paper Company has splendid timber limits, excellent power facilities, and is being run by efficient, capable paper men. What it desires to do is to warn paper men and the public of the danger and injury which will come to the whole pulp and paper industry if the chief interest in paper making is to be centered in the stock market end.

Paper must be made at the mills in Northern Ontairo and Quebec, and not in financial houses on St. James Street. A few years ago when the pulp and paper industry in this country commenced to show substantial profits, promoters and get-rich quick artists did irreparable injury to the industry by promoting paper companies in all sorts of out-of-the-way places. Some of these have gone into liquidation simply because they were stock market flotations and not legitimate paper propositions. This particular bit of financing may be all right but this financial house is taking altogether too keen an interest in the stock market end of the Pulp and Paper industry.

Undoubtedly, there is room in Canada for more pulp and paper manufacturing concerns. The Pulp and Paper Magazine is showing its faith in the future of the industry by appearing as a weekly instead of a fortnightly publication as heretofore. It will lend its support, and stands ready to further the best interests of all those connected with this very important industry. What it does object to is the mergerer and stock market promoter running riot, and placing the chief emphasis upon the stock market end of the enterprise. Proper financing is necessary, but stock watering, stock jobbing, mergering, and the professional promoter are are unnecessary and hurtful, and will be opposed to the very end by the Pulp and Paper Magazine.

PAPER STOCKS NOT "WAR BABIES."

The statement is frequently made that paper stocks belong to the "war baby" class, but this claim is very wide of the mark. Paper stocks must not be classed in the same category as steel stocks, which derive their importance primarily from war orders. To a certain extent it is true that war has given an impetus to the paper companies in Canada, but the real prosperity of the industry is due primarily to Canada's unique advantages as a paper making centre.

Canada owns 40% of the world's supply of pulpwood, but at the present time only produce 5% of the world's paper. The United States on the other hand owns but 18% of the world's pulpwood supply, yet produces 42% of the world's paper production. When Canada comes into her own as a paper making centre and produces 40% of the world's supply instead of 5% as at present, people who now scoff at the paper industry will have a chance to revise their opinions.

Some of the most competent paper men in the United States declare that in ten years every paper mill south of the Line will be dismantled and moved to Canada. American paper manufacturers are finding more and more that they cannot compete with Canadian paper makers. The nearness and abundance of the pulpwood supply in Canada, the greater water powers and other important factors entering into the manufacture of news means that a ton of paper can be manufactured in Canada from $5.00 to $10.00 cheaper than in the neighbouring republic. What this means in an economic sense does not require a profound student of political economy to fathom. Canadian paper manufacturers can undersell their American competitors not only in the world's markets, but under their very noses.

Even if peace were to come to-morrow the present prices prevailing for paper would be maintained for a year or two at least. In the first place the loss of tonnage sustained by the Scandinavian countries has so curtailed those countries' carrying powers that they could not ship sufficient fibre to the United States or England to seriously affect the markets. At the end of a year or two the Canadian manufacturers should have such a hold upon the world's markets that they need not fear competition from any quarter.

WILL THEY TAKE THEIR MEDICINE?

Some publishers in the United States were really suffering and some others thought they were. A few of the former have died—of starvation, it is said—because they could not obtain newsprint at a reasonable price. The doctor was called in, in the form of a government commission, and this prescription was written:

"The publishers who are assured of practically enough paper for ordinary demands shall curb their appetites a little, so that the smaller consumers of newsprint may receive sufficient to keep them alive till the famine is over."

Will the protected publisher take this medicine or discredit the diagnosis of the commission?

It will take careful nursing of the supplies of paper by maker, distributor and consumer if the publishers are to be carried through the present crisis.

CALL TO A FOREST CONFERENCE.

Charles Lathrop Pack, President of the American Forestry Association, has issued the following statement:

"Expert investigation establishes the fact that the white pine and other five-leaved pines of the United States and Canada are threatened with extinction by the white pine blister canker, a fungus disease imported from Europe. Already the disease has been found in all the New England States, most of the eastern and northern states in the white pine belt and in Ontario and Quebec provinces. It is spreading and unless checked will wipe out our white pines, valued at $260,000,000, as our chestnuts are being wiped out by the chestnut blight.

"The area east of the Hudson River is generally infected. Whether the disease can be controlled in that area or not depends upon whether currant and gooseberry bushes on which the disease propagates and spreads to the pines can be eradicated.

"Between the Mississippi and the Hudson Rivers we have an area infected with scattering infections, that throughout which the disease may be controlled and perhaps suppressed by the enforcement of rigid quarantine laws and every possible and proper precaution. West of the Mississippi is an area which as far as is known is not yet infected but which may be infected unless state quarantine laws keep out of it white pine seedlings and currant and gooseberry stock which may be diseased.

"In view of the imminent danger of the destruction of the white pines, the American Forestry Association will call upon the governors of all states in the white pine belt and the government of Canada to send delegations to Washington, D.C., to attend an international forest conference to discuss measures and formulate plans for fighting the disease, suppressing it, if possible, and saving the white pines of the present and of the future. This conference will take place on Thursday and Friday, January 18th and 19th, on the occasion of the Thirty-seventh Annual Meeting of the American Forestry Association."

GENERAL MANAGER POUNSFORD.

A. G. Pounsford, Safety Engineer, of the Ontario Pulp and Paper Makers' Associations, has been appointed General Manager of the new Port Arthur Pulp and Paper Co., which is applying for a charter, and enters upon his new duties at once. His successor will be appointed at Ottawa in a day or two, and Mr. Pounsford has opened an office at 206 Bell Telephone Building, Toronto.

FOURTH ANNUAL MEETING CANADIAN PULP AND PAPER ASSOCIATION.

Arrangements for the Annual Meeting of the Canadian Pulp and Paper Association, which will be held in the Fitz-Carlton, Montreal, on Wednesday, January 31st, are going rapidly forward.

In the absence of Captain J. H. A. Acer, President of the Association, who has been extremely active in the affairs of the 244th Regiment, the Vice-President, Mr. C. Howard Smith, with a sub-committee of the Executive, has been working up arrangements for the function.

From the letters which have been received from all over the country, it is evident that this fourth Annual Meeting of the Association, will be outstandingly the best in the history of the organization. The replies so far received guarantee the presence of upwards of one hundred, and it would not surprise the Executive to see the number doubled.

In addition to the business meetings which will afford the basis for intimate discussion of the affairs of the industry during the past year and for the coming year, the luncheon and dinner functions promise to be very brilliant.

The note of National Service will be sounded strongly throughout the meeting. An Honor Roll of those members of the Industry who are serving at the front is being prepared and a copy in full colors will be presented to the guests and to every man whose name appears.

After luncheon, Sir George Foster, Minister of Trade and Commerce, will discuss from the standpoint of the Pulp and Paper Industry "Canada's Export Trade after the War."

The Banquet in the evening is to be honored with the presence of Sir Robert Laird Borden, Prime Minister of the Dominion, and other Cabinet Ministers. Sir Robert will respond to the toast "Our Country."

The toast "The Boys at the Front" will provide one of the special features of the whole meeting, as the members of the industry will be met together—with the idea prominently in view of doing honor to those who have gone Overseas.

The toast to "Our Allies" will be proposed by Mr. Biermans, of the Belgo-Canadian Pulp and Paper Co., and it is hoped that the Consuls in Montreal of the allied countries will be present and respond.

"Our Guests" will be a toast in honor of the representatives of the American Paper & Pulp Association, who will be present. Messrs. A. B. Daniels, Frank L. Moore, G. F. Steele and A. D. Naylor, are among those who are expected to come.

Other details of the gathering will be available to the members of the Association in the course of a few days.

DR. DRINKER HEADS PENNSYLVANIA FORESTERS.

At the annual meeting of the Pennsylvania Forestry Association, recently held in Philadelphia, Pa., Dr. Henry S. Drinker, president of Lehigh University, was elected president to succeed John T. Rothrock.

The meeting was attended by delegates from the different counties, and reports showed considerable activity during the last year, and many good things accomplished. Mr. Rothrock presided.

ANNUAL MEETING OF THE TECHNICAL SECTION.

The annual meeting of the Technical Section of the Canadian Pulp and Paper Association, will be held in the Ritz-Carlton, Montreal, on Tuesday and Wednesday, January 30th and 31st.

While full details of the programme have not yet been definitely decided upon, it is expected that the papers and discussion will take the latter part of Tuesday morning, all Tuesday afternoon, and Wednesday morning. As on former occasions, the members of the Section will have luncheon and dinner together in the hotel.

The papers so far announced are: Mr. Herman Guettler, on "The American Barking Drum." Dr. Bjarne Johnsen, of the Forests Products Laboratories of Canada, on "The Chemistry of Wood." One or two other papers will be announced shortly. There will be a general discussion on the "Handling of Wood in Pulp Mills."

Mr. C. B. Thorne has been very active in connection with the collection of paper samples and the exhibit promises to be of exceptional interest.

The Canadian Pulp and Paper Association's Annual Meeting will be held on Wednesday, January 31st, and members of the Technical Section will be welcomed at the luncheon and dinner to be held on that day.

WAR OFFICE TO USE CANADIAN WOODS.

Canadian lumber exporters will be glad to learn the decision of the War Office to make larger use of Canadian woods in the future manufacture of articles required for war purposes. This agreement is the outcome of representations made by Sir George Perley, who put the lumbermen's case strongly before the authorities, more especially as regards red and white pine. Specimens, prices and samples of pine were submitted to War Office with the result that an inspector of equipment and supplies has furnished for the merchants' guidance lists of sixty-eight articles in which the use of Canadian woods will be provided for in the specifications governing their manufacture.

PUBLISHERS BANDING TOGETHER TO BUY NEWS-PRINT.

Another instance of the tendency of publishers to band together in purchasing news print was noticed in the recent organization of the Kentucky newspaper men. These associations, as has been pointed out in a former article, are being formed in different parts of the country and are deemed vital to the existence of some of the smaller concerns. They hope that by placing a requisition with one mill for the needs of all of their constituents they will be able ot receive some concession or, at least, to establish some favorable basis which will make the lot of the small publisher much more pleasant than it is at present.

In the case of the Kentucky organization, it was estimated that the annual consumption of news print by all of its members was about 2,000 tons. The contracts held by most of these publishers are to expire within the very near future—perhaps within a few months, while it is said that one of their number was protected for 1917. Despite this serious situation, they hope, through the idea banding together to be able to overcome many of the difficulties which now seem insurmountable.

R. W. JOLLY.

MILL EFFICIENCY

By ROBERT B. WOLF

Manager of Production, Burgess Sulphite Company, Berlin, N. H.

This article is the address of Mr. Wolf at the meeting of the Technical Section of the Canadian Pulp and Paper Association, held in Montreal, November 24th and 25th, 1916. The interesting discussion that followed the reading of the paper is also included. Complimentary comments on the practical common sense of Mr. Wolf's philosophy have come from all who heard the address.

CHAIRMAN: Dr. J. S. Bates:

THE CHAIRMAN: Will the meeting please come to order.

Gentlemen, we are assembled here this afternoon to hear Mr. Wolf's talk on "Mill Efficiency".



R. B. WOLF.

Some of you have had the pleasure of hearing Mr. Wolf before, and you know that he is an authority along this line, and has something particularly interesting to tell us. I think he needs no further introduction on my part.

You are aware that Mr. Wolf is connected with the Burgess Sulphite Fibre Company, of Berlin, New Hampshire.

I have much pleasure in asking Mr. Wolf to address you. (Applause).

MR. ROBERT B. WOLF: Gentlemen, it gives me a good deal of pleasure to be here with you, and I hope the next time I attend one of your meetings, if your Meetings Committee or Board of Directors pass favorably on my application, that I will be a member instead of just a visitor. (Applause).

I want to say, on behalf of the American Association, that we want to co-operate to the fullest extent with the Canadian Association. I believe that if we are going to get the best results in the industry as a whole, it is not because on one side of the line or the other that the best results are obtained, but because we are willing to co-operate with each other.

I hope as many of you as possible will come to the meeting of the American Technical Association, in New York, in February, and I am going to urge our men to come up and visit you when you have your very interesting meetings. (Applause).

The question of mill efficiency is something of very great interest to our organization. Ten years ago, as you may know, we had the reputation of making the poorest quality of pulp made anywhere on the continent, and I guess we deserved the reputation. Mr. Burgess decided that in order to change the quality of the pulp it was necessary to apply science in place of rule of thumb, and in looking about for someone who combined a technical training with a practical knowledge of the business he selected me. He told me afterwards that I was the only man he could find who had these qualifications, so that you see my selection was more or less of an accident.

After graduating from College in 1896, I spent a number of years in the mills until I had operated every kind of machine in the various branches of pulp and paper making. While this practical knowledge is a great asset, I believe the most valuable thing I learned was the workman's point of view, by direct intimate contact with him; so that our method of organization efficiency takes this human factor into account to the fullest extent.

Our production ten years ago was only 225 tons a day and the quality was such that our customers were very careful to conceal the fact that they used Burgess pulp. We brought this up, without adding a single digester or a single wet machine, to 400 tons of pulp, which is the recognized standard of quality in the country and now our customers, when they want to emphasize the excellence of their paper add the fact that they are using Burgess pulp. By the addition of one more digester recently we are now manufacturing four hundred and fifty tons a day.

I mention this, not boastfully, but merely to let you know what has been actually accomplished. It has not been done by any one individual; and I maintain that the only way a result of this kind can be brought about is by getting the fullest co-operation from all workmen in the organization and by giving the greatest possible amount of freedom for the exercise of the creative imagination of our employees, so as to obtain the most rapid changes in the physical equipment of the plant.

It is necessary to build up an organization unity, but in order to do this it is necessary to record the

various elements that enter into the manufacturing operations, in such a way that the results can be analyzed. These analyses can then be used as a basis for changing plant conditions, so that the laws that are discovered can be specialized through the creation of conditions for their analyses can then be used as a basis for changing plant conditions, so that the laws that are discovered can be specialized through the creation of conditions for their expansion. This, as you can see, is a very definite, vital, human problem, and requires a constant development of the intellect of the men in the organization. In other words, it is an educational process and the function of the management becomes primarily educational in nature. **It is more a question of leadership than of compelling obedience.** In other words, we have succeeded in getting every man in the organization (I say this in its broadest sense) trying to produce the largest quantity of the best quality of pulp, at the lowest cost. It is not because the department heads, superintendent, or myself are making superhuman efforts to produce the results; but because we have succeeded in getting everyone to co-operate with us. There is a desire to get this result on the part of the workmen throughout the entire plant.

To be more specific, we will take the digester building as an example. You are undoubtedly familiar with the old methods of cooking, where a man judged the cooking operations by the "feel" of the digester and the relief valve, and based his judgment as to when the digester should be blown upon the color of the liquor, and the smell. You can easily imagine that with nine different men cooking our digesters we got nine different kinds of pulp. It was necessary for us to hit upon some standard method of cooking and then get everybody to follow this method. We began by putting on the bottom of the cooking records a graphical chart, upon which the cook plotted the gauge pressure, the steam pressure (which corresponds to the temperature in the digester) and the gas pressure, which was obtained by subtracting the steam pressure from the gauge pressure. By watching these curves, our cook could tell whether the relief was as it should be, by noting the drop in his gas pressure. If it dropped too rapidly he would shut off the relief valve; if not rapidly enough he would open it up wider. By gradually determining the ideal standard cooking chart, the men began to take a keen interest in their work, as they were in reality following an ideal which they recognized to be the true ideal in order to get the best quality of pulp.

Of course the men at first, not being familiar with scientific methods, were opposed to the plan. It is usually the fact that a higher good appears first as an evil, until it is thoroughly understood; but to illustrate the change of heart that takes place when the men are given intelligent assistance, I will tell you a story: I was talking one day, after we had operated under this plan for about two years, with the cook who made the greatest opposition to our plan in the beginning. He had been the surest of all that it wouldn't work, and had rebelled the strongest against being tied down to cooking (as he expressed it) with a lead pencil. After working under our plan for two years, he was much interested in it and became very enthusiastic, and still is. This man was afterwards promoted to the position of digester house foreman and one evening I had occasion to call him into the office to look over the charts that record the general progress of the work in the whole digester building. These charts we had not been running long enough at that time so that we felt safe in giving them to the men; but a question of changing our cooking methods was something that we were obliged to decide at once, in order to increase the strength of our fibre, and the reason for making the change was so clearly indicated on these charts that I thought it best to begin giving them to the foreman. He was very much surprised, and expressed his surprise a number of times, that the charts showed so clearly the effect of the method of cooking and he seemed so pleased with what he saw that I reached into my desk and took out a bunch of cooking records that I made when I first came to the plant. These were made by simply copying down the temperatures and pressures during the cooking process of all cooks that were being handled while I remained in the room for 36 consecutive hours. I copied these down personally and simply plotted the gauge, steam and gas pressure curves from them. When he saw these curves, he said "It does not seem possible that we ever cooked like that", I assured him that we had and showed him where he had actually handled some of the cooks himself, as his name was attached to the records. After looking at them for a few minutes, he said in a rather amused way: "It makes a fellow think of looking at a picture of himself when he was drunk after he had sobered up, don't it?"

This illustrates, perhaps better than anything else I can say to you, the change that takes place in the mind of the men after having commenced working under the helpful scientific methods.

Through studying the effect of the maximum temperature upon the quality of the fibre, especially the strength, and studying also the effect of the acid strength upon the maximum temperature, we gradually began to accumulate a lot of information which enabled us to co-ordinate and bring together certain parts of the plant which had been running more or less independently. There were hundreds of variables, we found, entering into the different operations and we soon began to accumulate an enormous amount of data which, because of its volume, tended to confuse our minds as to what the real facts were. In other words, by carrying the analytical process to its extreme point, we found a definite necessity for starting a synthetic process which tended to unify and bring together the various factors, so that they would enable us to see the basic underlying principles involved in our manufacturing operations. To make a long story short, we began to record our operations graphically, adding one thing after another until we now have a graphical chart room which contains over two thousand charts, all having to do with the manufacture of bleached sulphite pulp. We have many other charts for our various by-products, in addition to these, but these are handled more or less as separate organizations.

The net result of all this was a gain of over seventeen per cent. in the yield from a cord of wood. In order to do this, however, we were obliged to change the whole character of our acid making process, our process of making chips, and also our process of handling the pulp after it is cooked. This in addition to the careful regulating and recording of the cooking and bleaching operations.

Of course, it goes without saying that we were obliged to put into control of our manufacturing processes technically trained men, and this was done by gradually working these men into the plan through our

chemical and engineering departments. By putting men of this calibre in as department heads, after they were thoroughly familiar with the practical part of the business, and putting the responsibility for the operation of the department up to them, we were able to maintain, in spite of the rapid growth of the organization, the human relationship and contact with our men, which is so essential to the welfare of the workman.

As our organization methods progressed, we were able to give these men greater freedom to change the physical conditions in the plant. In the wood room, for instance, we made such changes in our chipping and screening apparatus that our sawdust has been reduced to one tenth of what it was originally, and the chips are now all of absolutely uniform length. It was a gradual evolution and required steady persistent effort on the part of an intelligent department head, who was being given every assistance to develop the machinery necessary to produce the results.

It is necessary to emphasize here the fact that the method of recording the operations in the department was such that he got the greatest possible co-operation from the men who were actually doing the work. This is not possible for a department head, no matter how intelligent he is, unless he gets this co-operation from his men, and this co-operation cannot be obtained unless full, free information is given to the workman so that he takes an interest in his work.

We make it a policy to record the operations of the individual workmen in such a way that they have some means for recording their progress and thereby able to realize just what their efforts are producing. This brings out what we call the creative faculty of the man to the fullest extent; he is able to really enjoy his work by being given opportunity for self expression. In all of our operations we work to produce this result, realizing that we are primarily developing human beings and that **plant efficiency is not an end in itself, but that the real aim is the development of men.** I could tell you some very interesting things that have happened to men in our employ who have changed their habits of living, decidedly for the better, simply because they were being given opportunity to find joy in their work, and have changed from men doing **negative, destructive** work to men doing **positive, constructive** work. It is a fact that is beginning to be recognized today by men who are thinking deeply along these lines, that a man is internally purified by doing work which is fundamentally creative in nature. The desire for self expression is one of the most fundamental instincts in human nature and unless it is satisfied, it is bound to manifest itself in all sorts of abnormal ways which today are working such havoc in society.

I would like to call your attention here to the fact that we do not use any of the so-called efficiency methods of payment, such as task or bonus and piece work. Our men are all paid by the hour, except those who are on a salary basis. In other words, we have enabled our men to forget that the dollar is the most important thing in life and by paying them liberally (much more than in any other mill) they are able to devote their energy entirely to the task and are actually doing their work well for its own sake. This brings back, as you can readily see, somewhat, the old artisan idea, where the workman took pride in the execution of his work because he had means for realizing himself in it; only in our case the man does not create the complete finished article, but does create and form a more or less definite record, and realizes its relationship to the finished product in which he takes a personal interest and pride.

The progress that we made in our organization was so rapid that I felt the necessity of becoming acquainted with the fundamental laws with which we were working. The one outstanding fact was that it was a proces sof rapid evolution and I therefore began studying Darwin's "Origin of the Species", in order to get some line on the evolutionary movement in nature. After Darwin I took up Bergson's "Creative Evolution"; then Carpenter's "Art of Creation"; following this with the works of Troward, Henry James, and others; and, at the suggestion of my friend, Mr. Ellwood Wilson, who is here with us today I read the "Ethics of Aristotle." I found that the old philosophers like Aristotle, Pythagoras and Plato had some very fundamental truths and that modern science was confirming a great many of their theories of life. I also found it necessary to take up the study of embryology, which is the scientist's attempt to record the vital processes which take place in the development of man; and finally this lead to the study of man's nervous system. The result of all this work brought me to a realization that the principle of Individuality was the thing I was after. I found that in our organization we had built up, through our system of control, a plant nervous system and that we had, without realizing it, created in our organization controlling mechanism.

1st.—A plant memory, which is, as you can readily understand, represented by our graphical department room;

2nd.—A central nervous system, which corresponds to the functioning of the spinal cord, which is the seat of the intelligent sub-conscious control, sometimes called reflex action.

This was represented most distinctly by the system of records that were constantly going out to the men in all parts of the plant, giving them information as to what they were accomplishing. In this way, groups and individuals in groups, wherever it was possible to arrange it, were being informed of their work; and because of having this information they were striving to keep the organization functioning as it should, without constant direction from the conscious mind of the organization, as represented by the superintendents and department heads. In man, for instance, such functions as walking and breathing, after once being set in motion by the will, acting through the conscious mind, are kept in motion by the nerves in the spinal cord, without conscious effort on the part of the individual. It is also the seat of the so-called muscular action, which causes the body to act involuntarily for its own protection when necessary.

3rd.—We had also, in our efforts to relieve our men of the drudgery of memorizing routine work, created, in a tickler system, something which corresponds very definitely to what is known as the sympathetic nervous system in man. In our physical bodies this is the seat of those almost entirely automatic functions over which the conscious mind has only very indirect control. This consists principally of the efferent (or outgoing) nerve cells, whose bodies are collected into ganglia, or groups outside of the spinal cord, principally in the head and in the body cavities. For instance, the nerves which stimulate the growth of the hair, the finger nails, and even the growth of the body itself; the vaso-constrictor and vaso-dilator nerves controlling the contraction and expansion of the blood

vessels; the nerves controlling the beating of the heart and thousands of other functions are all a part of the sympathetic nervous system. This is so designed that it constantly reminds and, in a sense, releases the forces required to keep the routine work necessary to our preservation in motion. In our plant system of control we accomplish this through the use of a tickler system, as it is used in the Taylor system of Scientific Management. This consists simply of a cabinet with a drawer for each month in the year, containing substantially built folders for each day of the month. In these drawers are placed the various memoranda, to be taken out and distributed on the proper dates, reminding those to whom they are addressed of certain routine work to be done. Of course, you can easily understand how a system of this kind accomplishes two distinct functions:

1st. By relieving individuals of the necessity for remembering all of the various routine jobs, and

2nd. Preventing the organization itself from departing from methods determined upon as best. Once a routine tickler is started, it cannot be changed without permission from those in charge of the operations of the plant. It is changed, however, freely and easily, whenever increased knowledge of plant conditions indicate that it is best to make the change.

You can readily see from this description of our mechanism of control how our plant became a definite organized individual and is actually carrying on its function of converting wood into pulp as a unit. We have a definite plant memory and also means for making subconscious all of our consciously acquired talents, which enable us to produce a large output, of a constantly improving quality of fibre, with greater economy.

No individual can make progress unless he has means for constantly acquiring new talents and making them subconscious. This is what our progress in the world largely consists of and it is useless to expect an industrial organization to make progress unless it is provided with a definite mechanism of control, which we have a right to pattern after the nervous system of the human body.

We, as individuals, can never create anything that we have not first become ourselves; but what we are, that we can certainly create and externalize in physical matter.

It is all, as I said before, a creative process, and whether we are creating the directing mechanism of the organization, as is done by the executive and his associates, or whether we are actually creating, or helping to create, as the workman does, articles of manufacture, the process is the same.

The desire to express life is man's most fundamental, basic instinct, and this, of course, implies the fuller expression of life, which can be nothing else but a creative process; and it is because we reckon with these forces in our organization and constantly provide means for their expression that we obtain such splendid results.

The more knowledge a man has of the laws that he is working with, the more he is able to create conditions for the expansion of these laws. As I have said before, man does not create matter nor force, but he does create conditions for the specializing of the natural process and, as this is the basic instinct in all mankind, the progress that is made in any organization depends upon the amount of opportunity given to the human units, of which it is composed, to do creative work.

Of course, the great problem of management is how this can be done and at the same time blend all of the various individuals into one great harmonious whole. If we make sure that at the same time the self conscious faculty is developed, a cosmic or universal consciousness is also developed, thereby enabling each man to realize his place in the organization, there is little danger of interferences which will cause trouble. In other words, that great power which we may call "The Will of Man," operating in the "natural or generic" field, cannot destroy itself if it becomes conscious of the great unity of the whole and its particular place in the universal scheme of things. **It is necessary to teach men their place in the parent organization, as well as teach them how they can become more intensely creative in their own particular sphere of operation.**

I will now show you, by means of lantern slides, the practical application of these principles to our industry. I will show you, first, the illustrations which have to do with our tickler system, or subconscious mind; next, illustrations of that part which corresponds to the intelligently subconscious control, as exemplified by the spinal cord and central nervous system; and, finally, an illustration of our plant memory, as illustrated by the graphical chart room.

(Here followed the lantern slides which were explained in detail).

* * *

With these slides Mr. Wolf illustrated clearly that the philosophy of management outlined was practical. He showed how by the use of the Tickler System a great mass of routine work was handled and how, by having these reminders automatically come to the attention of the men in the plant, a large amount of creative energy was liberated for improving plant conditions. The system is clearly safeguarded so that no change can be made without the conscious mind of the organization directing the change.

His illustrations of the various records which are sent out to the men showed clearly why he was able to get their co-operation. From these records the men can tell just how well their work is being performed, and see the effect of their efforts upon their standing. His statement that this function of the plant organization system prevented things from going wrong was certainly substantiated by these records and it could be easily seen how this method would produce a desire on the part of the men in the organization to do their best at all times.

Further illustrations of the Graphical Department records, or plant memory, showed how everything which in any way affected the progress of the organization was recorded; the records being made in such a way that things affecting each other were placed close together, so that it was a very easy matter to study the forces at work in the organization. This system gives not only a record of the efficiency of the men, but, what is perhaps **more** important, it gives a record of the efficiency of the management, in such a way that it can more intelligently decide upon the best policy to pursue.

Finally, these illustrations made it plain that there was a very distinct and definite **plant individuality** and that the real reason why great progress has been made in the art of manufacturing bleached sulphite

pulp was that the organization, **as a whole**, was the instrument used by the creative process for converting wood into pulp. In other words, the plant, considered as a unit, had a consciousness which enabled it to create the special conditions needed for making steady progress in the quality, quantity and economy of operation and the great vitality of the plant came from the fact that this organization unity was used for studying how it could liberate the creative powers of the individual men in the organization, by making their work so interesting that they took real joy in it.

This not only applies to the individual workmen, but also to the Department heads, who are given a distinct record of their work through the departmental cost sheets. By the use of these cost sheets the department heads are being charged with all of the maintenance materials used in their departments, so that they are, as a matter of fact, managers of the departments; being held responsible not only for the quantity and quality of the output, but also for economy of operation. The almost unbelievable saving in maintenance materials since these departmental cost sheets were put into use demonstrated that Mr. Wolf's philosophy of management is not a vague, indefinite theory, but something that is thoroughly practical and actually produces results.

The development of the larger organization consciousness is materially aided by the weekly meetings of the department heads, with the superintendents and manager; but it is evident that the organization principles, without the aid of these meetings, enable each man to become conscious of the effect of his department operation upon all of the other departments.

DISCUSSION OF MR. WOLF'S PAPER.

At the close of the address, the chairman asked for a discussion of Mr. Wolf's paper. This discussion brought out and emphasized several important points, which are summarized below.

To some of the members the greatest interest was in the entirely human aspects of the proposition. It calls out the desire of the individual to create, to co-operate and to give, three tendencies which make for greater happiness and success for both the individual and the group.

It was further shown that the cost of administering such a system is insignificant in comparison to the savings effected. But such a system cannot by planted full grown in a plant whose organization had not already begun to think along these lines. It is a process of evolution and not one of revolution. The first thing is to build up the true scientific spirit on the part of the management. The men will respond instantly, as soon as they are given a chance to know what they are accomplishing.

There is no task and bonus system or piece work. The men are paid enough so that they may forget the selfish instinct and to really do the work for its own sake. It really gets down to a practical application of christianity.

A member spoke somewhat as follows:

"We have seen here the results of giving a man an opportunity to use his brain. Is that not really what scientific management means? Depend upon your men —give them the opportunity—depend on them, and they will work out things themselves. We will get something out of them. Don't treat them as machines. If you do, you are no managers. If you cannot depend on the man's work you should not be a manager."

In reply to a question as to the relation of safety work and efficiency, Mr. Wolf replied:

"We have a safety department controlled by the men themselves. The mill is divided up into departments and in each department there is a committee of three men, one on each shift. These men make regular inspections and report their findings direct to the Engineering Department. The Engineering Department then sees that their recommendations are immediately carried out, provided they have been approved by the manager or superintendent. I want to point out, that the effect of the work done by this committee has been very far reaching. We have had practically no major accidents in the mill for over two years and almost none due to unguarded machinery or dangerous places. Through their safety committee the men are brought into closer contact with the management."

There is one more thing I would like to say, namely, that the leaders of industry must begin to realize that the main reason for its existence is for the purpose of developing men. In other words our industrial organizations should become the fields for the evolution of mankind. We are too apt to focus our attention upon how much money we can make, forgetting that if we emphasize the development of men the material results are bound to follow; for, in the last analysis, everything in civilization is created only after it is first conceived in the mind of a human being. High grade are always created by high class workmen.

MAY BUY CHIPS IN WISCONSIN.

Owing to the growing scarcity in Wisconsin of wood suitable for making paper pulp, the Forest Products Laboratory has just completed a study into the methods of barking, chipping, screening, and baling of chips. Laboratory tests show that certain western woods are admirably adapted for manufacture into pulp, and negotiations are now under way between paper companies in Wisconsin and western railroads with a view of securing freight rates on trainload shipments of chips to Wisconsin. It is estimated that some of these western woods can be cut into chips, which, when dried and baled, can be delivered to the mills in Wisconsin at a very small advance over the cost of chips made from local timbers. Since there is a market for more than 300,000 cords of wood annually in Wisconsin, an attempt to utilize western species appears worthy of consideration in order to hold the supply of wood for our American paper mills on American soil.

SAFETY FIRST FOR WOMEN WORKERS.

The women who work on and around the machines of the Thames Paper Co., England, wear a very sensible style of clothing that should be a great protection from accidents. Instead of skirts they wear bloomers. They wear elbow length sleeves and caps. A picture of this squad of women paper makers appears in the **Paper Maker.** They take the places of many of the men who have gone to the front.

ANOTHER RAW MATERIAL FOR PAPER.

Specimens of tambookie grass and paper successfully made from it can now be inspected in the South African Court of the Imperial Institute.

Pulp and Paper Magazine
of Canada

Published by — The — Industrial & Educational Press, Limited. STEPHENSON, M.S., Editor.

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Cost Accounting a Necessity

Edward N. Hurley Outlines Some Reforms for Business—Prices are Based Arbitrarily and on a Wrong Premise.

In his book, "The Awakening of Business," Edward N. Hurley, chairman of the Federal Trade Commission, suggests the establishment of a government clearing house to aid in furnishing business data, and urges a better knowledge of costs by merchants and manufacturers. Among other comments upon American business needs, he says:

"At the present time it is estimated that 90 per cent of the manufacturers of the United States are pricing their goods arbitrarily; either upon a basis which will get rid of the goods as soon as they have been manufactured, or upon the basis of what their competitors are charging.

"Not only manufacturers, but merchants, should have accurate cost systems. Forces are at work which will eliminate those who persist in inefficient merchandising methods. Competition in this field, as in manufacturing, is reducing the margin of profit and demanding as a price of survival the strictest economy. A merchant also seriously limits the growth of his business if he does not have an adequate cost accounting system. He is unable, when seeking credit, to produce a financial statement which inspires confidence and upon which the banker can extend the full credit to which he is entitled.

"We cannot develop efficient methods of manufacturing, which are needed so badly, and improve the conditions in our respective industries if, when we meet in trade associations, our thoughts are not on improving our manufacturing methods and ascertaining our true costs, but on the question of fixing prices.

"Private initiative must continue to be the great motive force of business. Business men must aid tehmselves. They should drop forever unsound business methods and all adopt methods which are thorough—which will enable them at any time to know the exact condition of their business. The element of guess, wherever it exists, must go. Cost accounting must be accurate and detailed enough to permit an intelligent pricing of goods. Financial statement must be honest. System must prevail throughout our manufacturing and merchandising establishments. Waste of materials and labor must stop in every stage of production and marketing. The need of better methods is evidenced by the eagerness with which thousands of progressive business men are seeking light on this subject.

"Having put their own houses in order, business men must get together. Shying bricks at each other across the street does not belong to the new era of American business.

"Government's first duty is to make business fair. In the great majority of business enterprises, if competition is fair, competition will take care of the interests of the consumer and business man alike. Government's second duty is to give business the information that will enable it to act intelligently. Competition cannot be fair unless it is intelligent."—United States Paper Maker.

THE AMERICAN DYE CENSUS.

The much-debated dyestuffs census prepared by Dr. Thomas H. Norton of the United States Bureau of Commerce has now been published, but in a greatly modified form. It will be remembered that the original census, containing a considerable amount of information of value to American dye producers, was withheld on the eve of publication, as the result of protests made by the American agents of German dye firms. As originally compiled, the census report gave statistical data showing the imports into America of most of the important dyestuffs, together with the names of the makers. Much of this information, however, has now been deleted, the data being furnished for groups of dyes only, and though still of some use to American manufacturers, it is much less so than before. Thus so far have the United States Government put the interests of Germany and German concerns before the national interests, and those of American dye manufacturers. The latter have not accepted the reverse altogether in a spirit of humility, and express their intention of demonstrating to ongress the necessity for issuing the census report in its original form. With what measure of success their efforts will be attended, remains to be seen.

* * *

Surely the way of a growing industry is hard, especially when it is deprived of light.

THE USE OF STRAW.

Having in mind the prevention of waste and the economic utilization of raw materials produced in Canada, Lord Shaughnessy has authorized Arthur D. Little, Limited, the Canadian branch of a well known Boston organization of analytical chemists, to undertake a comprehensive research study on cereal straws in Canada to include the straw of wheat, oats, barley and rye, and having for its purpose the industrial utilization of the excess straw now commonly burned in the West.

This problem has been divided into some twenty divisions, and these divisions are being assigned under the direction of Mr. Little, to various individuals and laboratories where best results can be obtained in the shortest time. Some of these divisions are the botany of cereal straws, the chemistry of straws, the fuel possibilities, production of ethyl alcohol from straw, the fabrication of straw lumber, the production of various pulp and paper products from straw, a study of the destructive distillation of straw, processes for increasing the feeding value of straw, the economics of the straw question, the present industrial uses of straw, etc.

It is greatly desired to have the work sufficiently completed by next autumn to enable an impressive straw exhibit to be made at the National Exhibition in Toronto, after which there is a possibility of entraining the exhibit for the purpose of showing through Canada what can be done with this large amount of raw material. Mr. Little has the co-operation of various Government departments in this work, of McGill and other universities, commercial laboratories, and individuals.

The Pulp and Paper Industry in Canada

By O. F. BRYANT.

(Written Specially for the Pulp and Paper Magazine)

Although the art of paper making is very old the manufacture of paper from wood is a comparatively recent development. The use of wood pulp as a paper making material was introduced into Canada after 1860 and it was not until 1887-1890 that any very rapid developments took place. Since that time the wood pulp industry has grown to such proportions that today Canada is the second largest wood pulp producing country of the world.

Paper is produced from a variety of materials among which may be mentioned—cotton and linen rags, jute, old rope, wood, straw, esparto and several other grasses. Prior to the middle of the nineteenth century the principal raw materials were cotton and linen rags and the bulk of the paper produced was made up of these materials. However, as wood pulp began to grow in favor, due to its cheapness and the demand for cheaper papers, it became of greater and greater importance until at the present time by far the greater bulk of paper produced is made from wod pulp. Today only the higher grades of paper such as writing, ledgers and high grade bonds are made of rags while the cheaper but none the less important papers such as cheap writing, bonds, wrappings, books and printings are made either partially or wholly from wood pulp.

The basis of all paper making materials is cellulose. This important substance constitutes the main structure of the plants from which pulp is produced. Cotton is probably the best example of practically pure cellulose and is typical of the cellulose as separated from other paper making materials. In wood the cellulose occurs in the form of fibres; these fibres are hollow tubes most of which extend longitudinally through the tree, although a small proportion run transversely. These fibres are very short, those of the spruce being about one eighth of an inch in length while those of poplar only average about one twenty-fifth of an inch, and in general the diameter of the fibres is about one hundredth of the length. The cellulose of which the fibres are made up occurs in the tree intimately mixed with other substances such as lignon, resins, sugars, a small amount of mineral matter, etc. It is the province of the art of paper making to separate this aggregate of fibres into its individual elements, freeing them, in the case of high grade papers, from their accompanying inpurities and to recombine the elements into a finished sheet of paper.

Wood pulp may be divided into two classes, Mechanical Pulp and Chemical Pulp and the latter may in turn be subdivided into sulphite, soda and sulphate pulps.



Fig. 1.
BLOCK PILE.
Two-foot Wood with Wood Conveyer at Top of Pile.

Mechanical pulp or as it is more commonly known, groundwood pulp is manufactured in far greater quantities than any of the others, in fact, the amount of groundwood produced exceeds that of all the other pulps put together.

The following table shows the relative amounts of the various pulps produced in Canada in 1915 and gives some idea of their comparative importance:

Kind of Pulp.	Per cent distribution.
Groundwood pulp	52.9
Sulphite pulp	33.5
Sulphate pulp	13.1
Soda pulp	0.5

At the present time there are about eighty mills in Canada engaged in the manufacture of pulp or paper or both. The mills vary in size from small units producing 15 tons of groundwood per day to enormous plants turning out 200 tons of newsprint per day and manufacturing the groundwood and sulphite pulp which goes to make up the paper.

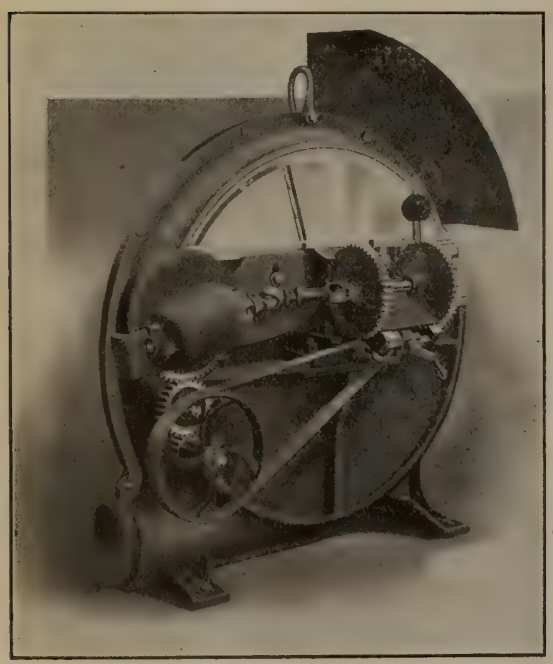


Fig. 2.
DISC BARKER,
For Cleaning Bark from Wood.

Barking and Cleaning the Wood.

Whether pulp is made by mechanical or chemical processes the preliminary treatment of the wood is the same. The woods most used in Canada for the production of pulp are spruce and balsam. Spruce is by far the most important wood as it produces a better pulp than can be obtained from other species. The pulp produced from spruce is of a better color, stronger and lends itself to the production of a fine sheet of paper better than any other species with the possible exception of poplar which for some grades of paper i.e., book, is of as great importance as spruce. Spruce was used in the production of 50% of the pulp made in Canada in 1915, balsam fir was used to the extent of 33% while the remaining 17% was made up of hemlock, jack pine and poplar.

The wood arrives at the mill in the form of logs and bolts, the logs varying in length from 16 feet up while the bolts are generally 4 feet in length. The diameter of the logs and bolts varies but most mills accept nothing under four inches in diameter at the small end. A large proportion of the wood is peeled at the lumbering operations and in the case of unpeeled wood which has been river driven a great deal of the bark has been removed by the action of the water and through friction during the driving. However, some wood is received with the bark still on and this must be removed at the plant at the mill. The logs are cut into two or four foot lengths by slasher saws and the bark is removed either by a rotary barker or by a barking drum. The former consists of a heavy circular iron disc placed vertically in a strong casing and revolving at a speed of from 700-850 revolutions per minute. The disc is provided with several knives projecting from the surface. The log is fed across the face of the disc and at the same time is pressed against it and rotated in suc ha way that the knives slice the bark from the wood. Barking or "rossing" as the process is called removes a considerable amount of wood with the bark. The amount of bark on a log amounts to about 10% by weight while in the barking process about 20% of the weight of the log is removed; this means that in addition to the bark about 10% of wood is being taken from the stick. In order to reduce this loss barking drums are used in many plants.

There are two types of drums in use at the present time, the closed drum and open drum. The closed drum consists of an iron cylinder closed at both ends with a door on the side of the cylinder for charging in the wood. The drum rotates on hollow trunnions, holds about two cords of wood per charge and has a capacity of from 24 to 48 cords per 24 hours depending upon whether the wood has been brought to the plant in cars with the bark practically intact and in a dry condition or whether it has been river driven and the bark softened and partially removed. The wood is placed in the drum, the cover bolted down, the drum revolved and water is run in at one trunnion and taken out at the other. The tumbling of the wood and the rubbing action between the sticks removes the bark which is carried out of the drum by the water flowing through the trunnions. The open type drums are made up of angle irons with openings between and are open at both ends. The drums are generally placed at a slight angle and rotate in a trough of water. The wood enters continuosly at one end, passes through the drum where the rolling and tumbling action removes the bark and is discharged at the other end. The bark falls through the openings between the angle irons to the bottom of the tank where it is removed either by hand or by a conveyor system. In most mills the rossing refuse is burned under the boilers, three pounds of refuse being equivalent to about one pound of coal. As the bark from the rotary barkers is in a fairly dry state it can be used at once as a fuel but the refuse from the barking drums must be dried before it can be used. Some mills dump the bark outside in large piles to dry but this method requires considerable time and handling. The most efficient way of treating the refuse is to pass it through press rolls which squeeze out the moisture to a content of about 50%, whereupon the material can be used directly in the boilers. The following figures give an idea of the saving made by using drum barkers:

	Lbs. air dry pulp from 1 cord wood
Rotary barkers	1,700
Barking drum	1,980

Mechanical or Groundwood Pulp.

Groundwood pulp is produced by the grinding action of sand stone on wood. The stone tears the fibres from the wood and isolates them more or less completely. The grindstones are made from a fairly coarse sandstone most of which are imported from England although a few are produced in Canada. Of late

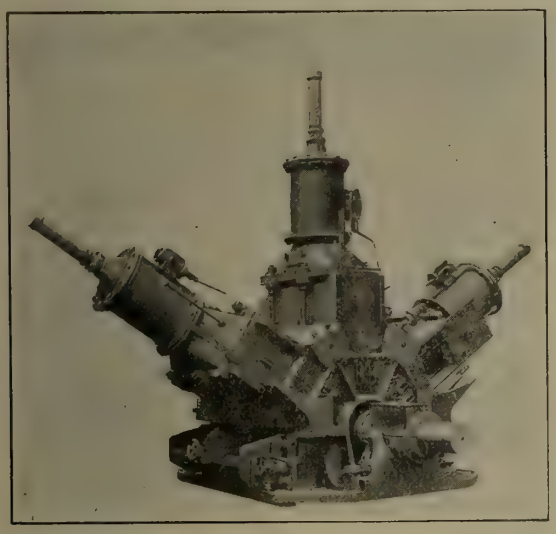


Fig. 3.
PULP GRINDER,
Showing Grinder Pockets and Pressure Cylinders.

artificial grindstones have come into use, but have not yet been perfected to the point where they are able to supplant the natural stones. The stones, usually 54 inches in diameter with a 27 inch face, are ordinarily mounted vertically on a horizontal shaft and enclosed in a circular cast-iron casing provided with pockets in which the two foot lengths of rossed wood are placed. The wood is forced against the stone by pistons which are operated by hydraulic pressure, the pressure used varying as a rule from 30 to 50 lbs. per square inch, and the stone travels at a circumferencial speed of 2,500 to 3,500 feet per minute. The grinders are driven either by water wheels, individual water turbines or electric motors, latter being particularly good practice in mills situated near large hydro-electric developments where power is cheap. Each grinder is equipped with either three or four pockets about 24 inches long and 12 inches wide in which the wood is placed with the grain parallel to the longitudinal axis of the stone. The horse power required for each stone is 300 to 500 and 40 to 70 horse power per 24 hours is required to produce a ton of pulp.

During the grinding process water is sprayed on the surface of the stone to keep the wood from burning and to carry away the fibres which adhere to the stone. In order to vary the nature of the pulp produced the amount of water used is varied. If a large amount of water is used "cold ground" pulp is obtained while with a limited amount of water the grinding temperature rises to as high as 150 deg. F., and "hot ground" pulp is produced. "Cold ground" pulp is very even fibred and fine and can be used in fairly good grades of wod pulp paper while "hot ground" pulp is coarse, uneven, contains long fibres and is used in cheaper grades of paper such as newsprint, wrappings, etc. The "hot ground" pulp works particularly well on fast news machines as the water drains from it quickly making it possible to operate the machines at high speed.

The pulp goes from the grindstone to a tank below the grinders and from here to a coarse screen where all the coarse splinters and unground pieces of wood are removed. After diluting with water it then passes to the fine screens which may be of the flat or the rotary type. The flat screen consists of a long shallow box with the bottom made up of perforated bronze plates. The perforations are of the nature of long slits about .012in. wide through which the pulp must pass. Below these plates is a diaphragm which moves rapidly up and down keeping the pulp in a state of agitation and causing a slight suction. The pulp mixed with a large amount of water flows into the flat screen, the water and fine material passing through the screen while the coarser pulp moves on to the end of the screen where it flows into another flat screen with coarser perforations. In this way the pulp is sorted into coarse and fine grades. The centrifugal screens are somewhat more complicated, but act on the same principle of passing the fine pulp mixed with water through small openings leaving the coarse material behind.

The screened pulp then passes to machines called wet machines for partially removing the water. The diluted mixture is pumped continuously into a vat about 6 feet wide and 8 feet long and 5 feet deep in which a hollow bronze cylinder about 3 feet in diameter and 6 feet long covered with 60 mesh brass wire rotates. The pulp is deposited on the wire while the water passes into the cylinder and from there is led outside the vat. A small roll called a couch roll is in contact with the top of the revolving cylinders and an endless felt passes between the couch roll and the

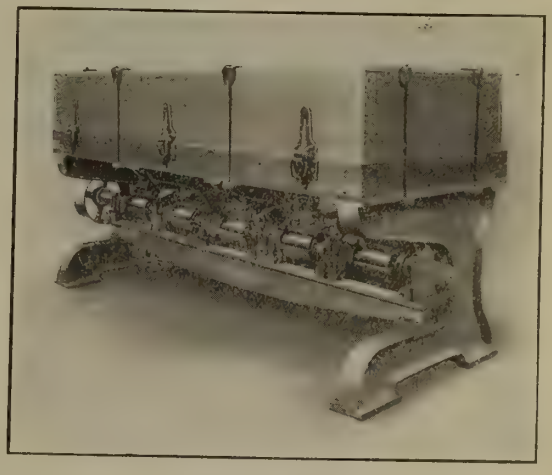


Fig. 4.
FLAT SCREEN.
For removing coarse particles from Pulp.

cylinder. The sheet of pulp upon the cylinder is picked up by the felt, carried between press rolls, over a suction box and finally wound up on a large wooden roll until of sufficient thickness. At the proper time it is removed from this roll either by hand or automatically.

The pulp sheets as they come from the wet machine contain about 65 to 70 per cent moisture. When the pulp is to be shipped from the mill it is often pressed

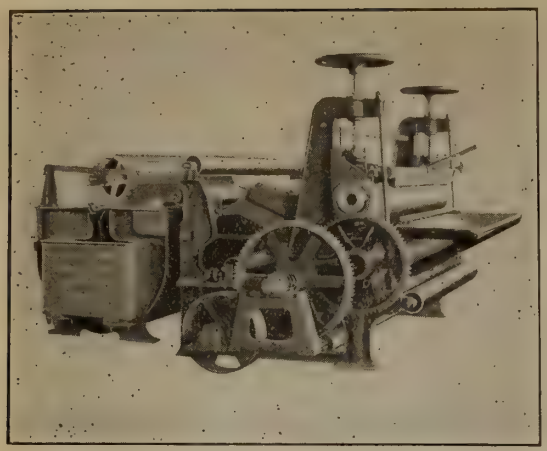


Fig. 5.
WET MACHINE WITH FELT REMOVED.
Removes Water from Screened Pulp, and delivers Pulp in Sheet Form.

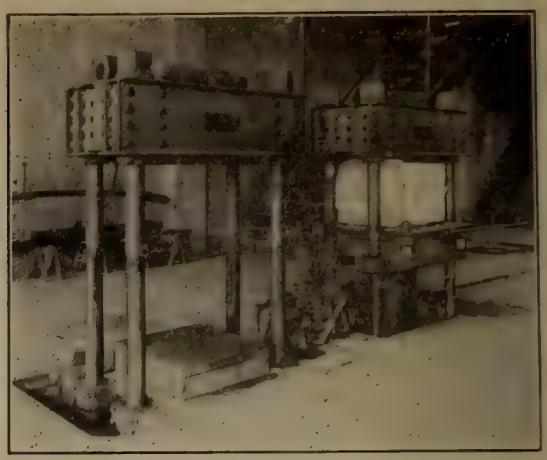


Fig. 6.
HYDRAULIC PRESSES.
For baling Pulp. Press on right contains bale of pulp, press on left empty.

in a hydraulic press to reduce the water content to about 50 per cent. Another type of apparatus nearly always employed in mills where the pulp is to be used at once is the "thickener," "feltless wet machine" or "decker" as it is variously called. This machine consists of the vat and cylinder of the wet machine, but the pulp instead of being picked up by a felt is scraped off the cylinder by means of a board extending along the length of the cylinder and in contact with its surface. By this means the pulp is thickened so that the mixture contains about 95 per cent water as against 99-99.5 per cent in the original mixture. Wet pulp, i.e., pulp containing 50 to 65 per cent water is always sold on the "air dry" basis. "Air dry" pulp refers to pulp containing 10 per cent moisture.

Chemical Pulp.

In the manufacture of chemical pulp chemicals are used to isolate the fibres. These chemicals dissolve out the lignin and other substances which are intimately mixed with the fibres and leave a nearly pure cellulose as a residue. Chemical pulp is produced either by the sulphite, soda or sulphate process.

Sulphite Process.

This process may be conveniently divided into four steps, namely: preparation of the cooking liquor, preparation of the wood, digestion of the wood with chemicals and washing, screening and removing water from the pulp.

Preparation of Cooking Liquor.

The raw materials used in the preparation of the



Fig. 7.
SULPHITE PLANT.
Block pile at extreme right, digester house at left, and wet machine room, screen room and boiler plant in foreground.

cooking liquor are sulphur or pyrites and dolomitic limestone or a mixture of burnt lime and magnesia.

The preparation of the cooking liquor may be subdivided into the burning of the sulphur or pyrites to form sulphur dioxide, the preparation of the lime, the absorption of the sulphur dioxide by lime water or limestone to form cooking liquor and the recovery of the sulphur dioxide from the digestion process.

In the production of sulphur dioxide either sulphur or iron pyrites may be used. When sulphur is used three types of burners may be employed, namely: flat burners, rotary burners and upright retort burners. The flat burner consists of a shallow covered pan with a counter balanced sliding door in front into which the sulphur is shoveled and through which the air



Fig. 8.

ROTARY SULPHUR BURNER WITH COMBUSTION CHAMBER.

for combustion enters. To start the burner a small wood fire is built in the pan after which sulphur is shoveled in. After the sulphur has become thoroughly ignited it maintains the heat for its own combustion and it is then only necessary to keep the burner supplied with sulphur and to regulate the air supply. Sulphur contains considerable impurities and these float on the surface of the molten sulphur and have a tendency to deaden the fire. Although various stirring mechanisms have been devised to agitate the sulphur this difficulty has never been thoroughly overcome and for this reason and for the fact that the flat burner exposes only a relatively small surface to the action of combustion this type of burner is being supplanted by other and more efficient types. The rotary burner consists of a long cylinder with cone shaped ends mounted horizontally on steel tires rivited to the cylinder shell and resting on bearing wheels. The bearing wheels are made to revolve and the weight of the cylinder thus concentrated on the revolving bearing wheels causes the cylinder to rotate. Either dry or molten sulphur is fed into one end of the burner and the gas is taken out at the other. As the cylinder rotates the molten sulphur clings to the sides and drips back to the bottom of the cylinder causing excellent agitation and exposing a large surface to combustion. At certain points on the burner openings are placed which furnish air and enable the supply to be accurately regulated. These burners are very efficient and furnish a supply of very rich gas. One of the latest forms of burner is the upright retort burner. It consists of an upright cylindrical shell lined with fire brick and fitted inside with a series of shelves one above the other. At the top of the burner is a large closed melting pot for melting the sulphur. The dry sulphur is either shoveled by hand or carried by a conveyor into the melting pot where it is melted by the heat of the burning sulphur inside the burner and from here flows to the upper shelf of the burner where it ignites. The shelves are provided with openings arranged in such a manner that the sulphur overflows from one shelf, falls through an opening, works its way across the next shelf and presses through an opening to the next shelf. In this way the sulphur passes back and forth through the burner exposing a large surface to the oxidizing action of the air until it reaches the bottom compartment where the ashes and other impurities collect. This burner is provided with openings for the proper regulation of the air and a very rich gas is obtained. It is claimed for this burner that it embodies all the advantageous features of the rotary burner with the additional advantages, that it occupies less space, requires no power to operate and is very easily cleaned.

The sulphur-dioxide gas passes from the burner to a combusion chamber where the hot gas is intimately mixed with the air and where any unburned sulphur which is carried over is oxidized. It is then conducted to coolers which are made up of 8 to 12 inch lead pipes connected in series and placed in a shallow tank of

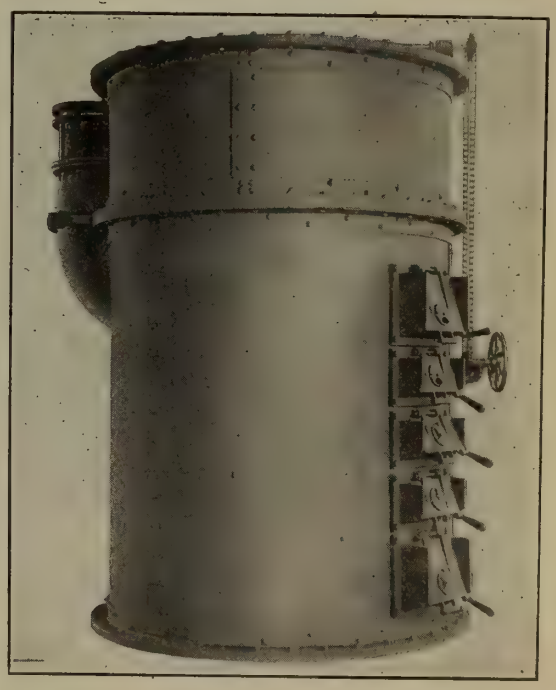


Fig. 9.

UPRIGHT (VESUVIUS) SULPHUR BURNER.

running water. The gases are cooled on the counter current principle, that is, the gas travels in the pipe in one direction and the water travels the pipe in the opposite direction so that the coldest water is in contact with the gas as it leaves the cooler and the water which has taken up heat in its passage through the cooler is in contact with the hot gas as it enters the cooler; this insures that the gas leaves the cooler at the lowest possible temperature. The gas then passes from the cooler to the acid system.

There are two types of acid systems—the limestone system and the milk of lime system, both are in use in this country, but until very recently the milk of lime system has found most favor; however, within the past three or four years the limestone system has become very popular. The limestone system is used almost entirely in European countries.

In the latter system either pure limestone ($Ca\ CO_3$) or dolomite limestone ($Ca\ CO_3$, $Mg\ CO_3$) in high towers or a number of low towers or chambers is used. The high towers are from 100 to 125 feet in height, about 10 feet in diameter, are made of concrete or wood and are ordinarily lined with wood or acid resisting brick. The towers are filled with pieces of limestone varying from 3 to 6 inches in diameter and resting on timbers at the bottom. Water is sprayed over the limestone at the top of the tower and trickles downward over the stone while the sulphur dioxide gas enters the bottom of the tower and passes upward.

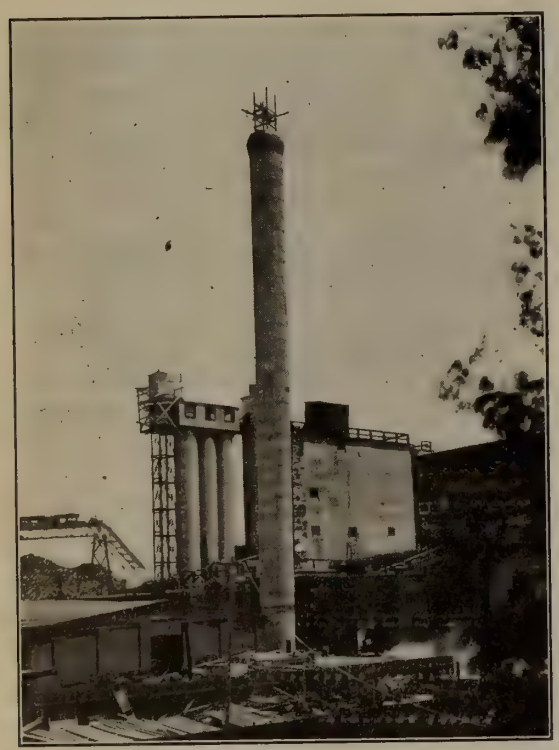


Fig. 10.

ACID TOWERS AND RECOVERY TOWER.

Used in preparation of Sulphite Cooking Acid from Limestone.

The ascending stream of sulphur dioxide gas meets the water as it passes downward over the stone and is dissolved forming a weak solution of sulphurous acid which in turn attacks the limestone forming the soluble compound bisulphite. The bisulphite solution runs into a chamber at the bottom of the tower and is pumped to storage tanks.

In the case of low towers four or more are connected together and operated in pairs. The towers are from 35 to 50 feet in height and are filled with limestone as in the case of the high towers. The towers are connected by means of earthenware pipes and the gas passes up through the first tower through the earthenware pipe to the bottom of the second tower and then up through this tower. Water is sprayed over the top of the limestone in the second tower dissolving the sulphur dioxide and reacting with the limestone forming calcium bisulphite and this is pumped from the bottom of the second tower to the top of the first where it trickles down through the stone becoming stronger as it nears the bottom of the tower. From the bottom of the first tower it is pumped to storage tanks. Here, as in the case of cooling the gases, the counter current principle is used; weak gas is in contact with the weak liquor in the second tower while strong gas is in contact with the strong liquor in the first tower. In case more than two short towers are used the principle is the same, i. e., the strong gas enters the first and the water enters the last tower and they travel in opposite directions. When high towers are used the natural draft is sufficient to move the gases, but with short towers it is necessary to employ fans or pumps to conduct the gases from tower to tower.

In the chamber system there are two long rectangular chambers, connected together and each containing a number of compartments connected alternately at the top and bottom. The compartments are filled with limestone and water is pumped to the top of the last compartment where it trickles down over the stone meeting the gases which are passing in the opposite direction. From the bottom of the last compartment the weak acid is pumped to the top of the next and so on through the system becoming stronger and stronger as it proceeds. It finally empties into the first compartment which contains only acid through which the strong sulphur dioxide gas bubbles on its way to the imestone compartments. From here the acid is pumped to storage tanks.

In the milk of lime system burned dolomite lime (Ca O, Mg O) is slaked with a large amount of water to from milk of lime and sulphur dioxide is passed through it to form calcium and magnesium bisulphites. There are several types of apparatus in use for carrying out this reaction and they can all be classed under two main heads; the intermittent or "dump" system and the continuous system. The Stebbins System is a good example of the "dump" system while the Barker System illustrates the continuous system.

The Stebbins System consists of two acid tanks and two milk of lime tanks equipped with agitators, baffle plates and cooling pipes. When the system is in operation the first tank of the series contains weak acid, the next tank is filled with milk of lime while the two milk of lime tanks serve simply as storage tanks. The sulphur dioxide coming from the gas cooler is drawn by means of a suction pump to the bottom of the first tank up through the weak acid to the bottom of the next tank, up through the milk of lime and out of the system. Thus the weak acid in the first tank becomes strenghthened and the milk of lime in the second tank is converted to weak acid. As soon as the acid in the first tank is of sufficient strength it is pumped to storage tanks and the weak acid in the second tank is led into the first tank to take the place of the strong acid while the weak acid in the second tank is replaced by milk of lime from the storage tanks. As can be readily seen this process is intermittent and is called a dump system because the strong acid tank, i.e., the first tank has to be emptied at the end of each operation.

The Barker System consists of a high tank with perforated partitions and overflow pipes from one partition to the next. The milk of lime flows in at the top of the tank and gas enters at the bottom; a suction pump connected to the top of the tank draws the sulphur dioxide gas up through the tank and leads off the unabsorbed gases. The rate of flow of the lime water and the degree of vacuum produced by the suction pump are so regulated that the gas passes up through the perforations in the partitions while the lime water overflows through the overflow pipes and the acid comes from the bottom of the tank at the proper strength. Some of the advantages of this system are that it occupies a comparatively small space and does not require constant attention. Since the lime water flows without interruption into the top of the tank and comes out at the bottom as acid the system is known as a continuous system.

In the digestion process which will be described later a certain amount of sulphur dioxide gas and acid have to be relieved from the digester from time to time and to operate efficiently the gas and acid has to be recovered and utilized. This is accomplished by conducting the gas through coolers to a storage tank containing the cooking acid or "reclaimed acid" as it is called where the gas is absorbed by the acid causing the latter to become stronger. The acid or "liquor" which comes from the digester is passed through coolers and run into storage tanks containing the acid made in the acid system. This mixture of acid from the acid system and liquor from the digester is known as "storage acid." The "storage acid" is pumped to other storage tanks and the sulphur dioxide gas from the digesters is passed into it as described above forming "reclaimed acid" which is then ready for use in digesting the wood to form pulp. The "reclaimed acid" varies in density from 55 deg. to 6.5 deg. Be and the sulphur dioxide content varies from 3.5% to 6.0% of which 25 to 30% is present as calcium bisulphite and 70 to 75% as free sulphurous acid.

Preparation of the wood.

After the bark has been removed from the wood as described under "Barking and Cleaning the Wood" the bolts are conveyed to the chippers. A chipper consists of a heavy cast iron disc, from 47 to 88 in. in diameter with a steel rim shrunk on. The disc is mounted vertically on a horizontal shaft, is encased in a strong housing. The chipping of the wood is done with two or more knives placed radially on the face of the disc and projecting from the disc. The wood in the shape of short bolts is fed to the chipper through a spout which holds the end of the stick against the face of the disc at an angle of 45 deg. The size of the chip produced may be altered by changing the set of the knives and the speed of the chipper. Depending upon the cooking process to be used the chips vary in size from $\frac{5}{8}$ inches to $1\frac{1}{8}$ inches square but the average chip used in the sulphite process is between $\frac{5}{8}$ inches and $\frac{7}{8}$ inches square and $\frac{1}{8}$ inch and $\frac{1}{4}$ inches thick. The 88 inch chippers operate at a speed of 200 revolutions per minute and have a capacity of 10 cords of wood per hour and can be driven with a 100 to 125 H.P. motor. When the chippers are working properly they should deliver chips 60 to 70% of which are of the size desired with not over 3% of saw dust.

From the chippers the chips are conveyed to the chip screens where the saw dust and large chips are screened out. Two types of chips screen, flat shaking screen and rotary screens, are in general use and they are often operated together. Either wire screen or perforated metal plates are used in constructing the screens. The coarse screens have openings with a diameter about one-half inch larger than the length of the chip desired while the fine screens have a mesh of about three eights of an inch. Shaking screens consist of two shallow boxes placed one above the other the bottoms of which are made up of wire screen or perforated metal; the screens are hung in such a manner that they may be shaken back and forth by an eccentric. The chips are fed to the top screen which has the larger perforations and which holds back large chips and slivers and allows the smaller chips and sawdust to pass through. The finer material falls to the second screen which has a fine mesh which retains the chips allowing the sawdust to pass through. In addition the chips are generally

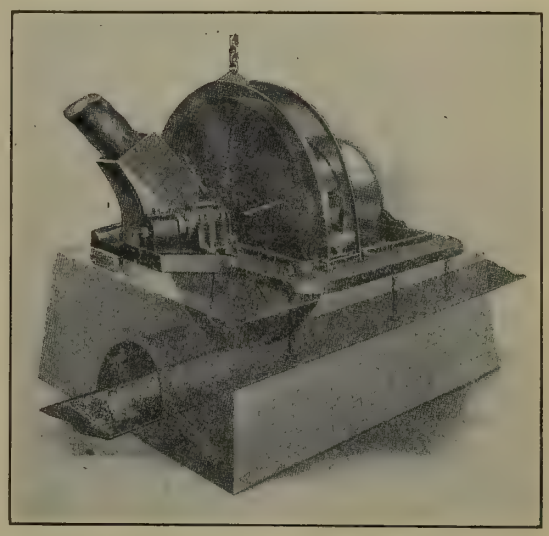


Fig. 11.
WOOD CHIPPER.
Showing Spout, Chipper Disc, Knives and Belt Conveyor for Chips.

passed through a conical shaped rotary screen of fine mesh for the complete removal of the sawdust and from here are carried by a large conveyor belt to the chip bins above the digesters. The coarse chips from the upper shaker screen are led by a spout to chip crushers which reduce them to small chips. There are several types of crushers, one type consists of an iron disc fitted with projecting steel pins, the disc is encased by a housing and rows of pins are attached to the casing, the pins on the disc rotating between them; the chips are broken up between the stationery and moving pins. Another type consists of movable hammers rotating about a shaft, the chips are fed into the crusher and are broken up by the blows of the hammers. After passing through the crushers the chips are rescreened. The sawdust from the screens together with the refuse from the barkers is burned under the boilers.

The Digestion of the Wood.

In order to separate the wood into fibres suitable for paper making purposes it is cooked or digested with the cooking acid at high temperatures until the intercellular matter such as lignin is dissolved out and the fibres isolated in the form of fairly pure cellulose. The cooking is carried out in large steel digesters capable of producing 8 to 12 tons of pulp per cook. The digest-

ers in general use are upright, stationery cylindrical tanks with cone shaped tops and bottoms. They vary in height from 40 to 50 feet, are from 12 to 18 feet in diameter and are constructed of 1¼ inch butt welded boiler plate. A large manhole for charging is placed at the top of the digester while the bottom cone is connected to a large pipe for emptying the pulp. Since the acid used for digesting the pulp attacks iron and steel it is necessary to line the digester with some resistant material in order to protect it. When the sulphite process first came into use lead linings were employed but these were very expensive and the repair costs were excessive so that at the present time they have practically gone out of existence and brick linings are used. The general practice is to lay down a first course of ordinary red brick, filling in behind the

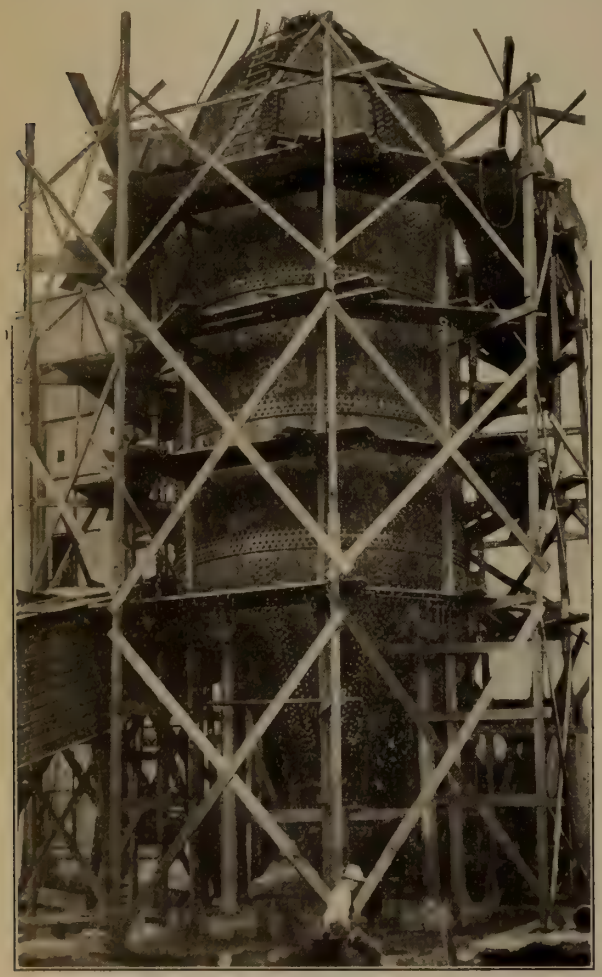


Fig. 12.
VERTICAL DIGESTER IN COURSE OF CONSTRUCTION.

brick with Portland cement and ground quartz then to lay a second course of acid resisting flint brick with a grouting between the two courses consisting of Portland cement and quartz. The joints of the first course of brick are made with a binder consisting of cement and quartz while those of the second course are made with a mixture of litharge, glycerine and quartz in order to make them acid resisting. All digester valves and other fittings are made of acid resisting bronze. Two outlets are provided for relieving gas and acid, one situated on the side of the digester a little distance from the top and the other in the manhole cover. Inlet pipes from steam are provided at the bottom and the acid is generally pumped in at the bottom although it is sometimes admitted at the top.

Cooking conditions vary greatly at different mills and depend upon the kind of wood used, the grade of pulp produced the strength of the acid and other factors. On the whole, however, the general procedure is as follows: The digester is first filled with chips and acid, the digester cover put in place and bolted down and the relief gas connections made. Steam is then admitted to the digester through the steam connections at the bottom. After one hour the digestion pressure will be around 20 lbs. and at the end of the second hour in the neighborhood of 40 lbs. after which the pressure rises at the rate of about 5 lbs. per hour until a pressure of 75 lbs. and a temperature of 165 deg. C. or 330 deg. F. is reached. At intervals during the cook it is necessary to let out some of the liquor which has accumulated owing to the condensation of steam and to relieve off some of the sulphur dioxide gas liberated in the process of cooking. This relieving of the acid and gas is necessary in order to bring the digester contents to the proper temperature since if the pressure in the digester was made up of hydrostatic pressure due to the liquor present and gas pressure due to the sulphur dioxide gas liberated no steam could enter and the contents would never be brought to the proper temperature. The time of cooking varies from 6 to 12 hours. At the end of the cook the pressure is relieved down to 50 and sometimes as low as 30 pounds, the valve in the pipe at the bottom of the digester is opened and the digester content is blown out; this is called "blowing" the digester. The above method of cooking in which the steam is admitted directly into the digester and in which the cooking time is from 7 to 12 hours is known as the direct or "quick cook."

Another method is used in which copper coils are placed on the inside walls of the digester. Steam enters these coils and heats the contents of the digester bringing them up to 55 or 60 pounds as compared with 75 lbs. in the quick cook process. The cooking time for this process is 18 to 35 hours and the process is known as the "slow cook" or Mitscherlich process. The pulp produced by this method of cooking is superior to that of the quick cook in strength, pliability and appearance.

Pulp from either the quick cook or Mitscherlich process is blown from the digester into a closed wooden tank called a blow pit. Here the pulp is drained and washed. A blow pit is a round oval or square tank with an inclined bottom which is pitched toward an outlet valve; about a foot above the bottom is a false bottom consisting of either drain tile or perforated planks covered with coco matting. A large stack or "vomit spout" extends from the top of the tank to the outside atmosphere and serves to carry off the steam which is given off when the digester is blown. The liquor in the pulp drains off through the false bottom and is generally run into the sewer although some plants are recovering valuable by-products such as alcohol from the waste liquor. After the liquor has drained off the pulp is washed for from three to five hours by playing a steam of water on the top with a hose or by means of a system of shower pipes placed in the top of the blow pit. When the pulp is thoroughly washed it is diluted with water and pumped or allowed to flow by gravity into large concrete or wooden stock tanks provided with agitators to prevent the stock from settling. The force with which the pulp is blown from the digester to the blow pit opens up and separates the fibres, many of which still retain the form of the original chips but there are always some uncooked

chips present which are not opened up by this treatment and for this reason the pulp must be passed over coarse screens to remove chips and uncooked portions. The pulp is generally first pumped to rifflers from which it flows by gravity to the coarse screen. The rifflers consist of troughs with 5 inch boards nailed across the bottom at right angles to and inclined against the flow of the pulp. The riffler serves to catch the heavier materials such as knots, chips, and foreign matter mixed with the pulp. The pulp passes next to the coarse screens where slivers, chips and knots are further removed. The coarse screen is generally of the rotary type and consists of a drum covered with heavy wire screen or perforated sheet metal; the openings in the screen are generally one inch long and about one quarter of an inch in width. The pulp leaving the coarse screen has been freed from chips and large slivers but still contains small fibre bundles which if allowed to get into the paper would show up to disadvantage. To remove these bundles the pulp is next run over flat screens, of the type described under the manufacture of groundwood pulp which remove the coarse particles. The screened pulp then passes to wet machines similar to those described under groundwood manufacture and is taken off in the form of sheets containing about 65 per cent moisture. When sulphite pulp is to be shipped to the mills it is often run over a sheet forming machine and then over heated cylinders and dried sheet being rolled up and either shipped in rolls or cut into sheets. Pulp in this condition contains from 15 to 20 per cent moisture. When the pulp is to be manufactured into paper at the mill itself it is often simply thickened by means of a feltless wet machine and dumped into vats from which is pumped as needed.

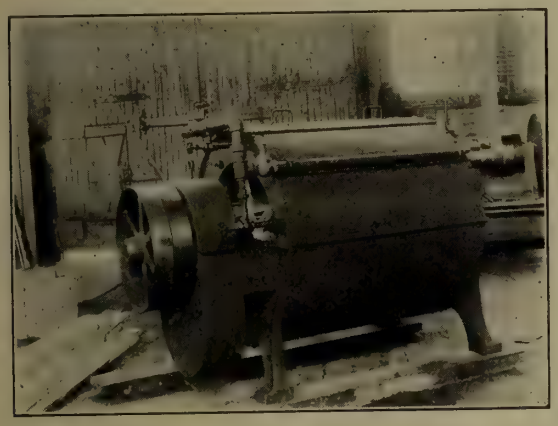


Fig. 13.
ROTARY SCREEN.
For Separating Coarse and Fine Pulp.

Soda Process.

In the soda process the separating of the fibres from the wood is brought about by digesting the wood under pressure and at a high temperature in an alkaline solution. Sodium hydroxide or caustic soda as it is called is the alkali used.

Preparation of the Wood.

The wood is prepared in exactly the same manner as for the sulphite process with the exception that the the chipper knives are set so as to produce smaller chips. Chips about five-eights of an inch long are considered to be best suited for cooking by the soda process as the penetration of the liquor is more complete and the cooking more easily carried out.

Digestion of the Wood.

The cooking is performed in either horizontal rotary digesters or upright stationary digesters. The latter are more in use at the present time and consist of upright cylinders with conical tops and bottoms. They average about 28 feet in height and 7 feet in diameter, are made of five-eights inch steel plate and have no lining as the caustic liquors do not attack the steel. It is customary to cover the outer surface of the digesters with a lagging of 4 inch insulating material to prevent radiation of heat and consequent condensation of steam in the digester. The chips are charged into the digester in the same way as in the sulphite process and liquor is pumped in generally at the top of the digester. In case forced circulation of the liquor is to be used a circular perforated plate is placed in the bottom of the digester and the chips rest on this plate. About 875 gallons of caustic soda liquor of a specific gravity of 1.10 are added per cord of wood charged. Steam passes into the digester at the bottom in case forced circulation is not used, otherwise it enters the top of the digester, passes down through a pipe to the space below the perforated plate in the digester and is injected into a pipe leading to the space above the chips. As it enters the injector the steam carries with it a certain amount of liquor which it carries to the top of the digester and sprays over the chips. In this way a very thorough mixing of chips and liquor is ensured. The digester is brought up to a pressure of 100 to 125 lbs. in about two hours during which time the pressure is relieved at frequent intervals by opening a valve in the top of the digester and allowing the accumulated gases to escape. A pressure of 110 pounds is maintained for from 5 to 10 hours, the average time being about 8 hours; during this time a temperature 325-330 deg. F. is reached. When the digestion is completed the pulp is blown to a blow pit where it is washed and is then screened and run into sheets in the same manner as with sulphite pulp.

The liquor which drains from the pulp contains beside the soluble lignin and resin compounds the soda which has been used in the cook and since soda is a valuable material if the process is to be carried out in an efficient and economical manner it is necessary that it be recovered and used again for cooking wood.

Recovery Process.

In order to recover the soda present in the liquor it is necessary to evaporate off the water. Evaporation is at best an expensive process and in order to lower this cost as much as possible it is necessary to be extremely careful not to employ too much water in the washing process. With this in view the pulp is drained in the blow pit and then dumped into circular steel tanks or pans as they are called. The pans are fitted with fine screen bottoms, and it is here that the washing takes place. The dilute washings from a previous pan are used for the first washing of the pulp. Then a more dilute washing is pumped over the pan and the resulting liquor reserved for the first washings of a fresh pan. The final washing of the pulp is done with hot water and these washings are discharged into the sewer. By this system of progressive washing the soda is washed from the pulp with the least possible amount of water.

The liquor which drains from the blow pit and the washings from the pulp are stored in large storage

tanks. From these tanks the liquor flows into multiple effect evaporators where it is evaporated to a thick syrupy consistency.

From the evaporators the thick liquor is run into a rotary incinerator. The incinerator consists of a horizontal steel cylinder 14 to 18 feet long and 8 to 12 feet in diameter with a fire brick lining. Steel tires are attached to the cylinder and these rest upon revolving bearing wheels upon which the cylinder rotates at the rate of about two revolutions per minute. As the black liquor flows in at the back of the incinerator it encounters hot gases from burners at the front which vaporize the liquor and burn off the organic matter, leaving a residue called black ash, consisting of soda ash and carbon, which is discharged from the front of the incinerator. Considerable excess heat is developed by the burning of the organic matter in the black liquor and is utilized for the production of steam.

The soda ash is dissolved out of the black ash with hot water, care being taken to use as little water as possible for this purpose. The solution is then filtered into causticizing tanks where the soda ash is converted into caustic soda by means of burned lime. When the lime is added to the solution it is first converted into calcium hydroxide whereupon it reacts with the soda ash forming caustic soda and calcium carbonate. The caustic soda is soluble whereas the calcium carbonate is insoluble so that after a time the calcium carbonate settles to the bottom of the tank and the relatively pure caustic soda solution is drawn off. This caustic soda solution is the cooking liquor used for the digestion of the wood. Of the caustic soda used in cooking from 80 to 90 per cent is recovered and used again so that it is only necessary to add to each batch of liquor from 10 to 20 per cent of the caustic soda which would have to be used if no attempt at recovery were made. Since soda ash is cheaper than caustic soda it is the custom to replenish the supply of caustic soda lost during the process by the addition of soda ash just before the causticizing operation. The importance of the recovery process will be appreciated when it is realized that if the recovery of chemicals were not possible the soda process could not, under ordinary conditions, compete with the sulphite process owing to the higher cost of chemicals used in the former process. Some mills are now planning to recover the lime by drying and calcining the sludge from the causticizing tanks.

Sulphate Process.

The sulphate process is the latest process of any great importance which has been developed for the production of pulp. The first mill to make sulphate pulp on this continent was erected in Canada about ten years ago. Like the soda process it is an alkaline process, but in addition to caustic soda, sodium sulphide is employed. The principal use of sulphate pulp is for the manufacture of "kraft" papers, the extremely strong brown wrapping paper so much used at the present time. Owing to the strength of sulphate pulp papers of the desired strength can be obtained with less bulk and weight than by any of the other processes.

Owing to the nature of the process a larger variety of woods can be used for the production of pulp than by any other process. Spruce, balsam fir, jack pine, tamarack, long-leaf pine, short-leaf pine and Douglas fir have been successfully treated by this process and a number of mills have operated almost entirely on the waste of saw mill and lumbering operations.

Preparation of the Wood.

The wood is prepared in a manner similar to that of the sulphite and soda processes with the exception that the chipper knives are so set as to product a chip about 1⅛in. long. In some mills very little care is exercised in cleaning the wood since the cooking liquor dissolves the bark and in a few mills the mark is not removed at all. The latter, however, is poor practice as chemicals are consumed in dessolving the bark without a corresponding production of pulp.

Digestion of the Wood.

There are two types of digesters used for cooking wood by the sulphate process namely: the vertical stationary digester, and the vertical revolving digester. The former is similar to that used in the soda process and is from 3 to 5 tons capacity. The vertical revolving digester, which revolves about its short axis and is sometimes called a "tumbling" digester is ordinarily about 28 feet long, 9 feet in diameter with conical ends. The maximum capacity of such a digester is 2½ tons. The digester is made of welded steel, is unlined, and revolves on hollow trunnions through which steam is admitted. The digesters are usually lagged with insulating material in order to avoid excessive condensation in the digester and the consequent waste of steam. The cooking is carried on at a pressure of 80 pounds, super-heated steam being employed and the length of cooking varies from 2 to 8 hours, 3 hours being the average cooking time. At the end of the cook the pulp is blown under 60 pound pressure either into blow pits from which it is dumped into open wash tanks as in the soda process or directly into closed wash tanks called "diffusers." The latter is the practice in modern sulphate mills and it is claimed that a much more efficient recovery of chemicals is obtained by this method.

The diffusers are upright cylindrical tanks each of sufficient capacity to handle one digester charge. They are provided with perforated false bottoms placed about one foot above the bottom of the tank and are connected at the top on a common tank called the "save all." When the pulp is blown into the diffuser a considerable amount of steam is liberated which is carried by means of the connecting pipe to the "save all" tank. Here any pulp carried mechanically by the steam is trapped and the steam is condensed and sent to the wash tank to be used for washing the pulp. The steam from various points in the process is passed through a coil in the bottom of the wash tank thereby heating the wash water while the steam condensed in the coil is also run into the wash tank thereby increasing the supply of wash water.

The pulp which has been blown into the diffuser is allowed to drain and the liquor called "black liquor" is collected in the black liquor storage tank. As soon as all the liquor possible is drained off, the washings from another diffuser considered too weak to go to the black liquor storage tank are pumped on top of the pulp. This weak liquor forces more of the black liquor out of the pulp into the black liquor storage tank, partially mixing with it; when this liquor becomes too weak to run into the storage tank it is pumped to the top of another diffuser and used for washing the strong liquor out of the next cook while pure water is admitted at the top of the first diffuser and sprayed over the pulp. When the solution coming from the

bottom of the diffuser becomes too weak to use for washing the next cook it is run into the sewer and the washing with water is continued until the washings are clearly or nearly so. The water used for washing purposes comes from the hot water tank and is at a temperature of about 125 deg. F. By using this system of washing the liquor is removed from the pulp with a minimum amount of water and the subsequent recovery process is considerably simplified.

The pulp which comes from the digesters especially in the case of kraft pulp is not completely cooked and the fibres still cling together retaining the form of the original chip. It is now necessary to break up these chips into individual fibres and this is accomplished by means of an "edgerunner," "kollergang" or "crazy chase" as it is variously called. The kollergang is made up of a circular iron or stone trough round which two heavy stone rolls travel. The stone rolls which resemble mill stones are mounted on a horizontal shaft in such a way that they revolve as they travel round the trough. The pulp is shoveled into the trough and as the stones travel they crush up the chips and rub them out into individual fibres. The stones are generally made of granite or basalt lava and the trough when made of stone is composed of one of these materials. After the pulp has been kollerganged it is screened and run into sheets just as in the sulphite and soda processes.

Recovery Process.

In order to recover the soda present in the black liquor it is necessary to resort to evaporation as in the soda process. There are two types of evaporators which may be used for this purpose, the multiple effect evaporator and the disc evaporator. These evaporators may be operated individually or in conjunction with one another and the most up-to-date plants use both types of evaporators. The black liquor is first pumped to the multiple effect evaporator which has been described under the soda process, where the liquor is partially concentrated from which it runs into the disc evaporator. The latter consists of a horizontal drum in which revolves a shaft with iron plates attached. The lower part of the drum is filled with the liquor to be evaporated and the plates are so arranged on the shaft that during part of a revolution they are completely submerged in the liquor while during the remainder of the revolution they are out of contact with it. Heat is supplied in the form of hot gases from the rotary and melting furnaces and as the plates dip into the liquid a portion of it adheres to this surfaces thus exposing an extremely large liquid surface to the action of the hot gases. Either two or four drums of this description are placed behind each rotary and melting furnace.

The concentrated liquor now containing approximately equal weights of water and solid matter flows by gravity into the rotary furnace or incinerator. This furnace is similar in construction to the incinerator described under the soda process. It may be of either the short or long type, the former being from 15 to 20 feet in length and 8 feet in diameter, the latter being about twice as long. The long type is often divided into two compartments the front section being lined with fire brick, the back section being unlined and provided with iron plates which extend into the furnace and serve as lifts for agitating the material during its passage. The material travels through the furnace from back to front while the hot gases pass in the opposite direction. As the material approaches the front of the furnace, becoming more and more concentrated, it catches fire and finally falls out of the front of the furnace in the form of a moist black mass. From here it is shoveled by hand into the melting furnace situated below the front of the rotary furnace. In the melting furnace the organic matter is completely burned out of the black ash, as it is called, and the heat generated in this action is carried through the rotary furnace and disc evaporators, evaporating moisture in its passage, the excess heat being utilized to generate steam.

During the cycle of operations a certain amount of soda is unavoidably lost and this has to be replaced. While in the soda process the deficiency of soda was made up with soda ash in the sulphate process the soda lost is renewed by the use of salt cake or sodium sulphate. A certain amount of salt cake is added to the black ash as it is shoveled into the melting furnace and is reduced to sodium sulphide by the carbon present in the black ash in which form it goes to the digesters. It is important to note that the salt cake is of no importance in itself in the digestion of the wood and it is only of use when converted to sodium sulphide. It is from the use of salt cake or sodium sulphate that the sulphate process derives its name.

A very high temperature is maintained in the melting furnace where the carbon is burned from the black ash, the salt cake reduced to sodium sulphide and the salts melted and discharged from the furnace at a temperature of about 3,000 deg. F. The molten salts flow into a tank, situated directly below the melting furnace, which is filled with the washings of the lime sludge which will be described a little further along. This tank is covered with the exception of an opening for admitting the melted material from the melting furnace to prevent the splashing out of the liquor when the melted salts came in contact with the water. This tank is provided with an agitator to stir the liquid and is of such a size as to supply one complete charge to the causticizer.

The molten salts discharged from the melting furnace and consequently the solution of these salts contain sodium carbonate (soda ash), sodium sulphide and sodium sulphate (salt cake). In order to obtain an effective liquor for digesting the wood it is necessary to convert the sodium carbonate to sodium hydroxide (caustic soda) and this is accomplished, as in the soda process, by the action lime on the soda ash. From the dissolving tank the solution is pumped to a large tank called the causticizing tank where lime in a steel basket placed in the liquor reacts with the soda ash forming caustic soda. During the causticizing process the solution is boiled for from 20 to 30 minutes during which time the agitator with which the tank is provided is kept running. The steam is then shut off and the agitator stopped to allow the insoluble calcium carbonate formed in the reaction, to settle. The settling of the sludge occupies a period of about two hours after which the clear solution is syphoned off into a storage tank.

When the liquor has been drawn off the causticizer is filled with weak liquor consisting of the second and third washings of a previous sludge, the steam turned on, the agitator started and the processes repeated. This first washing of the sludge is added to the liquor which has just been pumped to the storage tank. The liquor in the storage tank is now ready for use in the

digester for cooking the wood. The composition of the liquor varies in different mills, but the following is the composition of a liquor used by one mill:

28% caustic soda
28% sodium sulphide
8-10% soda ash
37% salt cake.

This liquor with from 10 to 30 per cent by volume of the original black liquor is used in cooking wood for the production of kraft pulp.

The second and third washings of the sludge are pumped to storage tanks and used for washing the sludge from the next causticizer and dissolving the molten salts coming from the melting furnace.

Bleaching.

For all ordinary grades of paper such as newsprint, colored wrapping, etc., sulphite pulp can be used as it comes from the wet machines after the washing and screening processes. In case it is desired to manufacture white papers it is necessary to bleach the pulp in order to remove the coloring matter which it still retains. Soda pulp which is used in book, papers, etc., is always bleached, sulphite is bleached when it is to be used in high grade white wrapping papers, bonds, etc., and the sulphate pulp is sometimes bleached.

The bleaching process consists in immersing the pulp in a solution of calcium hypochlorite, otherwise known as bleaching powder. The bleaching powder oxidizes the coloring matter and renders it soluble so that it can be washed from the pulp leaving the latter almost pure white.

The bleaching powder solution is prepared by placing a certain amount of bleaching powder in a tank with water. The tank is equipped with an agitator which stirs the mixture until practically all the calcium hypochlorite is in solution. The solution is then run into settling tanks where the insoluble matter is allowed to settle out and is syphoned off into measuring tanks from which it is mixed in the desired quantities with the pulp.

A great many mills now-a-days manufacture their own bleach from salt as they find it more economical than buying it from the bleach manufacturers. In case this is to be done a solution of common salt is run into an electrolytic cell where it is broken up by the action of an electric current into chlorine gas and caustic soda solution. The caustic soda solution is evaporated and either sold or, in case soda pulp is being manufactured, utilized at the plant. The chlorine gas is being manufactured, utilized at the plant. The chlorine gas is conducted into tanks contaning milk of lime where it combines with the lime forming a solution of bleaching powder. The solution is allowed to settle and is then syphoned off and used in exactly the same way as the above described solution made from bleaching powder.

There are two general systems for bleaching pulp namely the tank system and the bleaching engine system; all other systems are modifications of these two systems. When bleaching by the tank system the pulp is placed in a tank provided with some sort of stirring apparatus and the bleaching solution or bleach liquor, as it is called is added. The mixture is stirred until the pulp is bleached, which takes from three to four hours, after which it is dumped into tanks with perforated tile bottoms where the residual bleach liquor and soluble coloring matters are washed out. When the pulp has been thoroughly washed it is pumped to wet machines and formed into thick sheets and is now ready to be made up into paper.

The bleaching engine which is used in the second system consists of a shallow oval shaped vessel divided lengthwise by means of a partition called the "mid feather" which, however, does not extend to the walls of the apparatus.

In one of the two channels into which the tub is divided a heavy roll fitted with steel knives revolves. Below the roll, on the floor of the tub is a fixed "bed plate" also provided with projecting steel knives lying parallel to those of the roll. The distance between the knives of the roll and those of the bed plate may be altered by raising or lowering the roll by means of adjusting screws. In the other channel there is placed a "drum washer" which serves to remove the dirty water from the pulp. The drum is divided into sections by means of partitions and the surface of the drum is covered by a fine brass wire cloth supported and strengthened by a coarse cloth underneath. The pulp is placed in the engine with the bleach solution and the passage of the pulp and bleach liquor between the roll and the bed plate serves to break up the pulp and intimately mix it with the liquor. After the mixture has circulated for about three hours the drum washer is started and clean water is run into the engine. The residual bleach liquor and coloring matter is carried out of the pulp by the drum washer and the pulp is washed clean with the water. From the bleaching engine the pulp is dumped into storage tanks and then run over the wet machines to remove the excess water and to form it into sheets. In case the bleached pulp is to be used at the plant it may be dumped directly from the bleachers to stock tanks and pumped to the beaters as required.

Depending upon the kind of pulp used and its previous cooking treatment from 10 to 25 per cent of its weight in bleaching powder is required to bleach it. A loss of about 10 per cent in weight is sustained by the pulp during the bleaching process, which loss is due to the coloring matter and other impurities removed by the bleach liquor.

The Manufacture of Paper.

The production of paper from pulp divides itself into four main operations namely; beating the pulp, felting the fibres, removing the water and finishing the paper. The principle of making all kinds of paper is the same regardless of whether we are dealing with newsprint or high grade writings although some of the operations differ in detail.

Beating.

The pulp is placed in a machine known as a beating engine or beater, which is very similar to the bleaching engine described under bleaching, in that it consists of an oval shaped tub with a partition through the centre in the lengthwise direction extending to within a short distance of the ends of the tub. This partition or "mid feather" divides the beaters into two channels, in one which revolves a heavy roll fitted with projecting knives, extending along the face of the roll. Below this roll on the floor of the channel a "bed plate" fitted with knives parallel to those of the roll, is fixed. Behind the roll a sort of dam or "back fall" keeps the pulp from backing up against the roll. The roll is equipped with a raising and lower device so that the distance between it and the bed plate may be varied.

Pulp and water in the proportion of about 1 to 20

are placed in the beater and in passing between the roll and the bed plate the pulp is thoroughly disintegrated and separated into individual fibres. If the fibres are too long for the particular grade of paper being manufactured they are cut by bringing the roll knives down close to the bed plate knives. The pockets between the projecting knives of the roll catch the pulp and acting like a bucket wheel throw the stock over the "back fall" in which manner the stock is kept circulating round the beater. If stock is circulated for a long time in the beater a peculiar action takes place in which

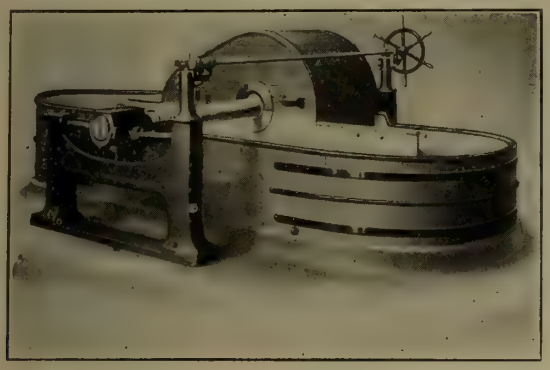


Fig. 14.
BEATING ENGINE.
Showing Trough, Midfeather Device, for Raising and Lowering Roll and Hood over Roll.

the cellulose fibres take up water and become greasy or slimy. Advantage is taken of this fact in the manufacture of "glassine", "grease proof" papers and other papers of this nature. If the pulp is to be colored the dyes are added during the beating process in order that they may be well mixed with the pulp. The material for rendering the paper more or less water proof is also added at this point. This operation is also added at this point. This operation is known as "sizing" the paper. The size consists of rosin cooked with soda and the proportions being so adjusted that theer is an insufficient quantity of soda ash adjusted that there is an insufficient quantity of soda ash present to convert all rosin into rosin soap and some "free" or uncombined rosin will be left suspended in the rosin soap. This mixture of rosin and rosin soap is then agitated and thoroughly mixed with water in one way oranother and made up to a very dilute solution containing about 2 pounds of rosin size to 98 pounds of water. This size resembles milk to a considerable extent and for this reason is known as "milk of size". The size solution is added to the pulp in the beater and thoroughly mixed therewith after which a solution of alum is added to precipitate the resin upon the fibres. The resin is precipitated in a finely divided state upon the individual fibres and in the subsequent drying operation melts and on cooling thoroughly closes the pores of the paper, making it more or less ink and water proof. When the pulp is thoroughly beaten it is emptied into stock tanks from which it is pumped to the Jordan engine or refiner as it is called. The Jordan engine consists of a hollow cone lined with knives similar to those of the beater roll. A movable conical plug with knives projecting from the surface fits inside the hollow cone. The plug can be moved backward and forward in the direction of the axis of the cone thus either increasing or decreasing the distance between the knives of the cone and those of the plug. The beaten pulp passes through the cone between the knives of the rotating plug and the stationary knives of the cone and is brushed and cut to the proper condition for the production of paper. After passing through the Jordan engine the pulp is run into "stuff" chests provided with agitators.

In spite of the careful treatment that the pulp has received there are still some fibre bundles, slivers, etc., which must be removed before the pulp is made up into paper and to accomplish this the pulp must be screened. The pulp is pumped from the stuff chests to a regulating or "head" box placed above the paper machine and serving the purpose of finishing a constant supply of pulp to the machine. The box is so arranged that more pulp than is needed by the machine is pumped to it, the excess pulp flowing back from the box to the stuff chests. After the pulp leaves the head box it is diluted with water to such a point that for every pound of pulp present in the mixture there is about 150 pounds of water. This mixture is then passed through flat screens to remove the coarse material and the fine fibres pass on to the flow box of the paper machine.

Felting the Fibres and Removing Water.

The flow box is a long narrow box placed at one end of and extending the full width of the paper machine. The pulp flows into this box where by an arrangement of baffle plates or a stirrer as the case may be, the pulp is thoroughly mixed with the water. From the box the mixture flows through an opening or slot to an endless woven wire-cloth known as the machine wire. The pulp is transferred from the box to the moving wire by means of an apron, a thin rubber sheet one end of which is attached to the box and the other allowed to rest upon the moving wire.

The paper machine proper is divided into two parts, the wet end and the dry end. At the wet end the pulp is formed into a sheet of paper and a portion of the water is removed by draining while at the dry end the remaining water is removed by drying with steam and the finishing operations take place.

The wire upon which the pulp flows from the flow box is an endless brass cloth from 40 to 75 feet in length and 70 to 202 inches wide with a mesh of from 60 to 80 wires per inch. It runs over two rolls, the breast roll situated near the flow box and the lower



Fig. 15.
JORDAN ENGINE.
For Refining Stock from Beaters.

couch roll. Between the breast roll and the couch roll are a series of table or tube rolls over which the wire passes and which serve to support it. The path of the wire is from the breast roll over the table rolls between the upper and lower couch rolls and back under the machine to the breast roll. Beneath the machine are several small rolls which serve to guide the wire and keep it tight.



Fig. 16.

GENERAL VIEW OF PAPER MACHINE FROM THE CALENDER END.

As soon as the pulp flows onto the moving wire it passes under the slice, a brass bar set on edge extending across the entire width of the wire. This bar is adjustable in height and width and serves at least three purposes; (1) By varying its height above the wire the thickness of the pulp mixture flowing onto the wire and consequently the actual thickness of the paper may be varied. (2) By adjusting the flow of stock from the flow box so that the mixture extends some distance above the bottom of the slice the stock is damed up and a hydraulic head produced which may be varied and the speed with which the stock flows on to the wire thereby changed. (3) By the damming action a pool of stock is formed behind the slice which in conjunction with the shake aids in the felting of the sheet.

To prevent the pulp from flowing over the edges of the machine wire "deckle straps" are used. These consist of heavy endless rubber bands of square cross section placed on each side of the wire. They are carried on wheels above the wire in such a way that their bottom side is in contact with the wire and travels with it. In this way the straps form sides which confines the pulp to the wire.

The speed with which the stock flows onto the wire causes all the fibres to lie in such a position that their long axis is pointing in the direction in which they are travelling. Since a paper whose fibres are all parallel is generally very weak it is necessary to distribute some of the fibres at right angles to the others. This is accomplished by shaking the frame on which the wire travels by means of an eccentric. The frame is given about 175 shakes a minute and this causes the fibres to interlock and become well "felted".

As soon as the pulp strikes the wire water begins to drain away and this drainage is hastened by the capillary action of the table rolls and by suction boxes. Two or more suction boxes are placed beneath the wire. The tops are generally of wood, perforated, and the boxes are connected with vacuum pumps which draw the water from the pulp as it passes over their tops. The water which drains from the wire contains a considerable portion of fine pulp which must not be wasted and for this reason a large shallow box of "save-all" is placed under the wire which catches the water as it drains through. This water is used for diluting the pulp from the stuff-chests before it flows to the screens and the surplus is either used in the beaters or passed through a fine wire screen which removes the pulp and allows the water to flow to the sewer. By the use of such "save-alls" a considerable saving in pulp is brought about.

Between the suction boxes the paper is submitted to the action of the "dandy-roll," a skeleton roll faced with wire cloth, which revolves on the surface of the wet paper and presses it giving the upper surface of the paper the same appearance as the lower side which is in contact with the machine wire. If the paper is to be water marked, raised wires in the form of water mark desired are sewn or soldered to the wire surface of the dandy roll and the impressions of the raised pattern on the wet paper causing a thinning of the pulp at that point results in the formation of the water mark.

Upon leaving the suction boxes the wet paper is carried by the wire between two "couch-rolls" the upper one being of wood or iron and covered with a felt jacket. The action of the couch-roll is to press the

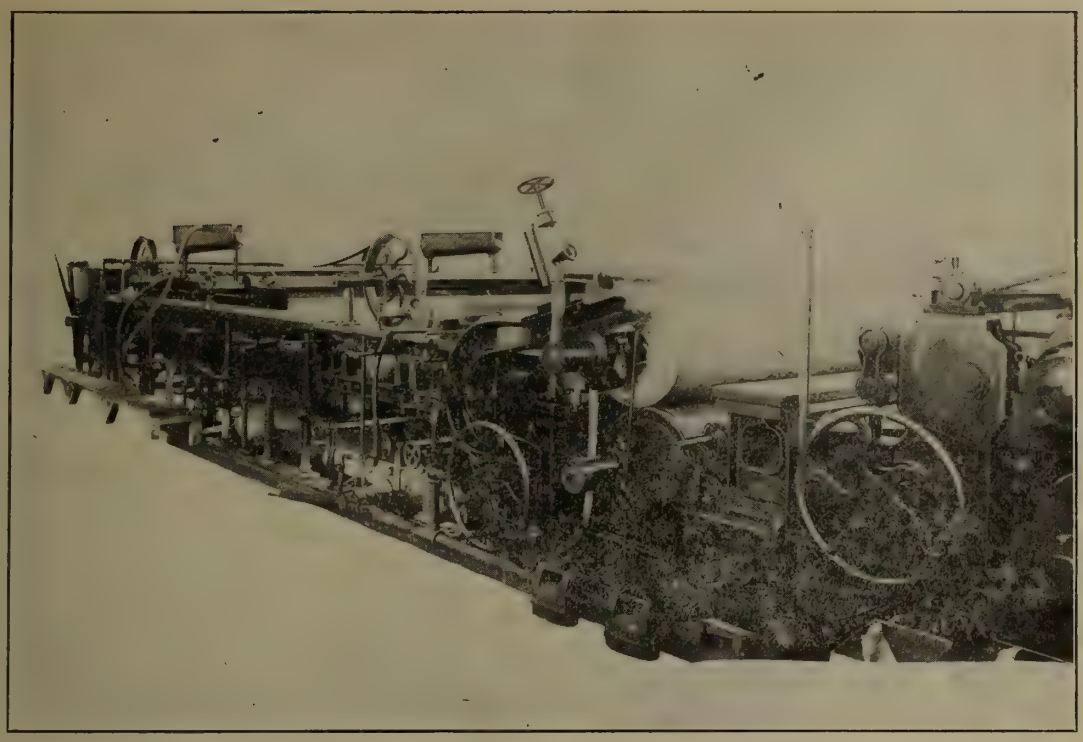


Fig. 17.
FOURDRINIER, OR WET END OF PAPER MACHINE,
Looking from Couch Roll to Breast Roll.



Fig. 18.
PORTION OF DRYER SECTION OF PAPER MACHINE.

fibres together to form a more compact sheet and to remove some of the water still present in the paper. The wire paesses around the lower couch-roll and back under the machine to the breast-rill and the paper passes from the wire to an endless felt which carries it between the press rolls. These are heavy iron or stone rolls which serve to press the sheet together and make it more compact, they also remove a small amount of water. The paper machine is usually provided with two or more presses so that the paper may be passed through one set and back through the other set to give both sides of the sheet the same finish.

Drying the Paper.

The wet paper leaving the press rolls still contains about 70 per cent water which cannot be removed by draining and squeezing. It is, therefore, necessary at this point to resort to heat for removing the moisture and for this purpose large drying cylinders are used. These consist of large hollow cylinders somewhat wider than the paper and from 3½ to 5 feet in diameter,

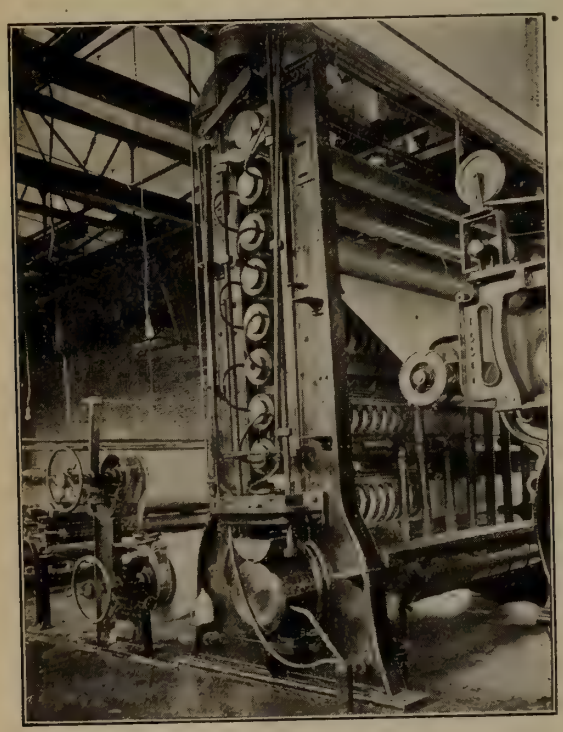


Fig. 19.

CALENDER STACK.
As Used on Fast Running News Machine.

heated internally by steam, generally the exhaust steam from the engines driving the machine, and provided with syphon pipes or dippers for removing the condensed steam. Depending upon the weight of the paper made and the speed at which the machine is run there are from 12 to 40 dryers used. The paper is led over these cylinders by means of endless felts which press the paper against the hot surface of the dryers. The dryers are placed in two or more rows, one above the other and the paper is passed from a top dryer to a bottom dryer, back to a top dryer and so on in such a manner that first one side of the paper and then the other is in contact with the surface of the dryers. The water is slowly evaporated from the paper in its passage over the dryers so that when the sheet leaves the last drying cylinder practically all the water has been removed.

Putting on the Finish.

With ordinary "machine finish" papers such as newspapers, wrapping papers, etc., the paper after leaving the dryers is passed through calender stacks to give it the desired finish. A calender stack consists of a number of heavy highly polished chilled iron rolls; the rolls are in contact lying one above the other and in addition to their own weight extra pressure can be exerted between them by means of a system of weights and levers. The paper is threaded between the rolls and the finish is imparted by the pressure and rubbing action of the rolls. When a high finish is desired the paper is moistened before it is calendered and in many cases one of the rolls in the stack is steam heated. When treated in this way the paper is said to be water finished. When a very high finish is desired the paper is pressed through additional calenders called "super-calenders." The super-calender is made up of alternate chilled iron rolls and rolls of compressed cotton or paper; the rolls are very heavy and a great pressure is obtained by means of weights and levers. A high degree of finish is obtained by passing the paper several times through the super-calender.

Other Grades and Finishes.

High grade writing papers are sized with gelatine to improve their surface and sizing qualities. With the cheaper grades the sizing is often carried out on the paper machine itself whereas the better grades are sized on separate sizing machines. When the paper is to be sized on the machine a tub containing a solution of gelatine is placed between the drying cylinders near the end of the paper machine. The dried paper is passed through the gelatine bath then between squeeze rolls to remove the excess of gelatine and finally dried either by steam heated dryers or by passing over skeleton rolls through which hot air is blown. After the paper is thoroughly dried it is run either through super-calenders or plate glazing machines. The operation of the plate glaing machine is as follows: The paper is first cut into sheets of the proper size which are then built up in a pile with zinc plates between the sheets. When the pile is large enough it is passed between rollers where a great pressure is given; the pile is passed through the rolls a sufficient number of times to give the desired finish.

Coated papers are those which after passing over the paper machine are given a mineral coating to produce a smooth surface for fine printing work. The paper uesd for half tone engravings in magazines and books is almost always a coated paper. The paper itself is generally of a good grade and fairly well sized, but is not given a very high polish. The mixture used for coating is generally made up of china clay, glue and water, but calcium of barium sulphate may be used in place of the china clay and casein often replaces the glue. The paper in the form of a roll is placed at the back of the coating machine which is a large drum about 4 feet in diameter and 4 feet wide. The paper passes under the drum and then over the top and during its passage is brought in contact with an endless felt which transfers the coating mixture to the paper. This coating mixture is fed continuously into a trough on the front of the machine and is maintained at a constant level. The coating mixture is transferred from the trough to the felt by means of a copper roll rotating in the mixture and the excess of coating material is removed from the paper by passing it between squeeze rolls. In order to ensure perfect adhesion and

a smooth surface the coating mixture is rubbed into the paper by means of stationary and oscillating brushes which operate on top of the drum. The paper then passes to the drying apparatus which consists of two overhead rails upon which an endless chain carrying a series of sticks travels. The paper is caught on the sticks carried up to the rails where it falls into a series of loops at the same time moving slowly forward on the rails. A current of hot air is blown against the paper to aid in drying. After drying the paper is reeled up and taken to the super-calenders where a high polish is imparted to the sheet. Because of the extreme smoothness of the surface of coated paper it is very suitable for printing half-tones.

Packing and Shipping.

The final finishing operations consist in cutting, sorting and packing the paper in bundles. Newsprint is generally sold in the roll but sometimes in sheets, wrapping paper is furnished in both rolls and sheets while writing paper is always sold in sheet form. The cutting into sheets may be done automatically by means of rotating knives, or by a combination of machine and hand labor in which a guillotine cutter with a knife moving up and down is used. After cutting the paper is carefully inspected for defective sheets, and is then counted out into reams of 480 or 500 sheets. Several of these reams are tied up together in wrapping paper and are shipped from the mill in this condition.

Growth and Importance of the Industry in Canada.

Because of her great timber resources together with abundant water powers Canada has the opportunity of becoming the greatest pulp and paper producing country of the world. Never in her history were conditions so advantageous for the development of the pulp and paper industry and probably never again will a combination of circumstances bring about such opportunities as exist now, and will exist for the next few years. So far as industrial development is concerned Canada is a young country and with a relatively small population the tendency has been to export the raw materials with which she is so abundantly provided and to import in turn the finished products for the consumption of her people. This is a natural condition when a country is young industrially, when the population is small and when capital is not at hand for the development of industries. But the time has come when she should no longer send her raw materials to other countires but convert them into finished products within her own boundaries, exporting the manufactured article and thereby reaping the profits which have been going to others.

Conditions in the pulp and paper industry show the general trend of events and the curve given in Fig. (18) is of interest in showing the amount of wood manufactured into pulp in Canada and that exported in the raw state from 1908-1915. It is interesting to note that in 1908 of all the pulp wood cut 64 per cent was exported in the raw state and 36 per cent manufactured into pulp, whereas in 1915, 59.6 per cent of the pulpwood was manufactured into pulp and only 41.4 per cent exported in the raw state. From 1908 to 1915 the exportation of pulpwood increased only about 6.7 per cent, whereas the pulp exports increased 190 per cent. Since the middle of 1912 the wood manufactured into pulp in Canada has been increasingly greater than that exported in the raw state.

Abundant supplies of timber and cheap water power, with which Canada is amply supplied, are the prime requisites for the production of groundwood pulp while coal enters largely into the manufacture of chemical pulp. Some of the minor chemicals required such as sulphur are not produced in Canada, but are easily obtainable. For these reasons the pulp and paper industry should increase rapidly in the next few years. New mills are going up now and additions are being made to the older mills so that there is no question but that the industry is showing a sound and steady growth and there is absolutely no doubt that this growth will continue.

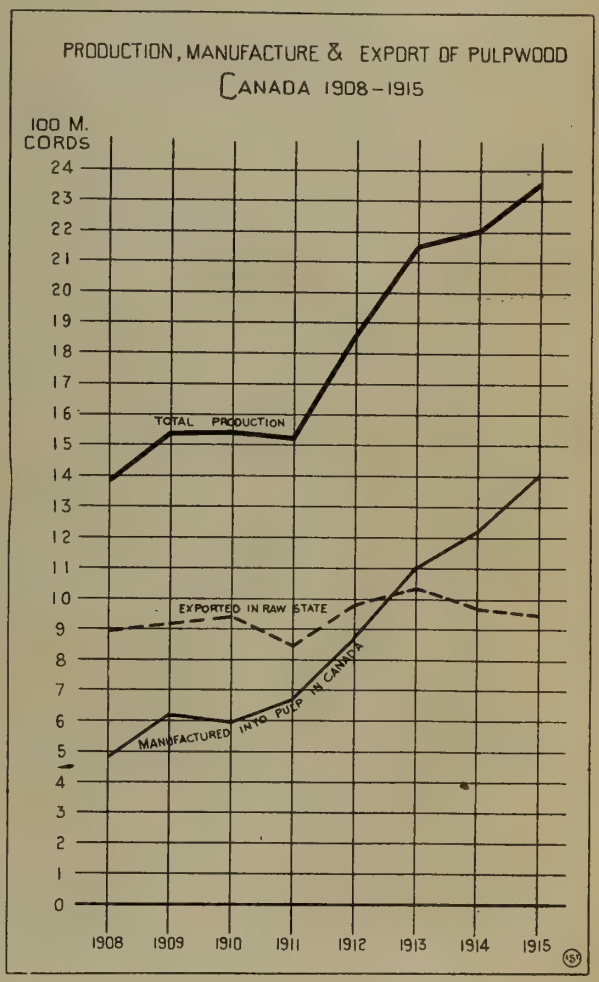


Fig. 20.

It is well, however, to sound a word of warning to prospective pulp and paper manufacturers. No new mills should be erected whose profits are based on the present prices of pulp and paper. It seems hardly necessary to point out this fact, but nevertheless, the high prices prevailing to-day are tempting some to consider seriously the field of pulp and paper. After the war paper prices are bound to fall and a mill which may make a good profit to-day may find itself stranded when the lower prices go into effect. The cost of machinery, building construction and labor are so high to-day that it would probably cost nearly 100 per cent more to erect a mill than would have been the case in 1913 for instance. Now, while this high overhead expense may be easily borne by the new mills when prices are at the abnormally high point that they have now reached, this same overhead would probably swamp the mills when the prices have gone back to normal. We

thoroughly believe that new mills should be erected, but we also believe that under ordinary circumstances such construction should be deferred until conditions are more nearly normal.

It would hardly be right to close the article without a plea for conserving our timber resources. We are blessed to-day with abundant forests, but at the present rate of cutting and burning we will in a few years be in the position of many other countries who began conservation of resources when the resources were almost depleted. We are fortunate in having the experience of other countries to fall back on; some of our problems are already worked out for us and we need only to apply the solution of these problems to be assured of a supply of timber ample for all our needs.

In this connection let us consider the timber requirements of a mill manufacturing newsprint at the rate of 200 tons a day. For every ton of newspaper produced there is required about 1¾ cords of wood. From an average stand of timber we can expect about 10 cords of wood to the acre so that 30 acres per day or 9,000 acres per year are required to run a mill of this size. Now, by scientific cutting and reforestation new timber should be available for use for pulp making in about 40 years so that a tract of from 350,000 to 400,000 acres by careful cutting and tree planting would suffice to run this mill indefinitely. Without proper cutting or planting this land would produce very little timber suitable for pulp purposes after it was once cut over. Canada as a whole is producing about 1,800 tons of newsprint alone per day, requiring about 2,700 acres per day for the production of the pulp wood used so the importance of conserving our resources can readily be appreciated.

That the pulp and paper industry is well established in Canada may be seen from the following statistics. During the year 1915 Canadian pulp mills consumed 1,405,836 cords of wood valued at $9,426,217, while 949,714 cords, valued at $6,164,133 were exported to the United States. Therefore, the total cut of pulpwood in Canada for 1915 was 2,355,550 cords, valued at $16,590,330. Canada is also exporting an increasingly large amount of paper every year. Paper to the value of $15,509,000 was exported in 1915 as compared with $6,327,000 in 1913, and $9,100 in 1892. While the increase in value of paper exported in 1915 over that in 1913 was due to an increase in price as well as an increase in amount, still the increase in tonnage exported is considerable. The exports to the United States for the month of May, 1916, gives a good idea of the nature as well as the value of the products shipped.

Exports to United States, May 1916:

Groundwood	$ 299,645
Chemical Pulp	660,094
Bleached pulp	80,033
Print, book and newspaper	1,665,108
Wrapping paper	7,712

According to the best sources of information at hand there are 88 separate plants operating in Canada at the present time. These plants range from small units making a few tons of groundwood pulp per day to enormous plants manufacturing hundreds of tons of pulp and paper every twenty-four hours. The mills are distributed through Canada as follows:

Quebec	41
Ontario	34
Nova Scotia	5
New Brunswick	4
British Columbia	4

The following table compiled from data published by the Forestry Branch shows the amount of pulp manufactured in Canada in 1915 and the proportion produced by each province. While the figures are not complete since they do not include all the mills in Canada they are valuable in that they give an idea of the size of the industry and to what extent it is divided among the provinces.

Pulp Produced in 1915.

	Total Quantity Tons	Percent Distribution.
Total pulp produced	1,074,805	100.0
Quebec	561,793	52.3
Ontario	364,226	33.9
British Columbia	65,823	6.1
New Brunswick	62,093	5.8
Nova Scotia	20,870	1.9
Groundwood pulp produced	743,776	100.0
Quebec	425,626	57.2
Ontario	247,825	33.3
British Columbia	41,111	5.5
Nova Scotia	20,870	2.8
New Brunswick	8,334	1.1
Sulphite pulp produced	235,474	100.0
Ontario	106,401	45.2
New Brunswick	53,749	22.8
Quebec	50,612	21.5
British Columbia	24,712	10.5
Sulphate pulp produced	92,405	100.0
Quebec	82,405	89.2
Ontario	10,000	10.8
Soda pulp produced	3,150	100.0
Quebec	3,150	100.0

In the table which follows a more or less rough estimate has been made of the amount of paper manufactured per twenty-four hours and the distribution throughout the provinces. This table includes all classes of paper such as news, wrapping, writing paper, container board, leather board, etc.

Paper Produced.

Province	Pounds paper manufactured per 24 hours.	Per cent Distribution.
Total	6,752,000	100.0
Quebec	3,092,500	45.8
Ontario	3,070,000	45.5
British Columbia	450,000	6.6
New Brunswick	*100,000	1.5
Nova Scotia	40,000	0.6

(*)—Represents potential production.

In addition to the above figures it is estimated that developments are now under way which will by 1918. increase the daily tonnage of pulp by 880 tons. Several mills are also increasing their capacity for producing paper so that in the near future considerably more paper will be turned out.

When we consider the rapid growth of this industry in Canada and the magnitude to which it has attained in a comparatively short period of time we cannot but conclude that with our wonderful resources we are bound to become the greatest wood pulp and paper producing country of the world.

ASSOCIATION FORMED BY NAVAL STORES PRODUCERS.

A meeting of the Turpentine and Rosin Producers' Association was held recently at New Orleans for the purpose of arranging for the final details for organization. Its purpose will be the best development of the naval stores industry and its various fields of operation will be divided into service bureaus, these various bureaus being organized along lines similar to those of the Southern Pine Association.

Over fifty per cent of the producers of Louisiana, Mississippi and Texas have pledged themselves to subscribe to the association. Activities will commence immediately, they merely waiting on the appointment of a permanent secretary. This association will take up the various grievances which the naval stores industry of this region now has, also study marketing conditions both domestic and foreign. It will endeavor to open up new markets and handle in a more efficient manner those already in existence. It will co-operate with the various associations now existing, with a view towards reducing the extent of the adulteration of spirits and the misgrading of rosin, and will strive to elevate the standard of packages originating in this section, thereby setting an example for the whole naval stores industry to follow.

The Association will serve as a tangible, fighting unit to contest for the many rights of the naval stores manufacturer.

It will be a bureau of information, regularly furnishing valuable data covering all phases of the industry.

It will increase consumption by fighting adulteration, findng new markets and educating the consumer.

It will be a co-operative medium through which improved methods of work and distillation can be accomplished successfully.

It will establish and maintain a high standard of quality and organization for this region. Its name will become a synonym for integrity and be a trade mark of value.

For the time being the membership in the association will be limited to turpentine operators of Louisiana, Mississippi and Texas. — From Southern Lumberman.

ANNEXING UNCLE SAM

The Ticonderoga Pulp and Paper Company, of Ticonderoga, N. Y., has just been purchased by the Riordon Pulp and Paper Company, of Montreal. Paper never was so scarce as it is today, prices so high or the demand so insistent. Various newspapers and magazines seeking relief have endeavored to buy paper mills, in order to provide for their needs, but with little success. Canada, in order to meet the financial strain to which she is being subjected by the war, is borrowing in the United States. Incidentally the Canadian Pacific Railway, which already owned the Wisconsin Central and the St. Paul, Minneapolis and Sault Ste. Marie, has added the Minneapolis and St. Louis to its system, making a large part of Iowa and the Dakotas tributary to Canada as the Wisconsin Central and the Soo route territory have been for years. And now a Canadian paper company invades the United States and buys an American plant in time of American paper famine. For a borrowing people the Canadians are doing quite well. But what about somnolent America? —New York Mail.

WORLD'S PAPER SHORTAGE.

That the same conditions which exist in the paper, chemical and pulp markets of the United States obtain all over the world is evident from the following abstract from a digest of world's markets prepared by the News-print Manufacturers' Association:

Portugal is offering five cents a pound for newsprint f.o.b. steamer New York, but it is said no supplies have been obtained. Scandinavian newsprint is being offered in New York at 5¼ cent a pound f.o.b. New York, based on a $5 freight rate.

In Italy some Sunday papers have been suspended, and the size of weekly and daily papers cut down, but decreased consumption.

The French government has placed an embargo on importation of printing paper. This will further curtail consumption, probably to the extent that France will soon have only two-page papers throughout the week.

The Japanese pulp output will shortly reach 66,139 short tons a year. Foreign chemical pulp before the war used to show a good profit at $49.50 per short ton, whereas Japanese makers are at present receiving $99.65 per short ton. Japan is selling newsprint in Australia at five cents per pound.

There is a great scarcity of sulphate and soda pulps in England, sulphate being quoted at $152.08 to $165.11 per short ton, and soda at $158.60 to $162.94 per short ton. It is rumored that the government's difficulties with Sweden have been settled and that Sweden will again ship chemical pulp to England.

Finland continues to take care of the heavy demands from Russia and is obtaining in the open market as high as $150 to $175 per ton (at present rate of exchange) for newsprint.

Germany continues to take all of the Swedish sulphate that can be obtained, and prices are last month, viz., $102.11 to $104.54 per short ton.

PULP AND PAPER ENTERPRISE IN NEW ZEALAND.

The New Zealand Wood Pulp & Paper Manufacturing Co., Ltd., incorporated in July last, with headquarters at Christchurch, has secured large areas of bush lands suitable for the manufacture of paper in the Rotomanu (Otira) district. It holds on lease and reservations over 30,000 acres, and it is proposed to erect a plant which, together with the cost of harnessing streams for power, will run into six figures. It is estimated that from 20 to 25 tons of paper will be manufactured daily in the near future, the class of paper primarily aimed at being the newspaper reel. Recent statistics show that close on 40 tons of paper was the amount consumed daily in New Zealand by the press, the annual cost being £378,535.

HELP TO MAKE HONOR ROLL COMPLETE.

The Secretary of the Canadian Pulp and Paper Association has asked the Pulp and Paper Mills of the Dominion, to send in completely revised lists of their employees who have enlisted for service overseas.

The final date for the receipt of these lists is January 10th. All manufacturing firms are requested to forward lists without delay to Mr. Roy Compbell, 113 Board of Trade, Montreal.

A copy of the Honor Roll will be sent to the mills for each man whose name appears.

CANADIAN NORTHERN DEVELOPING NEW TIMBER AND PULP WOOD TRACT IN SOUTHERN ONTARIO.

A delusion which has been cultivated assiduously since the days of Canadian Confederation is being challenged today by Canadian Northern Railway officials charged with the development of the areas traversed by the line of that company between Sudbury and Port Arthur. It is expected that the operations now under way on behalf of the C.N.R. will result in the production of a substantial local tonnage through that stretch of Canada. Active work has been under way since last July and, although settlement must, of necessity, be slower than on the plains to the west of Winnipeg, the prospect for the building up of towns and traffic in what was untamed wilderness five years ago, is considered promising.

Mr. D. B. Hanna, third Vice-President of the road, in discussing this new move, pointed out that less than three years ago—to be exact, New Year's Day, 1914—Sir William Mackenzie drove the last spike on the Sudbury-Port Arthur line. As the work of construction had been commenced in the late autumn of 1911, little more than two years had been required to span the 543 miles of hinterland lying back of the great inland sea by a new highway for commerce. Since then the problems and opportunities of that portion of the new north have been under consideration. The war, having caused the present decidedly keen demand for paper, has furnished a partial solution. In the country through which the new line runs there is sufficient of the raw material to satisfy even the hungry press of a metropolitan paper for more than two hundred years. As the land is cleared of the forests of spruce, and other timber, the expectation is that incoming settlers will find more to please them in these sections of New Ontario than has been the case up to the present time. It is apparently the first great step which has been taken to make the new line self-supporting from local traffic, quite apart from its revenue value as a carrier for through business between the East and the West.

The Canadian Northern, has arrived at the conclusion that the preliminary work must be confined largely to the working up of the natural riches in the mineral and timber-bearing lands, and, in conjunction with the provincial government to locate homes for settlers in the fertile agricultural lands, especially near the new divisional points. Maps have been prepared, giving all the information that is available, for the guidance of prospectors, as a preliminary to the larger, and, of course, more exhaustive geological maps now being prepared. A careful inventory of the timber on each side of the railway has been completed. The land which may be classified as now open for farming, particularly in proximity to the towns in the making, is being surveyed; mining men are working over the mineral-bearing lands, and men are in lumber camps in the valleys of the rivers which will float the pulp wood to the mills at the strategic points.

The C.N.R. plans to purchase each year all of the railway ties the settlers can produce along the Sudbury-Port Arthur line. In addition there is this new call for 1,000 miles of railway to be constructed back of the fighting front in France and Flanders. That would involve the cutting of some 3,000,000 ties and a large portion could be supplied from the territory served by the Canadian Northern Railway north of Lake Superior. This would probably mean a total of several hundred thousand dollars expended by the company directly. In itself that comprises a fairly large opportunity. But in addition it is calculated that some 60,000 cords of pulpwood will be cut each year along the line. Add to this the returns upon sawn lumber in connection with the logs out of which the ties are cut, and it will be seen that the cash distributed to the hamemakers along the line each year, as a direct result of Canadian Northern activities should approach a very substantial total.

During the past four months a considerable plant has been developed at Foleyet, the first divisional point on the C.N.R. west of Sudbury. There the company have erected a tie saw-mill and a pulpwood barking plant. The machinery and equipment are housed by two mill buildings each 30 x 120 feet, and two stories in height. Between these a structure 30 x 160 feet contains an engine of 400 horse-power. The pulp barking plant has a ten-hour capacity of 150 cords and a carload of settler's wood can be custom-barked, entirely without hand labour, and conveyed into open rack cars for shipment within an hour. The slasher-saw equipment which consists of nine saws, reduces into two-foot lengths the pulpwood from two rivers above, and the plant has been located just below the junction of the streams.

Garden farms of a few acres each are being laid out adjacent to the townsite and the divisional point yards. There are two purposes in view. One is, that small contractors and jobbers taking out lumber in the neighborhood will have sufficient land on which to grow the farm produce required for their camps in the district; the second is, to provide for homes for the settlers adjacent to the large cleared fire area of the townsite and mill site, so that during the next few years the families or settlers may reside in the town and enjoy community interest, and the children receive a good education at the town school.

The Canadian Northern, will move mills from the west to be installed at other points, the policy being to create a produce and labour market for settlers each 20 miles throughout the clay belt.

This plan will undoubtedly make possible a more rapid development of the country, and ought to be in harmony with the settlement work of the province in the future.

BRITONS TO GAIN WHAT GERMANS LOSE.

Before the war, quoting the 1913-14 annual figures, Germany and Austria-Hungary between them sold £11,300,000 worth of goods to British India. Belgium in the same period sent goods to the value of £2,800,000, and Frances figure was close on £1,800,000. Austria's and Germany's share of this £16,000,000 worth of trade it is now for British manufacturers to divert to themselves.

The principal commodities exported from India include: cotton, wool, silk, jute, grain and pulse, oil seeds, oils, hides and skins, wood and timber, tea, coffee, tobacco.

There is a rapidly growing output of rubber, and a trade which may know an important revival as the result of the war is that of indigo.

A Fire Protection System for the Upper Ottawa Region

The Upper Ottawa Forest region, comprised in that part of the watershed from Quinze River to a point about 30 miles East of Grand Lake Victoria, has an area of about 8,000 square miles. If we include the entire watershed drained by Quinze River the area would be considerably greater.

This entire area, classified by the Quebec Government as "Forest Reserve" is sub-divided into "Crown grant timber limits" that are now owned by various companies and individuals whose interests in such holdings must wisely be strengthened as time goes on and timber values increase.

But as these limits become more valuable by reason of the country's development that steadily creeps towards and ultimately envelops the forest it is found that this very progress, which on the one hand enhances the potential wealth of our timber lands, provides, on the other hand, a most serious menace in the form of fire.

That this region like most other large forest areas has suffered deplorable fire losses in the past there is ample evidence. But that much greater losses are inevitable, unless wise methods are promptly adopted to protect the district from the result of its growing popularity as a "sportsmans' paradise" and the approach of colonization, is patent to anyone acquainted with Canadian forests. Disasters like the Great Porcupine fire of 1911 and Northern Ontario fire of 1916 are to be prevented from recurring only by careful and energetic methods of protection, and especially must the fire ranging force be so organized as to keep in touch with and educate prospectors and "tenderfeet" (who cannot be kept off the limits), by every means in their power.

What is needed, therefore, is not so much increased expenditure on fire ranging, but rather an efficiently organized system made powerful by co-operative work and ingenuity.

The long distance between rangers, the large areas they are assigned and the total lack of systematic and intelligent control naturally adds deadly inefficiency to already lazy fire rangers, who, lacking keenness and a sense of the importance of their duties fail miserably to perform any of them because common sense suggests that as their alloted area is so large they might just as well remain in one spot since if they move the fire may occur at the other end of the "beat."

The present system is usually more of a menace than a protection owing to the indolence and carelessness developed by rangers who scarcely ever move from camp except to look for food.

Although there are many suitably located hills and mountains in the Upper Ottawa district not one of the old rangers has ever bestired himself sufficiently to establish a look-out on one of these hills whence he might have seen hundreds of square miles of surrounding country.

Upper Ottawa Well Watered.

A glance at the map shows how well watered the Upper Ottawa Reserve is. Lakes and rivers abound to such an extent that it is impossible to penetrate to every corner by canoe, provided the necessary trails are cut out. But notwithstanding the long days of idleness that left opportunities for improving fire ranging by making such trails, connecting water courses and leading to mountain or hill tops, the fire rangers never raised a hand to justify their existence. I have known them to remain in camp for four days blissfully ignorant of the fact that all that time a fire raged within five miles of their camp and destroyed several hundred acres of timber, yet I had detected said fire from a lookout station on a mountain nearly 30 miles away.

It is true that the fire ranger has to report once a month even if it takes, as I have observed, seven days to come back to his "beat."

Now I maintain that the present method is costing a good deal and offers no protection. Therefore, I would urgently recommend that a new system be inaugurated for next year.

The cost of maintaining such a new system will not be greater than the present disjointed and inefficient method and certainly will produce most satisfactory results as I have already learned by having started the system on the M. J. O'Brien limits.

Proper fire ranging requires the most energetic men who will travel night or day as conditions demand.

Trails must be cut in every direction, and constantly added to, in order to improve rapidity of movements and provide short cuts between all parts of the district under protection.

The more trails there are on a limit the better, because they provide not only a means of rapid travel but they become excellent baselines from which close detail forestry cruises may be made — a work that the fire rangers should be employed at when not occupied on patrol duty or "sighting" the country from look-out stations.

The system of co-operative effort that I propose, while not costing more than the present method of isolated and individual effort will:

1. Enable rangers to see every square mile of the limits every day.
1. Enable rangers to detect a fire even though many miles away.
3. Enable prompt communication to all rangers within many miles.
4. Enable rapid concentration of fire fighting forces at the danger point.
5. Enable reports being received at Headquarters every night from all rangers covering the entire 8,000 square miles.
6. Enable all rangers to keep close watch on any parties within the region.

All that is necessary on the part of the rangers is good woodmanship, energy and enthusiasm and ability to read and write.

The only additional equipment to that now provided to fire rangers should be:

4	Motor Boats @ $250	$1,000
12	Heliograph Outfits @ $25	300
24	Signal Lamps @ $25	600
12	Telescopes @ $15	180
12	Small canoes @ $20	240
		$2,220

The Motor Boats would be distributed as follows:

One on Lakes Opasatika, Barrier and Obikoba having a patrol of 75 miles.

One on Lakes Quinze and Expanse with a "beat" of 75 miles.

One on Ottawa River, Kenojevis River, Crooked Lake, Kekeko Lake and Roger Lake having a "beat" of 115 miles.

One on Grand Lake Victoria with a "beat" of 50 miles.

By reason of their speed these boats can patrol a territory hitherto requiring two or three canoes with two men in each.

With men at $75 a month for five months, the saving of two men being equal to $750, will more than compensate for the cost of motor boats.

The rapidity with which a fire can be reached or men transported in these motor boats is an important consideration.

The heliograph outfits are very simple instruments which can be set up and handled easily by any person of common intelligence. The operating of these to send and receive messages requires only that the operator shall know how to read and write. One quickly becomes proficient with a little practice at this instrument. A message may be flashed and read at a distance of 50 to 75 miles.

At night the signal lamps will take the place of the heliograph. I have already marked a number of conveniently located mountain look-outs in the district and on some I have seen distances as great as 50 miles. The entire Upper Ottawa can easily be covered with about a dozen main stations, with sub-stations to be established as the system develops.

Each day's reports would all be sent in to Quinze Lake Headquarters and could be telegraphed the same night to Ottawa if desired.

It is very important that rangers throughout the region be advised of all parties passing up and entering the districts. All stations could be advised of such parties, and their destination given. In that way close watch is possible and warnings can be given to the prospector or "tenderfoot."

It would not be necessary for stations to have a man on hand all the time. Instructions would require that all rangers be at their stations at stated hours to receive or transmit heliograms. Some canoes would be equipped with lanterns, but motor boats would have both lanterns and heliographs enabling them to communicate with the nearest look-out station.

Telephone lines from canoe routes to look-outs should be established and extended year by year.

With such a system as this no man can be idle. There will constantly be something to do and each year the system can be improved by the cutting of additional trails, establishing more look-outs and carrying on timber cruising.

Certainly the familiar knowledge of the limits that must be acquired by the rangers in constantly travelling to and fro should not be wasted but encouraged and systematized so that in time thorough and detailed data of the contents and value of the whole region will be the result.

Estimate of Cost of Proposed System of Co-Operative Fire Protection on Upper Ottawa Forest Reserve.

New equipment as per page 4	$2,220
Telephone to connect headquarters	300
Gasoline for 5 months	500
16 ben @ $75 per month for 5 months	6,000
1 Superintendent @ $200 a month for 6 months	1,200
1 Assistant @ $100 a month for 6 months	600
2 Extra men to reinforce danger zones	650
Transportation costs	400
Equivalent to about $1.40 per square mile	$11,970

As most of the limit owners already have fire rangers, canoes, tents and outfits I have not included these in cost.

At $75.00 a month I count on men boarding themselves.

R. O. SWEEZEY.

BRAZILIAN WOOD FOR PAPER-MAKING.

In the course of a report by Lieut. de R. Dickuth it is stated that Brazil and Argentina are abundantly supplied with the Araucaria imbricata, a tree of luxurious growth, which is specially adapted for paper-making.

"During my stay in Argentina in 1913," says the Lieutenant, "I made the acquaintance of an English financier, who represented an English syndicate which proposed to erect a large paper mill for producing paper from the Araucaria, and who showed me specimens of the raw material, pulp, and paper made therefrom, plain and coloured. The finished samples were by no means different or below the best grades of the kind made in Europe except by surpassing the latter in suppleness and durability. If I remember well, these samples were made by an Austrian paper chemist. During my travels in Southern Brazil I was surprised by the evident abundance of these Araucaria trees. The State of Parana alone holds forth at least 800 millions of these useful trees. The locations I became acquainted with offered every conditions required for economical and successful instalment of paper mills, such as water power and cheap fuel, favourable labour conditions—represented by Germans, Poles and Italians—and very favourable transportation facilities."

According to the calculations made by a French tradesman, and published in the journal "Le Brésil," the unbleached Araucaria cellstuff could be delivered free aboard in European ports at the low figure of 120 francs (or about £5) per ton. This estimate refers, of course, to pre-war times.

POWER IS CHEAP IN NORWAY.

According to a recent report electro-technical plants in Norway have rapidly increased in number and importance in recent years. In some localities it is possible to obtain power at less than £1. per horse-power year, and in one case almost as low as 10s. The capital invested in the ammonium nitrate industry alone amounts to over £8,000,000, and the output is about 150,000 tons of fertiliser a year. Many of the industries, such as paper, wood-pulp, cellulose, tetxile, iron and metal manufactures, and the chemical and electro-chemical industries are dependent on water power. The capital wealth of the country is too small for the full development of these industries, and although there is a large amount of foreign capital invested, in Norway more is required. In addition much capital has been borrowed from abroad and the United States has participated largely in financing Norwegian industries.

IDAHO STATE A MEMBER OF FORESTRY ASSOCIATION.

The quarterly meeting of the four constituent bodies of the North Idaho Forestry Association — the Potlatch, Cœur d'Alene, Clearwater and Pend Oreille Timber Protective Association — took place recently in Spokane, Wash.

Satisfaction was expressed at the growing efficiency of the co-operation of the four associations with the State of Idaho and the United States Forest Service, and the plan of close co-operation, worked out so successfully this season, will be extended through the coming year to a greater degree if possible.

There is a close connection between the State of Idaho and the four associations, it was pointed out, the State being a member of each of the organizations, paying its assessment for protection of State lands the same as any other member.

Although many timber fires started during the last season, through the efficiency of the fire protection outfits and the prompt response of experienced men, which is the most practical test of the usefulness of the organization, none of them attained dangerous proportions before being extinguished.

The disbursements of the associations were mainly for clearing trails and opening new ones, telephone line repairs and extensions, camp and fire fighting equipment, repairing old and establishing new lookout stations, patroling, food and salaries.

ANOTHER SUCCESS FOR RESEARCH.

According to a report received here last week, the government Forest Products Laboratory at Madison has "broken the market" for waste rags. Discoveries recently recently made at the laboratory, in which use of former waste sawdust and sawmill refuse generally is made, were so important that upon the announcement of them and the success in commercial experiments, the price of rags promptly dropped from about $70 to about $35 per ton. As 200,000 tons are used yearly in the manufacture of felt roofing, this discovery meant much to the roof manufacturers of the country, besides providing a new outlet for sawmill wastes.

"We have been able, until recently, to use everything but the bark, but now we have found a use even for that," declared Howard F. Weiss, director of the laboratory one day last week.

In several co-operating mills the rags formerly used are being supplanted up to 30 per cent. by waste bark, without diminishing one particle the quality of the finished product. Recent figures showed that there was about 700,000 tons of hemlock bark produced each year. After being used for tanning, the bark was sold for fuel, with a value of 60 cents a ton. This bark is now said to be replacing rags that sold at $72 a ton. Papers made with 80 per cent. waste have been used successfully for wall paper, and they are said to take a twelve color impression as readily and substantially as papers made from rags entirely.—Paper Trade Journal.

NEWSPAPER SAVING IN NEW YORK CITY.

Comparative figures showing the way the New York daily newspapers are meeting the paper shortage for the months of November, 1916 and 1915 show that while ten papers have printed 572½ less pages of reading matter, six others printed 125 more. The figures further show that while there has been a net increase of 456 pages of advertising, there has been a net saving in reading matter amounting to 447½ pages. These figures are compiled from reports of the Statistical Department of the New York Evening Post, stated in pages:

Morning and Sunday newspapers:

	Pages run		Advertising		Reading	
	Incr'se.	Decr'se.	Incr'se.	Decr'se.	Incr'se.	Decr'se.
American		102	1-5			101 4-5
Herald	72		40		32	
Sun		42	25			67
Times	42		78			36
Tribune		4	41¾			45¾
World		22	82			104
Staats Zeitung		24		½		23½
Totals	114	194	267	½	32	378

Evening newspapers:

Journal	38		36½		1½	
World	62		10½		51½	
Globe		50		10½		39½
Sun	54		38½		15½	
Mail		10	31			41
Post	24		16½		7½	
Telegram	40		57		17	
Totals	218	60	190	10½	93	80½

PULP AND PAPER PRODUCTION IN JAPAN.

Some interesting details as to the growth of the paper industry in Japan and an outline of suggested measures to foster its continued prosperity after the war are contained in the report which the Economic Investigation Committee submitted to Marquis Okuma on September 9th. Dealing with pulp and paper production in Japan the report states:

The Japanese demand for paper pulp last year was 145,000 tons, of which 60,000 tons were ground pulp and 85,000 tons chemical pulp. The ground pulp was chiefly supplied by home producers, only a small portion being imported. Of the chemical pulp, about 60,000 tons came from abroad, the home productions being limited to 25,000 tons of lower grade stuff and its 7,500 tons of superior grade.

The total cessation of pulp imports since the war began and the enormous rise in prices has stimulated the Japanese pulp industry. Many producers are now laying out capital in Sakhalin forests, while such companies as the Oji Paper Mill, the Sakhalin industry and chemical paper factories have been newly established.

The Japanese pulp output, therefore, will shortly reach 60,000 tons, with a producing capacity of 40,000 tons a year in Sakhalin. It is difficult to say anything about conditions after the war in view of the differences in the production of Japanese and foreign pulp. Foreign chemical pulp before the war used to make a good profit at a price of 5 sen a pound, whereas the prosperity of the Japanese pulp industry at present is chiefly due to the good price obtained—10 sen a pound. Whether Japanese pulp will be able to compete with the foreign stuff when the price for the latter is lowered below 5 sen after the war entirely depends upon lowering the cost of production.

To encourage the pulp industry in Japan, the following measures are suggested by the committee: Timber for pulp-making shall be supplied at the lowest possible price; all possible facilities for the transportation of material, timber and pulp, shall be given producers.

PULP AND PAPER NEWS

A. M. Huestis, of Toronto, who is Canadian representative of Franklin H. Kalbfleisch Co., New York, and wife are spending a few days at Atlantic City.

A charter has been granted to the Wireless Press, Limited, with headquarters in Montreal and a capital stock of ten thousand dollars. The company is impowered to carry on the business of manufacturing stationers, printers, publishers, engravers, etc.

The Toronto Paper Mfg. Co., Cornwall, Ont., have sent out to the trade a neat leather bound diary, entitled "Daily Reminder." The book also contains a number of pages of useful information regarding war tax, parcel post, mailing regulations, etc.

The employees of all the plants of the Provincial Paper Mills Co., Limited, numbering about four hundred and fifty were remembered at Christmas time with a five per cent bonus on what each one had drawn in wages during the past year. The members of the office staffs of the company in Toronto, Mille Roches, Thorold and Georgetown, were also given substantial Yule-tide remembrances.

John J. Ross, for the past five years general superintendent of the Minnesota and Ontario Power Co., with mills at International Falls, Minn., and Fort Frances, Ont., has resigned.

A charter is being applied for on behalf of the Port Arthur Pulp and Paper Co., with headquarters at Port Arthur. The capital stock will be two million dollars and of this one million will be preferred stock and the remainder common. It is understood that Toronto capitalists are behind the enterprise. The company will erect a fifty ton sulphite plant at Bare Point, Port Arthur, and expect to have the same in operation within a year. Construction will start early in the spring. The plant will eventually be increased to a hundred and fifty tons.

I. H. Weldon, of Toronto, President of the Provincial Paper Mills Co., and T. A. Weldon, of Thorold, Vice-President of the Company, spent the Christmas holidays with their parents at St. Thomas, Ont. Mr. Weldon, Sr., is now ninety-four years of age, enjoys good health and has seen sixty-four years of married life.

The new cylinder wrapping machine of the Spanish River Pulp and Paper Mills at Sault Ste. Marie, will soon be put in operation. It is 98 inches wide and will produce about forty tons of paper daily. On this machine wrapping paper for all three plants of the company will be made and in addition there will be building, light weight wrapping and fibres. This will release one machine at the Sturgeon Falls, which will be turned on to newsprint. A new digester has been installed at Sault Ste. Marie which will increase the sulphite pulp capacity to one hundred and five tons per day, while the output at Sturgeon Falls will be raised to seventy tons daily. This will give the Spanish River Company an output of one hundred and seventy-five tons daily, a large proportion of which will be on the market. Six more grinders will be installed in the mechanical pulp department at Sturgeon Falls, increasing the output by thirty tons, making ninety tons daily in all. More grinders will also be installed at the Sault. There are now twenty-eight grinders in operation at Espanola where the capacity is one hundred and forty tons daily. New tumbler barkers have been installed in the improved wood rooms at Espanola, Sturgeon Falls and Saulte Ste. Marie.

George H. Hale, of Hale Bros., publishers of the Packet, Orillia, Ont., passed away recently, aged seventy years. For fifty years he was connected with the printing trade and was one of the founders of the Packet forty-six years ago. He was one of the ablest country editors in Canada and made the editorial page of his publication known from Coast to Coast.

The employees of the Victoria Paper and Twine Co., Toronto, were remembered at Christmas time with substantial bonuses and the manager, Charles V. Syrett, was presented by the staff with a handsome leather travelling bag.

At the first annual banquet of the Lumbermen's Section of the Toronto Poard of Trade, held last week at the Board of Trade Rooms, E. J. Zavitz, the new superintendent of the Department of Forest Protection for Ontario, touching upon the future outlook, stated that the Government hoped to see trees grown as crops at some future date. The Department had two problems confronting it; the white pine disease which was a danger even in old Ontario and the reforestation of the areas already devastated by artificial or natural means. Work was already being carried on from a demonstration and experimental standpoint. There were a great many lands in southern Ontario well suited for the development of the artificial reforestration while the natural reforestration was applicable only to Northern Ontario. In the case of artificial reforestration work, he did not think that we had yet reached the stage in Canada where this could be done and consequently we would have to depend upon our natural development for future supplies. In reference to the enormous damage done by forest fires, Mr. Zavitz stated that the Department was planning to establish a more complete overhead supervision of the fire rangers work, development methods for speedily locating fires and the inauguration of a publicity campaign such as the distributing of literature among the people setting forth instructions on how to guard against fire, etc.

The F. N. Burt Co., of Toronto, recently declared a quarterly dividend of one and three-quarter per cent on the preferred shares of the company, and a quarterly dividend of one and one-half per cent on the common, and also an extra dividend of one and one-half per cent on the common, bringing the total disbursement for the year on the latter up to six per cent. The rate was reduced from four to six per cent as a measure of protection when the war broke out. During the past year the earnings have been very satisfactory and the outlook justifies in restoring the six per cent rate on the common.

PROSPERITY IN PAPER DISTRICT.

According to the local newspapers here, the business men of St. Catharines, Ont., when asked about their Christmas trade, declared that the rush of business during Christmas week was the most prosperous they had experienced in many years.

In connection with this article, although we do not dispute the claim of the munition works for this state of prosperity still we have no doubt that the Pulp and Paper manufacturers throughout this district have in no small way been responsible for a fair share of this prosperity, not only through the increase of wages, but with the construction work which has been going on during the past year. What has been done in this respect is worthy of mention, a fine new bleaching mill has been added to the plant of the Riordon Pulp and Paper Co., for the manufacture of bleached sulphite, in sight of which a beautiful addition has been made to the plant of the Interlake Tissue Paper Mill, while still in course of construction is a new paper mill and sulphite plant which will more than double the capacity of the plant of the Ontario Paper Co., also the new sulphite plant which is being added to the Lincoln Paper Co., besides this is the pulp mill of the Colonial Wood Products Co., which has been closed down for some considerable time and which was started up again during the summer by the Peerless Pulp Co.

In view of these facts it would be hard to dispute the claim that the pulp and paper manufacturers have contributed greatly to the prosperity of the communities surrounding St. Catharines.

INCREASE OF WAGES AT ONTARIO PAPER MILLS, THOROLD, ONT.

Owing to the unusual conditions and the high cost of living, the directors of the Ontario Paper Co. decided to give, for an indefinite period, an increase of 10% to paid each month. This will not affect those who already received an increase of 10% on October 31st.

The Industrial evening classes connected with the Technical Section of the Pulp and Papermkares' Association are closed during the Christmas and New Year holidays. Studies will be resumed on Thursday, January 4th.

Thorold, Dec. 23rd.

Much rejoicing was caused among the employees of the Montrose Division of the Provincial Paper Mills Co., Ltd., to-day. when they received a Christmas greeting in the form of a check, with the following letter:

TORONTO, December 21st, 1916.

TO OUR EMPLOYEES:

Owing to unusual conditions existing at the present time, the Directors of this Company have decided to give something in the way of a bonus to employees, and we take pleasure in attaching herewith cheque for same. This is computed on the basis of 5% of your earnings since January 1st, 1916, or such shorter period, as the case may be, since you last became one of our employees.

We wish you a very Merry Christmas and hope the enclosed will add to your pleasure this holiday season.

Yours very truly,

PROVINCIAL PAPER MILLS., LIMITED,

S. F. Duncan, Sec'y.-Treas.

SAFETY RALLY AT THOROLD.

The most progressive movement in safety work yet undertaken by the Pulp and Paper Mills in Canada took place in Thorold on Thursday, December 14th, 1916. The Provincial Paper Mills Company, Ltd.; Ontario Paper Company, Ltd.; Beaver Wood Fibre Company, Ltd.; Foley Reiger Company; Thorold Pulp Company, Ltd., and the Peerless Pulp Company, Ltd., united in giving free of charge to their employees a moving picture show at the Griffin Theatre. They rented the theatre for the day and the show took the form of a Safety Rally to awaken interest among all mill employees in the prevention of accidents. Through the courtesy of the National Safety Council three reels of pictures were shown. The subject of these pictures were "The man he might have been"; "The Workman's Lesson" and the "Crime of Carelessness." This is the first time that these pictures have been shown in Canada to paper mill employees.

Realizing that the children in the schools are the future men of the industry, the Principals of both the Public School and the High School dismissed their classes early and the students attended in a body. From the interest shown by the children, it is very evident that their viewing of the pictures was well worth while.

Mayor Battle presided at the Safety Rally in the evening and expressed the hearty co-operation of the towns-people in the efforts of the mills to reduce the yearly toll of lives from industrial accidents. Mr. T. A. Weldon, of the Provincial Paper Mills, spoke on safety work from the managerial standpoint. Mr. A. G. Pounsford, of the Ontario Pulp and Paper Makers' Association gave a talk on the necessity of being careful in and around machinery, illustrating same by lantern slides taken at the plant of the Champion Fibre Company, Canton, N.C. Nearly one thousand people saw the pictures at the three performances and there is no doubt that the movement proved a success. All the credit for the interest shown in the meeting must be given to Mr. F. M. H. Cushing, of the Provincial Paper Mills, together with his Committee, consisting of Mr. Ed. Foley, Mr. Thomas Wilson and Mr. Neville.

BROMPTON BUYS AN ADDITIONAL NEWS MACHINE.

Mr. J. A. Bothwell, Managing Director of the Brompton Pulp and Paper Company has just purchased an additional 162 inch news machine from J. H. Horne & Sons Company of Lawrence, Mass. The machine will be installed early in the coming summer. The Brompton Pulp and Paper Company are in an exceptionally favorable position, and with the addition of a new machine will be able to greatly increase their output of news.

At the present time the Company are producing daily 60 tons of news, 320 tons of groundwood pulp (dry), 40 tons boxboard, 90 tons of sulphate pulp and 60 tons of kraft paper, as well as lumber box board, shingles and pulpwood.

The recent increase in the Company's capitalization will enable them to increase their output of all kinds of pulp and paper.

INTERNATIONAL PAPER.

Net profits of the International Paper Co., in October were $850,000; largest for any month in the company's history.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

NEW YORK, Dec. 28th.

Employees of the International Paper Company in the Northern section of New York will celebrate the incoming year with the joyous news of an increase in wages. The company has granted a 10% advance effective November 15th last to those who are in the service of the company on the date of payment. This is the second increase the International Paper Company has made to its employees during the year 1916.

* * *

It is understood that the Inter-Lake Pulp & Paper Company of Appleton, Wis., is contemplating making extensive repairs to its plant. A representative of the company when enterviewed by your correspondent, refused to affirm or deny the report, but intimated that an official announcement would be made about certain matters shortly after the first of the year.

* * *

Christmas week among the employees of the Champion International Paper Company, Lawrence, Mass., was ushered in with genuine Yuletide cheer. The reason for this was that beginning the week of the 25th the employees received an advance of 10% increase in wages. This coupled with the fact that they are now working on the 8-hour terms (effective December 1st) makes each employee feel confident that 1917 really has something good in store for him.

* * *

Though quite a number of the paper manufacturers, jobbers, and supply men are now sending out their annual calendars, one of the most attractive so far received by your correspondent, is from the Eastern Wire Manufacturing Company. This calendar, which cannot help but please the most critical office man, shows the company's plant for the manufacture of wire cloth, dandies, cylinder, sulphite valves, etc.

* * *

The new policy of the Union Bag & Paper Company toward its employees is explained by President M. B. Wallace in a notice to the employees, which follows: "Every three months commencing December 15, 1916, each employee will be paid one quarter of an amount figured at 10% of his annual wage—that is—anyone earning wages at the rate of $1,000 per year will receive $100 bonus, payable quarterly, beginning December 15th. No employee is entitled to, or will receive this extra pay unless he or she is still in the service of the company on the date of payment."

* * *

Press dispatches during the past fortnight stated that the French Government has decided to prohibit the importation of printing paper. The, object as stated by the dispatches, is to help raise the exchange and to encourage the French paper industry which is thought should be independent of Foreign supplies.

* * *

The annual dinner entertainment of the Paper Trade Association of New York City was said to eclipse every preceding affair. Your correspondent missed it, on account of business calling him from the City—the first time in five years,—but according to his report from E. E. Wright, Paul Vernon, Charles Addoins, Secretary Ridgway, et al—the vaudeville programme was par excellent,—and the "meal", well it "beat 'em all." Al Dube, assisted by his side chum "Mr." Holden, composed the committee in charge and both deserve much commendation for their choice in "Viands" "Via-Andible," etc.

* * *

Authenticated reports from Illinois state that the Morris Fibre Board Company, of Morris, is undergoing internal changes. It is understood that Oscar Gubinsky has disposed of his controlling interests and that the new owners are planning to expend considerable money in enlarging the plant and increasing the output.

* * *

The Strange Paper Company at Menasha, Wis. is making considerable improvements at its mills. Work on the superstructure of the addition is rapidly progressing, and if the weather permits progress it is thought that operations will begin in the new addition early in the new year.

* * *

The National Association of Waste Material Dealers held its annual convention in New York on December 20th at the Hotel Astor. Considerable interest this year was manifest in the Paper Stock Division, of which N. J. Lewis was chairman. Paper manufacturers, as well as supply men, attended and subjects of interest to both were freely discussed and debated on.

* * *

The West Verginia newspaper publishers held a joint meeting during the past fortnight and agreed to formulate plans for Co-operation in buying newsprint paper. A committee was appointed to investigate the advisability of establishing a paper mill in the state to supply the local needs of the publishers.

* * *

The regular quarterly dividend of 1½ per cent. has been granted to stockholders of the United Paper Board Company. The dividend is payable January 15th to stockholders on record December 31, 1916. The books of the company will be closed from December 30th to January 15th.

* * *

A news dispatch from San Francisco, Cal. says: "Following an agreement reached between Whalen Bros. of Mill Creek, B. C. and James Tyson of this city, president of the Puget Sound Mills and Timber Co., of Port Angeles, for a supply of raw material for a sulphite paper mill, a city council committee is preparing to lease to the Whalen's ten acres of land on Ediz Hook, on which the paper mill is to be built. The first unit of the plant will have a daily capacity of 60 tons, and the whole plant will cost $750,000.

MATTAGAMI NEW PAPER CO. FLOATED.

The Mattagami Pulp and Paper Company with capitalization issued and paid up of $2,000,000 of bonds, $1,500,000 preferred and $2,000,000 of common is the newest flotation in the paper business, in the financing of which the Royal Securities Corporation of this city is understood to be prominently associated.

Associated with Royal Securities Corporation are W. D. Ross, vice-president of the Nova Scotia Steel & Coal Company, of Toronto; E. P. Shove, of the Ray Consolidated Copper Company of Colrado Springs; Duncan Chisholm, of Toronto, who has for many years been associated with the development of Northern Ontario, and Bruce McKelvie, of Hayden, Stone & Company, of New York.

The larger portion of the company's securities has been taken firm in the United States, and it is possible that a small portion of the company's securities may be underwritten in Canada.

This company owns 125 square miles ferehold timber limits and 840 miles of leasehold timber limits, situated on the Mattigami River in Northern Ontario, and estimated to contain over 4,000,000 cords of spruce pulp wood.

The company's pulp wood supply is very large, and we understand that the wood supply has been contracted for over a period of years at an exceedingly low price.

For over a year the company has had under construction a sulphite pulp plant capable of producing 45,000 tons per annum of easy bleaching sulphite pulp, together with a hydro-electric power development of 9,000 h.p. at Smooth Rock Falls on the Mattagami River, which is near Smooth Rock Junction on the National Transcontinental Railway. The plant is nearly completed and should be turning out pulp by June of 1917. It will be the second largest producer of easy bleaching sulphite pulp in Canada, ranking next to the successful Riordon Company which is the largest.

The management is in the hands of S. R. Armstrong, until recently vice-presdient, and for the last twenty-seven years with the New-York and Pennsylvania Paper Company.

MR. BRASSINGTON IS TO LEAVE PUSEY & JONES COMPANY.

Mr. John W. Brassington who for some years had offices as Consulting Engineer in Wilmington, Pa., and was later with the Pusey & Jones Co. has severed his connection with this firm and is now associated with the American Writing Paper Co. at Holyoke, Mass.

Mr. Brassington is well known in the paper industry, both as a capable engineer and as a writer of technical articles. He has the best wishes of his friends in his new association.

RIORDON PULP AND PAPER CO.

The management of the Riordon Pulp and Paper Company, Limited, is now in a position to state that the net profit of the Ticonderoga Pulp and Paper Company for the current year, after allowing for Bond Interest, Sinking Fund and Preferred Dividends, will exceed one hundred per cent on the outstanding common stock.

PULP AND PAPER SECURITIES.

Messrs. Thornton Davidson & Co., of Montreal, discussing the investment market for Canadian industrials incident to the decline of prices during the past week or so, have the following to say regarding the paper industry:

"The break was felt throughout the list, paper and textile shares, particularly the former, coming in for a big drop. The decline in the papers was probably helped along by the fact that investors feared legislation on the part of the United States Government that would curtail profits. But this view is not held seriously by paper manufacturers. The rise in prices has been due simply to a shortage in the supply of paper, and Canadian mills are benefiting at the expense of American consumers. These prices are far from being fictitious, and in the opinion of best known authorities are likely to rule for some time after peace is restored. Norway and Sweden cannot begin immediately peace is restored, to export sulphite in any great quantities. At the same time it will take Germany many months to effect such reconstruction as to allow her to manufacture for export.

"Canadian concerns are greatly strenghtening their ability to compete with these countries, and it is doubtful if European competition will ever again be strong enough to oust Canadian pulp and paper from the American and other foreign markets. The greatest danger will be too rapid development of the industry here in Canada. But it will be well into 1918 before there can be any great increase over our present production, and after the war decreased freights and better ocean shipping facilities will greatly extend our markets. These conditions had effected a rapid advance in paper securities during recent months, perhaps, too rapid to allow of proper distribution, but the prosperity of the industry surely warrants much greater strength among the securities than was evidenced last week."

BROMPTON PULP AND PAPER CO.

In their last circular Greenshields and Co. says: The Brompton Pulp and Paper Company has valuable timber limits situated adjacent to the St. Francis River and the physical position of the property is such that delivery of lumber at the mill can be made at low cost.

The water-powers owned and operated by the Company at East Angus and Brompton are extremely valuable, while the mills at both places are of the latest and most efficient type. Earnings for the year which ended October 31, 1916, amounted to $650,000, which is equivalent to 5 per cent on the common stock issue. Earnings for the first month of the fiscal year under the new regime were at the rate of approximately 20 per cent on the common stock.

T. McAvity Steward of Montreal, and Horace Munro, of Auburn, Me., recently joined the Board of Directors.

LAURENTIDE DIVIDEND.

Laurentide directors declared the regular quarterly dividend of 2 per cent payable January 2nd to stock record of December 26th.

The Markets

CANADIAN MARKETS.

Toronto, January 1st, 1917.

Another year has closed in the history of the Canadian pulp and paper trade and it has been in many respects the most remarkable and eventful ever known. Just one year ago conditions were dull and the outlook not regarded as any too bright, mills were running only part time and orders were scarce and small. The wheel of time brings many shifts, some of which are totally unexpected and the changes which have taken place in the industry—every branch of it—need no extended review here. They are familiar to every reader, who entered the market either to buy or sell.

Prices on every line disposed of are from one hundred to three hundred per cent higher than a year ago and while the most exalted quotations ever known in the existence of the trade prevail at this moment, all is not profit for raw materials have have advanced accordingly. Labor is difficult to secure while wages are from twenty to fifty per cent above the prevailing scale twelve months ago. However, the close of 1916 finds all the plants in the Dominion busy and with orders on hand sufficient to keep every machine working at fullest capacity for many months. January is always a rather mark-time period in the trade and there have been no alterations in prices since the last report with the exception that kraft has shot up ten dollars a ton.

Most mills and warehouses are busy taking inventories and sizing up matters generally for next year. It is impossible to foretell, with any degree of certainty, what 1917 will bring forth. This much may be said and that is, knowing ones, who closely scan the business horizon and keep in intimate touch with the sources of supply and demand, do not look for any recreation of prices, but, on the contrary, prophecy that in some lines, particularly bond and high grade ledger and writing papers, there is bound to be a considerable advance. Should the war terminate suddenly it is confidently predicted there would be no radical alteration in the situation for a year at any rate. Stocks in most line sare low and while orders during December showed some falling off, this is only natural and enables mills to catch up a trifle.

The news print situation remains unchanged and no contracts have been renewed, with the exception of possibly half a dozen, with the mills. Some reports have been sent out to the contrary, but they are not authentic.

The Canadian Press Association has been expecting for some days a decision from Sir Thomas White, fixing the figure for news. It is contended by the publishers that they will not be asked to pay more than two forty or two fifty, f. o. b. mill, although the producers named three cents as the best inducement possible under the circumstances. There the matter rests at the time of writing. Both manufacturers and consumers appear to be confident in this attitude and are awaiting the federal pronouncement with keen interest.

Sulphite pulp remains at the old figure and no change has taken place materially within the last two months except the receiving of rather generous consignments from Europe which have been rapidly taken up. A year ago contracts were made for easy bleaching sulphite at forty five dollars per ton, delivered, but this season one hundred and ten, f. o. b. mill, has been obtained for the greater portion of the output of Canadian mills. New sulphite is bringing around one hundred dollars.

The demand for ground wood pulp keeps up unabated. Inquiries are being received on all sides and forty, forty two and even forty five are being secured at the mill. Hundreds of tons more could be sold if handlers of the product knew where to obtain it. The pulp wood situation is growing increasingly serious and in spite of the augmented values not nearly as much as last season is being taken out. Bleached and sulphate pulp remain very firm and the outlook for continued high prices is viewed favorably.

The earnings of mills during the past year tops all records and many firms have remembered their employees with bonuses of a substantial character. Another innovation in the book and writing line was that during the past few months the three tour system was inaugurated and every effort has been made to keep plants well manned although there is not a concern of any size but has sent from fifty to as many as three hundred men to the front. Many new industrial propositions in the pulp and paper arena are in the air, but just how many will materialize remains to be seen. If mills could be erected over night a score or more would bloom on the morrow, but paper machine manufacturers cannot make deliveries within a year and half and herein lies the fly in the ointment.

Speaking of the news print situation a sales manager of one of the biggest exporting and producing mills said that he anticipated 1917 would see no material change in the situation and that news print was bound to get scarcer and dearer. While Canadian plants within the next few months might turn in an extra tonnage of five hundred tons this would be infinitesimal when the abnormal consumption was taken into consideration.

The revision of prices on all lines of envelopes and writing paper for 1917 will show an increase from twenty to forty per cent owing to the high cost of supplies, labor, etc.

In the rag and paper stock market there have been very few changes during the past fortnight. Prices are a little easier in some lines owing to the holiday season. The demand for roofing stock and cotton rags is still quiet. The campaign in Toronto for the conservation of waste paper during the past year in the interest of the Red Cross society has been highly satisfactory. Over three thousand personal calls were made on householders and business places, and in the

last five months over twelve thouasnd dollars has been realized in the good cause.

Here is how the paper situation is viewed locally by representative manufacturers: George Carruthers, President of the Interlake Tissue Mills, Merriton, states that the company had closed the best year in its history and had been rushed to the limit to meet the requirements of customers in both tissue and toilet papers and specialties. Prices had been advanced several times and he did not think the end was yet in sight. Orders were now on the books for many months ahead, and while the capacity of the plant has been increased by the additio nof a large finishing room, and speeding up the equipment business was coming as strong as ever with no let-up in sight.

H. B. Donovan, sales manager of the Canada Paper Co., Toronto and Montreal, said that he believed that paper conditions in all lines would be acute for the coming year. He looked for even higher prices than at present prevail. "Even if the war should end suddenly," he remarked, "I do not think that would make any appreciable difference in market conditions for a year at least. Stocks were never so low as they are at present in many lines and the mills were never so far behind. Why if we did not get any new orders for several weeks we would be kept busy until June. 1917 should be a year of continued active business prosperity for the paper trade. Any licensed tonnage that may come on the market will be quickly taken up. We have notified all our news print customers that we will take care of them to the same extent in tonnage as during the past year."

I. H. Weldon, President of the Provincial Paper Mills Co., Toronto, remarked that he could not see any change in the present outlook. The situation in book and writing lines had eased off a little, but the demand was still strong and steady. All advances that had been made during the year had been met without complaint by customers who understood the conditions which the trade were up against in the matter of abnormally high quotations for sulphite, mill stock, labor, etc. Mr. Weldon did not think that sulphite would go higher in price as a number of new plants would be in operation within the next few months which would tend to ease the tension and meet all requirements. "I do not anticipate that prices will go any higher — at least for a considerable time," he continued. "Whether the war ends or not will make no radical change in the situation for many months. We are contemplating erecting a new mill at Mille Roches, which will eventually have a capacity of fifty tons a day. The past year has been the best in our history and we have been operating all our plants to their fullest capacity, although nearly two hundred men have gone from our mills to the front or are in military training. We also instituted the three tour system in our mills, and so far as I can see the coming twelve months should be as good and as satisfactory as the past year has been."

The following prices prevail, f. o. b. Toronto.

Paper.

News (rolls) $3.00 up, at mill, in carload lots.
News (sheets), $3.75, at mill, in carload lots, smaller lots higher.
Book papers (carload), No. 3.....$7.50
Book papers (ton lots), No. 3.....$8.00 to $8.50
Book papers (carload), No. 2.....$8.75 to $9.50
Book papers (ton lots), No. 2.....$9.75 to $10.25
Book papers (carload), No. 1.....$9.25 to $10.00
Book papers (ton lots), No. 1.....$10.00 to $11.00
Sulphite bonds.....12½c up
Writings.....9½c up
Grey Browns.....$4.25 to $5.00
Fibre.....$7.25 to $8.50
Manila, No. 1.....$7.25 to $8.50
Manila, B.....$5.00 to $6.50
Unglazed Kraft.....$9.00 to $12.00
Glazed Kraft.....$9.00 to $12.00
Tissues, bleached.....$1.60 to $2.30
Tissues, (manila or white sulphite).....$1.20 to $1.60
Tissues, cap.....80c to $1.15
Natural, greaseproof.....13c to 18c
Half Bleached Greaseproof.....15c to 19c
Bleached greaseproof.....17c to 21c
Genuine Vegetable Parchment.....25c to 30c
Drug papers, whites and tints.....10c to 13c
Paper bags, Manila.....20% discount
Paper bags, kraft.....35½ discount
Confectionery bags.....25½ discount

Pulp.

F.O.B. Mill.

Ground woodpulp.....$42 to $45
Easy Bleaching Sulphite.....$110.00 to $120.00
Sulphite, news grade.....$100
Sulphite (bleached).....$160.00 to $170.00
Sulphate.....$120.00 to 125.00
No. 1 hard white shavings.....$5.50
No. 1 soft white shavings..... 4.50
No. 1 mixed shavings..... 1.05
White blanks..... 1.85
Heavy ledger stock..... 3.00
Soft ledger and writings..... 1.50
No. 1 magazine..... 2.05
No. 1 book stock..... 1.95
No. 1 manila envelope cuttings..... 2.60
No. 1 print manila..... 1.00
Folded news..... .90
Over issues..... 1.00
Kraft..... 3.50
No. 1 clean mixed paper..... .80
Old white cotton.....5.00
Thirds and blues..... 2.75
No. 1 white shirt cuttings..... 7.00
Black overall cuttings..... 2.75
New light flannelettes..... 5.25
Ordinary satinettes and flock..... 1.75
Tailor rags..... 2.00

TO BE SULPHITE SUPERINTENDENT FOR ABITIBI.

H. R. Heuer will be the sulphite superintendent of the new mill of the Abitibi Power and Paper Company, Ltd., Iroquois Falls, Ontario, having left a similar position with the Arrowhead Mills, Inc., Fulton, N. Y., to accept this position. Mr. Heuer has been engaged in the manufacture of sulphite for some years past, having started in at the business in teh sulphite mill of the Nekoosa-Edwards Paper Company, Inc., Nekoosa, Wis., and more recently has been in charge of the sulphite departments, among others, of Hartje Paper Manufacturing Company, Steubenville, Ohio, and the St. Regis Paper Company's mill at Deferiet, N. Y., until last March, when he resigned to start the old Battle Island Paper Company's mill at Fulton, N. Y., which had been idle for two years, for the Arrowhead Mills, Inc.

ELIMINATION OF FOREIGN PULP COMPETITION WILL STRENGHTEN THE MARKET.

The prediction was made this week by an eminent man in the pulp industry that it was his firm belief that the market would experience several further advances before the coming spring and that after this, it would be in a position to maintain a much better level than had been possible hitherto. Of course, this prediction was based, immediately, on the fact that navigation on the Baltic Sea had been closed and that there would, therefore, not be much in the way of pulp imports from Scandinavia, at least until next Spring. And the reason he gave that the market would be able to hold up better after next Spring, than it had done before, was because the recent ruling of the Interstate Commerce Commission, prohibiting the granting of free storage to imported pulp at the ports of Philadelphia, Norfolk, and Newport News, by the railroads at those points, would eliminate speculation in a market and thus give the domestic product a better chance—meaning that it would be easier to maintain a higher price.

It is well known that the chief cause of the miserable situation in pulp which existed during the latter part of the year 1914 and the early part of the year 1915 was speculation on the part of the foreign pulp producers. When they felt that the war was actually on, and realized that it would continue for some time, with the possibility of hindering traffic, there was a rush to ship pulp to America "to get it out of the way" and place it where it could be sold. It is well known that the Pennsylvania Railroad, the Baltimore & Ohio Railroad and the other roads which have warehouses at the ports mentioned, have been in the habit of granting free storage to imported pulp. This free storage was for an unlimited time—the idea being merely to take business away from New York, at which port a charge was made for all storage over a small "free" limit. So it was possible for the foreign mills to send their stock over to Philadelphia, to Norfolk or to Newport News, to put it into storage—AT NO CHARGE—and to let it wait there and act as a BEAR to the domestic market. This has happened on more than one occasion. In fact, it was the bugaboo to the United States pulp manufacturers. Just as soon as the market got stronger, the Germans and the Scandinavians would send stock over to be stored in one of the ports mentioned, awaiting the disposal of a broker. Now, however, that the domestic manufacturers have won a decision from the Interstate Commerce Commission, stating that it was not legal to allow pulp to be kept in storage without charge at the ports mentioned, it is believed that the chief cause of complaint has been removed. In the future, therefore, it is hardly like that there will be anything in the way of speculation on the part of the foreign producers for they will be compelled to pay storage on any stock shipped over without a destination. This will give the domestic producer an opportunity to keep his price up for he will not be burdened by pulp lying in storage, ready to be sold for almost nothing.

ROWLAND W. JOLLY.

The International Paper Company has just acquired complete ownership of the water power rights at the mouth of the Stillwater river at Webster, Maine. The purchase was made from the Pierce & Finnegan interests.

EXPORTATION OF PULP WOOD TO BE PROHIBITED.

Wood Cut on Dominion Land Must Be Manufactured in Canada.

OTTAWA, Ont., Jan. 2nd.

Certain amendments to the regulations governing the cutting of timber and pulpwood on Dominion lands have been made. The order-in-council provides that all such wood cut on Dominion lands under permit must be manufactured in Canada.

The announcement that the Federal Government intends to prohibit the exportation of pulpwood in its raw state is of considerable interest to the province of Quebec, because this province passed such a law several years ago, and it has been very successful. The Ottawa administration is evidently copying the Quebec administration's method of developing the pulpwood industry.

A few years ago, Sir Lomer Gouin was much impressed by the large exportation of raw pulpwood from this province to the United States. The timber was taken away, and manufactured across the international border, giving work to American working men, while many men in this province were out of work.

The Quebec Government consequently introduced a law prohibiting the exportation of raw pulpwood. The effect was what had been anticipated. At various places throughout the province, pulp plants have sprung up, and now the raw pulp is manufactured into pulp in Quebec, and is only shipped out in the finished state. Employment is given to thousands of men in this province. One of the best examples of the benefit of the law is to be found at East Angus, Quebec. Before the passing of the law introduced by Sir Lomer Gouin, there existed a pulp plant there, but it only operated on a small scale. With the passing of the law, the plant received a new lease of life and to-day the establishment is one of the most flourishing in the province, belonging to the Brompton Pulp and Paper Company, giving employment to practically the whole of the population of East Angus.

INTERNATIONAL PAPER DIVIDEND.

Preferred Stock Restored to Old 6 Per Cent Basis.

NEW YORK, N. Y., Dec. 27th.

The International Paper Company has declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable January 15th to stock of record January 4th.

This dividend places the stock on a six per cent. basis, and postpones the accumulation of back dividends which has been going on since 1908. Accumulated dividends amount to 33½ per cent. Last disbursement was 1 per cent. quarterly and prior to that ½ per cent. was paid.

It is expected early in the new year the company will announce a plan by which the back dividends upon the preferred stock, amounting to about 29 per cent., will be liquidated. According to reports upward of 9 per cent. of the overdue payments will be made in cash, with the rest in common and preferred stock.

Want and For Sale Advertisements

FOR SALE—I offer bargain in 32,000 acres British Columbia spruce and 54,000 acres in Quebec spruce, etc. Now is the time to secure your timberland. Write Howard Tibbitts, Millinocket, Me.

YOUNG MECHANICAL AND ELECTRICAL ENGINEER, technical graduate, now employed as designing engineer with large pulp mill, three years experience with pulp engineering, including bleach plant and lime recovery systems, desires change. Married. Address "Ambition," c|o Pulp and Paper Paper Magazine, 35-45 St. Alexander Street, Montreal, Que.

SULPHITE SUPERINTENDENT wanted for new mill making bleached pulp. Must be graduate mechanical or chemical engineer. State education, experience, age, married or single and salary. Send copy of references. Address reply to "No. 1", Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal.

ENGINEER,—at present in charge of the construction of the new plant for The Northumberland Paper and Electric Company, at Campbellford, Ontario, expects to be open for engagement about the first of the year. Professional standing, qualifications and further particulars of ability upon application to the above firm.

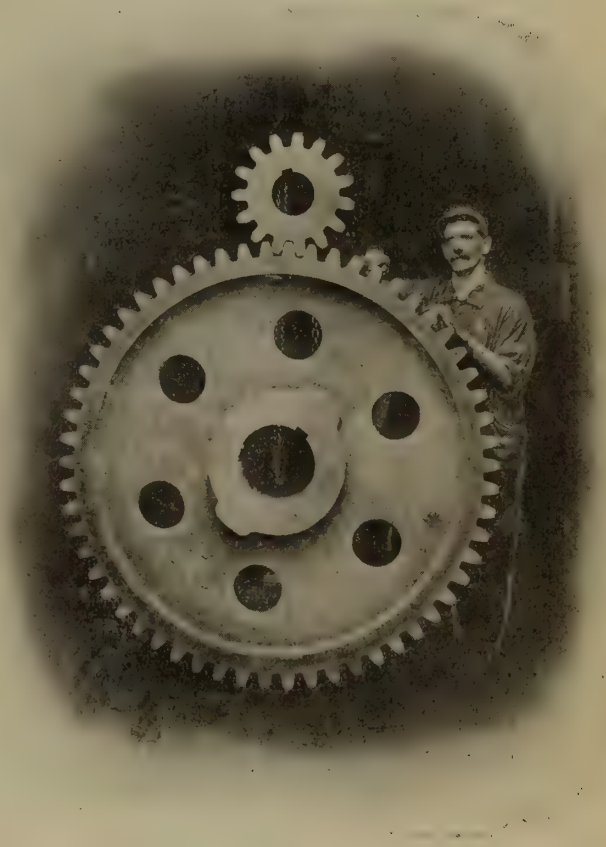
BOSS MACHINE TENDER wanted for a one-machine News Mills, near Montreal. Preference given to man who can speak French. Address giving age, experience, etc., to Box 136, c|o Pulp and Paper Magazine, 45 St. Alexander Street, Montreal.

ENGINEER WANTED, one who can stenograph and typewrite and has had experience as Secretary. One having had experience in paper mills will be preferred. State age; education; experience; salary; married or single; and send copy of references. Apply Box 132, Pulp and Paper Magazine, 45 St. Alexander St.

PAPER HOUSE WANTS MORE CAPITAL.—A large and prosperous wholesale paper house and Paper Mill Agents, invites subscriptions for Capital Sotck, to take care of present conditions and to develop Export trade. Audited statement to June 30th and monthly cost sheets to date can be seen on application. Apply Box No. 133, Pulp and Paper Magazine, 45 St. Alexander St.

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Review of Recent Articles of Interest to the Pulp and Paper Industry

Bleaching Agent and Bleaching. Henry Aldous Bromley. Paper Vol. 13, Nos. 16, 1916. (Dec. 6 and 20).—Bleaching agents are of two kinds, oxdizing and reducing. Bleaching powder ranks first as a bleaching agent in the pulp industry, sodium hypochlorite coming second. An example of a reducing agent is sulphurdioxide. "Oxidation" bleaching agents include, chlorine; hypochlorites, ozone, peroxides, perborates, permanganates. It was once mill practice to expose the wet stock to the action of chlorine gas. Hypochlorites are of two kinds: bleaching powder and sodium hypochlorite. Bleaching powder decomposes in air. Dilute acids liberate hypochlorous acid, yielding oxygen. Iron is attached by bleaching powder. Bleaching powder is considered to be Ca O Cl. Cl (Chlorohypochlorite of Calcium). Its decolorizing property is due to calcium hypochlorite. Bleach liquor is prepared by agitation of powder and water, the sludge being washed several times, maximum temperature should not exceed 80 deg. F. Acetic acid decomposes the bleach, resulting calcium acetate reacts with liberated H Cl regenerating acetic acid. To estimate available chlorine: make standard solution of arsenious acid, 4.5 grams in 200 c.c. of a 10% sodium carbonate solution, cooling and making up to a litre, rub up 7.09 grams bleaching powder with water, make up to a litre. Pipette off 50 c.c. before solid matter settles and titrate with standard arsenic, using starch, until no further blue color is produced. Each c.c. standard arsenic corresponds to 1% available chlorine. Bunsen's method, using 0.1N hyposulphite gives available chlorine and chlorate. Strength of bleach liquor is expressed as:

1 Specific gravity in degrees Twaddell.
2. Grams available chlorine per litre of liquor.
3. Litres of chlorine gas per litre of liquor.

Sodium hypochlorite is made electrolytrically or by treating bleaching powder with Na_2CO_3 or NaOH. It is entirely soluble in water, bleaching action easily controlled and action rapid.

Electrolytic Bleach: decomposition of NaCl solution by electric current, sodium being liberated at cathode and chlorine at anode. The sodium combining with water forming NaOH, the hydrogen being set free. Sodium hypochlorite is formed $2\ NaOH+Cl_2=NaOCl+H_2+NaCl$. Bleach is more economically made by passing the chlorine evolved directly into lime. This is accomplished by placing a porous earthen diaphram between the electrodes or passing the chlorine gas into a tower of lime water.

Ozone is prepared by passing a silent electric discharge through oxygen. For commercial bleaching, yarn, etc., is exposed for seven hours.

In bleaching with hydrogen peroxide the fibre is scoured with soap, rinsed and immersed in a bath containing 1-5 gallons of 10-15% peroxide together with 10 gallons H_2O and NH_3OH at a temperature of 68 deg. F. for ten hours.

Sodium peroxide decomposes in contact with water forming 20% of oxygen available for bleaching. The material is brought in contact with the liquor at 120 deg. F. for 3-5 hours, rinsing and scouring with a little acetic acid.

Permanganate readily gives its oxygen to organic matter. Its use is principally for jute which is treated with a 5-8% solution. The fibre is then washed with sodium bisulphite.—E. K. M.

Paper-making materials from South Africa. Anon. Bulletin Imperial Institute 14, 163-7 (1916).—Tambookie grass, which grows luxuriously in the Transvaal, was found to contain 10.2% moisture (drying at 110 deg.), 7.4% ash and 41.3% unbleached pulp, which lost 3.1% when bleached. The pulp was a pale fawn color; it was easily bleached to a pure white product.—Chem. Abstracts.

By-products of esparto grass. C. Budde. Jour. Society Chemical Industry 35, 401 (1916).—The main product from esparto is cellulose. The dust resulting from the preliminary mechanical treatment of the grass contains 25 to 50% of a hard, light brown wax, melting point 74 deg. C.; saponification number 71.41, of commercial value. The black liquor which is now treated solely for recovery of soda contains a large amount of organic "extract matter" which may be precipitated by various reagents. A slight excess of acid or treatment by chlorine gives a slimy, finely divided precipitate almost impossible to separate from the mother liquor, but treatment of the boiling black liquor with a large excess of acid, e. g., H_2SO_4, gives a coagulated, resinous precipitate easy to separate. Distillation of the mother liquor from this precipitation yields acetic acid and furfural, both of commercial value. The resin is soluble in acetic acid, acetone, benzol, ethyl alcohol, aniline and alkalies, but in soluble in ether, oils or turpentine. It may be used for sizing and waterproofing purposes and as a varnish. Treatment with HNO_3 yields a yellow dyestuff related to picric acid. In producing the above resin, however, the soda is lost; a process of greater commercial promise consists in treating the black liquor with an excess of niter cake and distilling. Acetic acid and furfural distil over. At 200 deg. the reaction in the still become alkaline and large quantities of NH_3 are then obtained. The soda remains in the still as Na_2S which is usable in the pulp mill.—Chem. Abstracts.

THE QUESTION DRAWER.

Ans. 1.—When your pulp board splits you should ascertain whether there has not been a change in thickness of the stuff in the vat corresponding to the ply giving the trouble. Changing the pressure of a couch roll might also give the ply a tendency not to adhere to the others.

Ans. 2.—By grinding wet wood, a longer and softer fibre is obtained. The best percentage of moisture in the wood has not been determined, so far as we can discover.

Ans. 3.—Ground wood slivers can be very satisfactorily refined in a Voith refiner. This machine is similar to the old fashioned mill stone. The results of the installations we know about certainly justify the expense for power.

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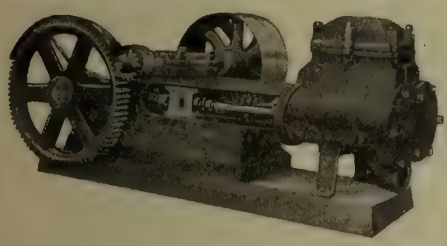
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BUCKLAND CONN.

Paper Mills Expand on Exports

Imports of Print Paper by the United from Canada Double in Three Years.

By A. G. McINTYRE,
Paper Expert, American Newspaper Publishers, Association.

(Formerly Editor, Pulp and Paper Magazine).

The total consumption of news print in Canada is only 350 tons out of 1,800 tons per day manufactured, compared to a total of 6,000 tons a day manufactured in Canada and the United States together. This total Canadian consumption is less by 100 tons a day than the consumption of the Hearst papers alone; or, again, it is less than double the amount of paper used by one American newspaper alone—The Chicago Tribune. Canada will be exporting during 1917 $1,000,000 worth of pulp and paper per week.

This will show that the Canadian market for Canadian paper is a very small factor, and that Canadian mills must look largely to the American side of the line. The chief factor in the development of the Canadian pulp and paper industry has been the character and proximity of the United States market.

The United States markets on all kinds of pulps and papers have been extending at an exceedingly rapid rate, whereas the production on most grades has been decreasing, due partly to the diminishing wood supply, and also to the more aggressive manufacturing policy of Canadian competitiors.

News Print Bulks Largest.

By far the most important factor in these transactions is news print paper. Other grades of paper are not exported to the United States from Canada at all, but various kinds of pulps, sulphite, ground wood and sulphate are exported in increasing quantities.

The value of this market to Canadians as a nation, and to the particular group interetsed in paper manufacturing lines, depends almost entirely on the development of that market in news print paper.

Statistics show that the United States consumption of newsprint paper has increased at the rate of from 6 to 10 per cent. per year. On the other hand, the production of news print paper in the United States has materially decreased, and is decreasing each year, although a few new pape rmachines are usually installed annually. This is accounted for by the fact that being forced to obtain a million cords of wood per year from Canada to make up the deficiency of their domestic wood supply has so increased teh price of wood that the more inefficient mills have been forced to go from news print to other grades, such as manilla, hanging, wrapping, liner, book and specialties, with the result that a large number of the narrower and slower machines have already been, and are continuing to be, diverted to these grades.

600 Tons Per Day Diverted.

During the year 1916 about six hundred tons a day capacity of such machines was so diverted. There were only two news print machines started in the United States in 1916, and there are in prospect only two more for 1917, each machine having a capacity of about fifty tons a day. It will be seen, during the last year, and more so during the coming year, the gap between production and domestic consumption in the United States will be widened materially.

This is naturally made up by Canadian production, and during the year 1916 only fifty tons a day of new production came on the market in Canada. This war due to the extreme war conditions, as there has been usually more new tonnage than this. There is a prospect, however, in 1917, of little over six hundred tons per day of new tonnage, which will come on the market in Canada during the year, and probably as much more is now in prospect for 1918.

Effect of the Tariff.

The Simonds-Underwood tariff removed the duty on news print paper, so that there is a very keen incentive for development of mills where locations are available with adequate water and wood supply to meet this growing market. There is no possibility of this tariff ever being restored on account of the strong influences which encouraged its being taken off, and on account of the decided economic advantages to the American people which have been manifest since the tariff on print paper was removed. Investment in news print mills in Canada to meet this market ranks in the first class of industrial enterprises.

Shortage of Paper Predicted.

It will be seen by studing the normal growth and increase that there will be a shortage of print paper with present operating mills in 1918 of about 1,500 tons a day. The mills in prospect for coming on the market by that time will take care of only about six hundred tons a day. Offsetting this, however, is the fact that there will be a large number of machines continuing during 1917 to go off newsprint paper in the United States, probably as much as five hundred tons a day.

These figures show conclusively that the opportunity for Canadian pulp and paper mill development, even under present extreme conditions, is both safe and highly remunerative.

Recent investigations by the Federation Trade Commission in Washington show that at the outside it has cost $32 a ton to manufacture news print paper in the United States. Cost sheets of many Canadian mills show cost as low as $23. and in a few cases a little under this. General conclusions have usually been that Canadian mills had an advantage of about $5 a ton over American producers. but if the Federal Trade Commission's report is to be taken as reliable the advantage of a mill in Canada seems to be much more than this.

United States imports of print paper from Canada in 1913 were 219.500 tons in 1914, 215,500 tons in 1915, 368,000 tons and in 1916, 500.000 tons.

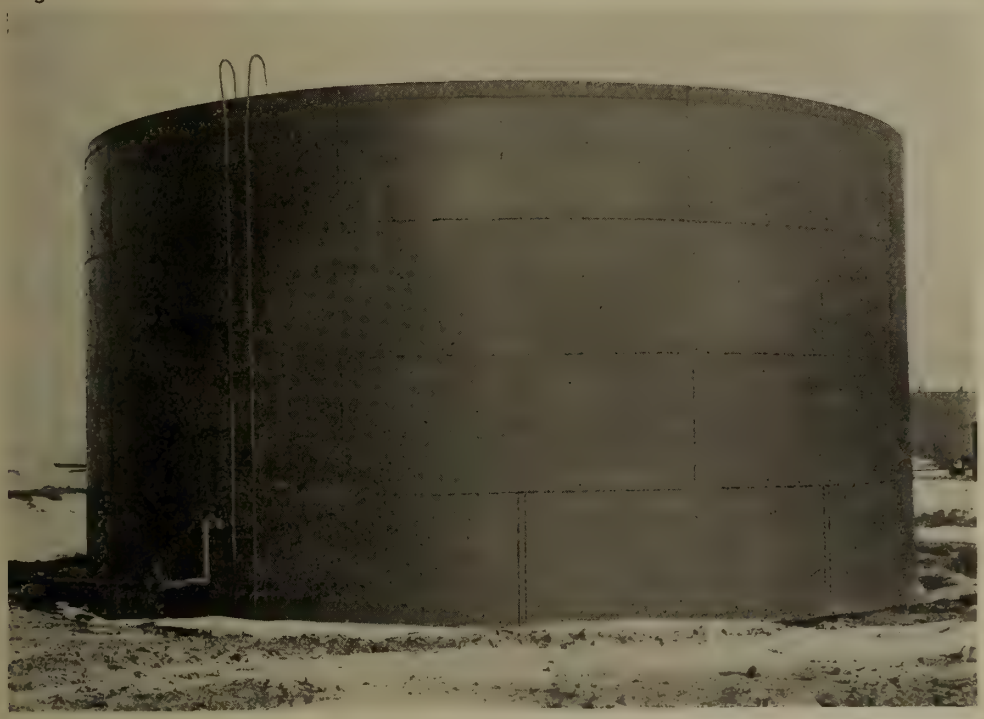
Increased Exports in View.

8he prospects for the future are that these exports to the United States will continue to rapidly increase. The United States is not a print paper exporting country, the average exports running only about 50,000 tons a year. They increased somewhat in 1916 to about 75.000 tons.

The total production in Canada and the United States of news print paper in 1916 was 1,800.000 tons; for 1917 it will be about the same. With the opportunity for increases in Canada with the diminishing oduction in the United States, Canada will doubtless, instead of shipping into the United States one-third of her total requirements of news print paper, as at present, supply at least half within three years, if Canadian development proceeds. This will mean that Canadian paper will entirely dominate the American market.

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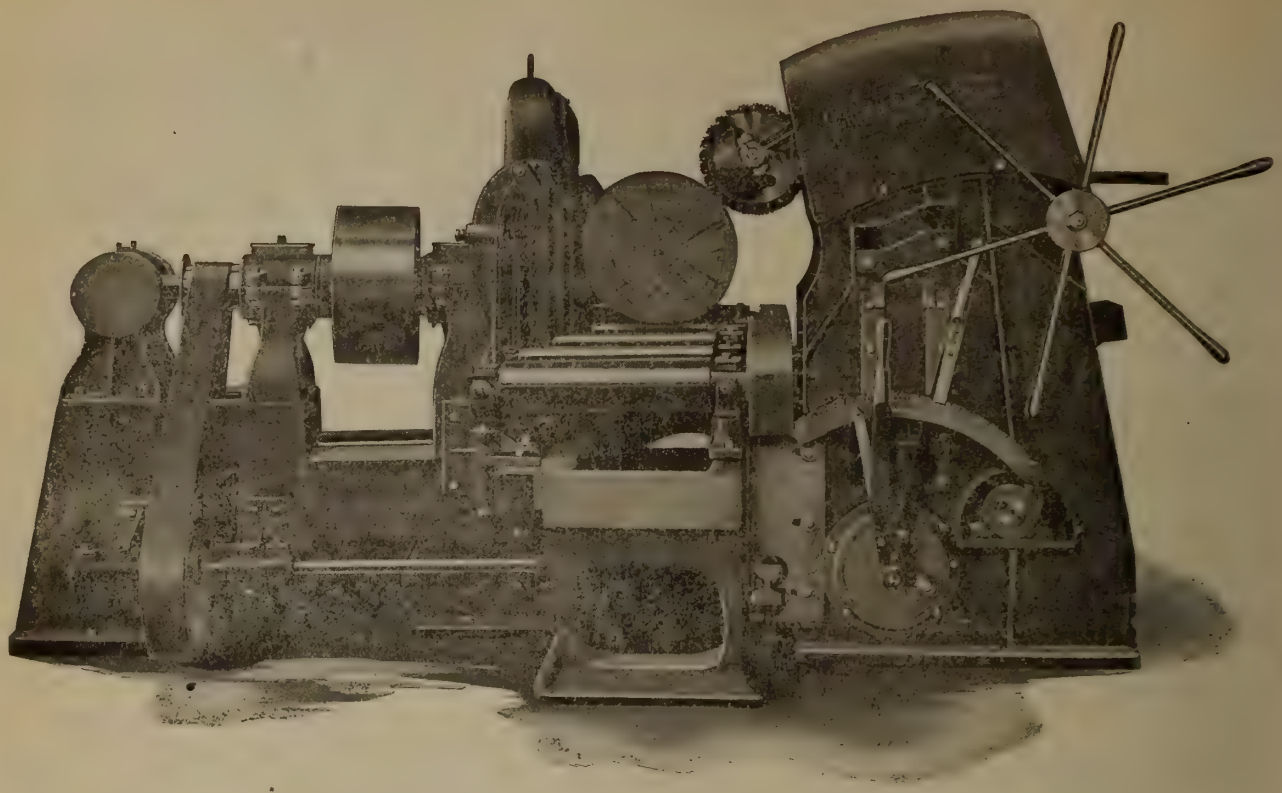
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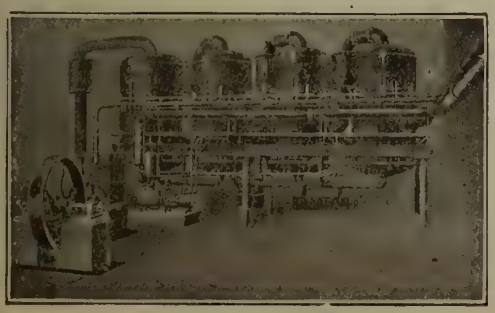
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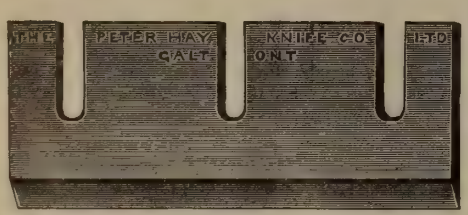
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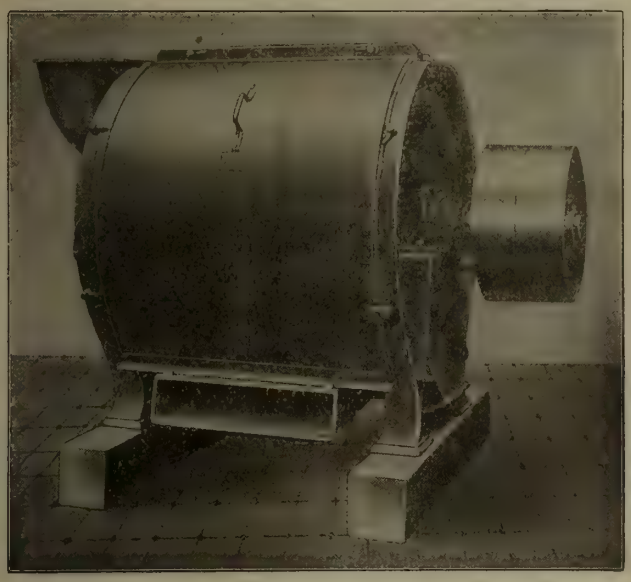
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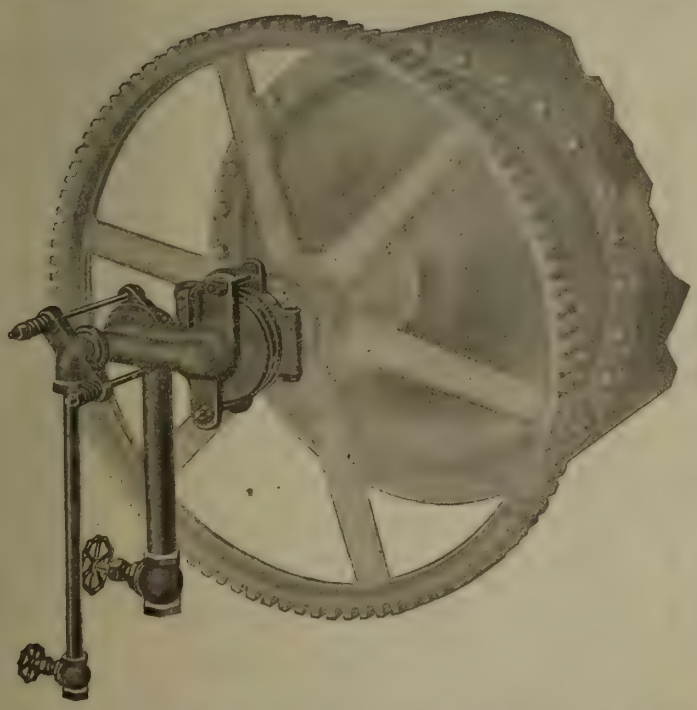
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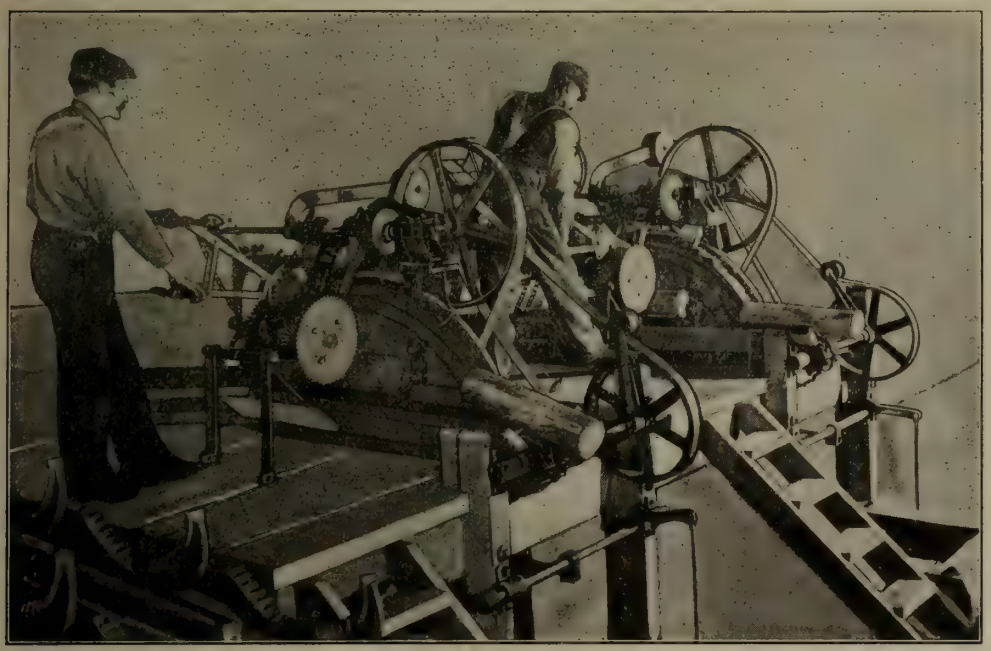
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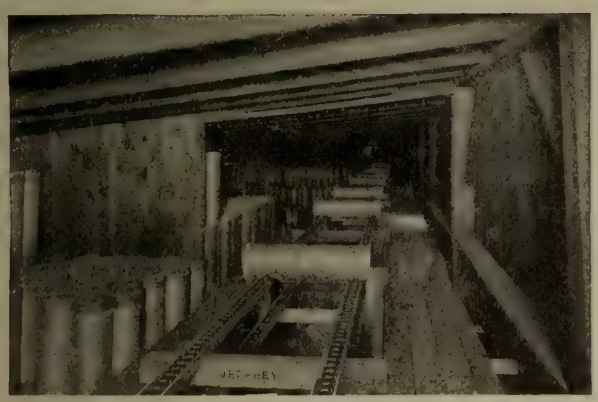
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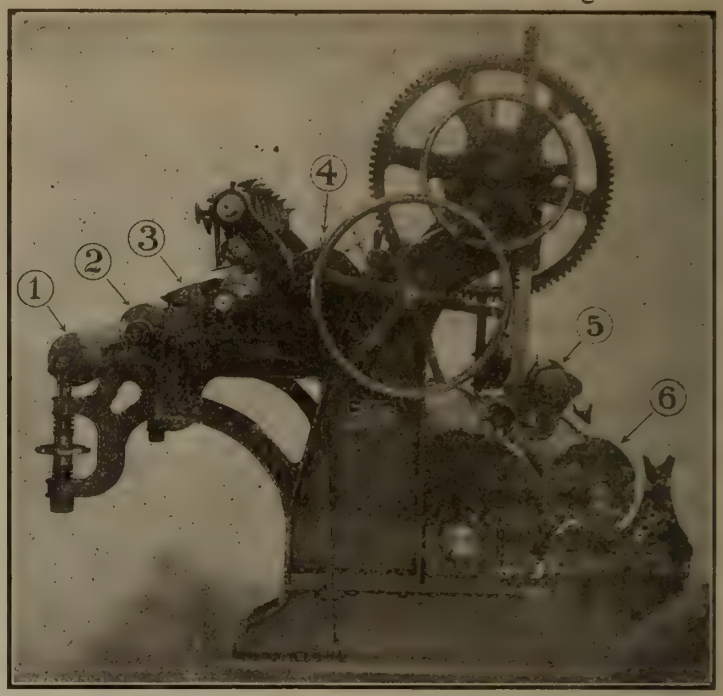
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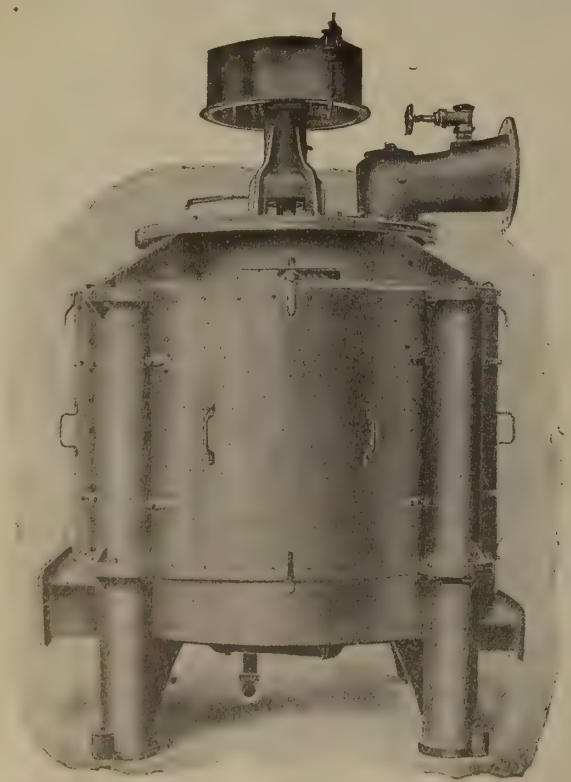
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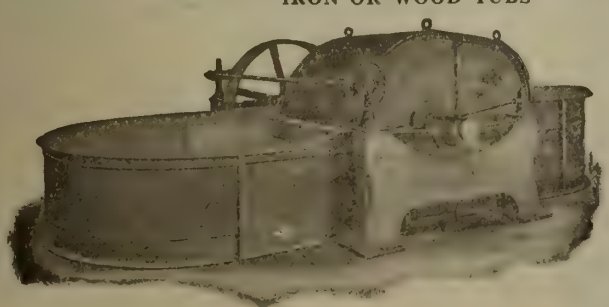
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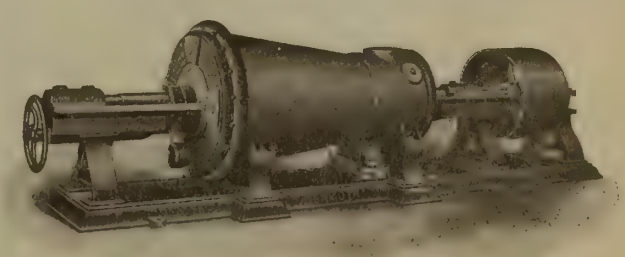


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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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J. NEWELL STEPHENSON, M. S., Editor

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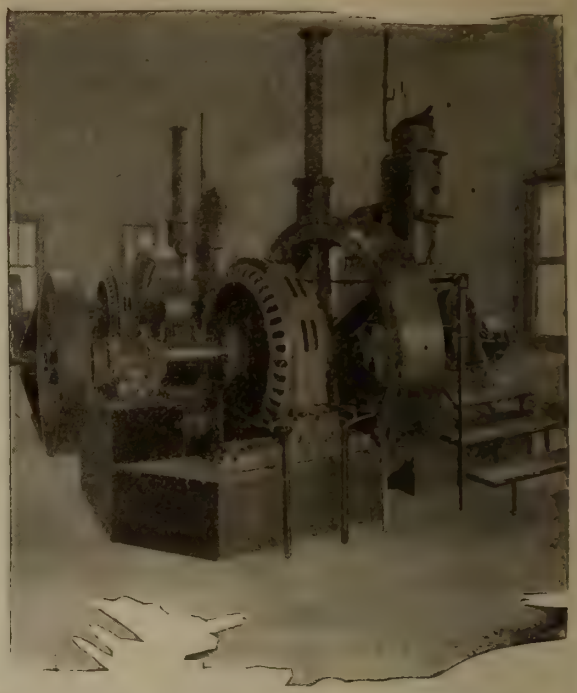
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EDITORIAL

A NEW FOREST FOE.

The Canadian Forestry Association will meet in Ottawa next Monday and the American Forestry Association will meet in Washington, January 18th and 19th. One of the principal subjects to be discussed at these meetings is the imminent danger to our pine forests from the spread of pine blister canker or rust. This disease has made very serious headway in the United States and has already appeared in several places in Canada. In a political sense, Canada has better machinery for fighting this malady than our neighbors have.

Previous to 1912, when the Federal Horticultural Board was established, there was no check on the importation of diseased pine seedlings from Europe, but the action of the Board came too late. The disease had already gained a foothold. Now it has not only covered New England, but has spread as far as Minnesota and Wisconsin. Some states, such as New York have taken energetic measures with individuals, but the Federal Government is powerless to deal with the internal affairs of a state and was sadly slow in prohibiting interstate shipments of pine seedlings and of gooseberry and currant plants.

Besides our sorrow over the possible loss of our friends, the pines, there is a commercial consideration of great magnitude. The pine is our most valuable forest tree. Its uses are almost innumerable, but do not include the manufacture of pulp. The loss of the pine would, however, affect the pulp and paper industry, because it would mean the entry of spruce into competition with pine for many purposes and this would increase the price of spruce for pulp as well as for lumber.

Immediate action by our Federal and Provincial Forestry Departments can doubtless check the spread of the pine blister rust in Canada. The lesson to be learned from the condition in the United States is the old adage, "He who hesitates is lost."

AN UNFAIR DECISION.

A conference was held in Montreal this week to discuss the price schedule which Sir Thomas White seeks to impose upon the newsprint manufacturers. Naturally the paper men refuse to accept the cut and dried findings of the Finance Minister.

In the annals of Canadian politics we know nothing that savors more of high-handed injustice than the action of Sir Thomas White in seeking to regulate the price at which newsprint shall be sold to Canadian publishers. Has Sir Thomas White made any effort to force Canadian farmers to sell their wheat at 10c a bushel more than they obtained last year? Most certainly not. Nor will he dare to interfere, the reason being that the farmer's vote is too important to antagonize. Has he made any effort to force steel makers who have waxed fat and prosperous out of their war profits to disgorge any of their excess profits, or make them sell steel rails or forgings at so much a ton more than they obtained last year? Millers today are getting almost double for a barrel of flour what they got two or three years ago, yet this would-be regulator at Ottawa has not stepped in and interfered with the miller's profits. Shoe manufacturers, clothing manufacturers and every other manufacturer catering to the necessities of the people, has raised the price of his commodities, yet Sir Thomas White does nothing. If he doubts our word, let him glance at the cost-of-living chart prepared by his colleague, the Minister of Labor. Everything the people of this country require, such as food, clothing, etc., has made enormous advances in cost, yet Sir Thomas White remains silent.

Why then this outburst of piety and change of heart, this desire to cleanse the Aegean stables as represented by the paper industry? The reason is not hard to find. The press of the country have a tremendous influence, and Sir Thomas White who has his ear to the ground, and is credited with ambitions in the direction of a Premiership, wants to curry favor with the newspaper men of the Dominion,. He will find that the newsprint industry is not in the hands of a lot of weaklings who will tamely submit to his whims and caprices. They have just claims, and do not intend to have their rights over-ridden by Sir Thomas White or any other individual.

WE WANT TO BE FAIR.

While it is our opinion that the present newsprint investigation in the United States will in no wise find the manufacturers guilty of improper co-operation or the charging of an excessive price, we wish to be equally fair to the publishers.

Mr. A. G. McIntyre, of the Publishers' Association,, wishes to have corrected the erroneous impression that may have been conveyed by an editorial in our last issue. He says, "The Federal Trade Commission in-

vestigation was asked for by secretary of Newsprint Manufacturers' Association and proposal of pro-rating was not proposed by Commission but by print manufacturers. All large publishers except those who own their own mill have economized in their consumption ten to thirty per cent. One large consumer has offered one half his reduced consumption for small publishers provided the manufacturer delivers to them at his contract price. This proposal was declined. You are mistaken in suggesting that large publishers and those with contract are not doing their utmost to co-operate in conserving the present paper supply.

In this connection it may be well to review the beginning of the matter. We therefore print the following extracts bearing on the subject, taken from news despatches in "Paper," July 26, 1916. Representative Mann is a rabid exponent of the rights of the publishers. Unfortunately he wants the publishers to have more than their rights and in doing so would wrong the manufacturer.

Washington, D. C., July 25.—By a resolution introduced in the House of Representatives on Tuesday, July 18, Representative James R. Mann, of Illinois, has asked for the appointment of a special committee of the House to investigate the prevailing high prices of newsprint paper, and conditions in the woodpulp and paper industry. The text of the resolution follows:

"Resolved, That a select committee of five members be appointed by the speaker to inquire into the supply and production of pulpwood, woodpulp, and print paper, and other articles entering into the production of paper of any kind and especially in so far as the same are, or may be claimed to be, affected by any combination or conspiracy, to control, regulate, monopolize, or restrain, interstate or foreign commerce or trade in the production, manufacture, supply distribution ,or sale of pulpwood, woodpulp, or paper pulp, or paper of any kind, or any of the products of paper ;and also to inquire as to the causes of the recent marked increase in the prices of pulp and of print and other papers and whether the present prices are controlled in whole or in part by any combinations of persons or corporations engaged in interstate or foreign commerce or in the production of such articles in foreign countries, ,and if so, inquire into the organization, conduct, methods, and practices of such persons or corporations.

* * *

"The Senate of the United States has recently passed the following resolution:

" 'Resolved, That the Federal Trade Commission is hereby requested to inquire into the increase in the price of print paper during the last year and ascertain whether or not the newspapers of the United States are being subjected to unfair practices in the sale of print paper.'

HIGH FINANCE AND THE PAPER INDUSTRY.

Last week the Pulp and Paper Magazine warned the public against what would happen if professional promoters were allowed to run riot with the stock market end of the paper industry. This week we are able to point to a concrete case.

A few years ago Sir Rodolphe Forget formed, or rather "financed" the East Canada Power and Pulp Company, Limited. The property was in an out-of-the-way place on the lower St. Lawrence, and from an economic and industrial standpoint had not one chance in a thousand to make good. It had poor shipping facilities, a miserable location and many other faults to overcome. On top of these difficulties it was over-capitalized. In other words it was put on the market as a stock jobbing enterprise instead of as a proper pulp and paper proposition. The chief interest in the industry was centered in a certain office on St. Francis Xavier street with the result that a sorry mess was made of the whole undertaking.

To-day bondholders of the East Canada Power and Pulp Company, Limited, are being offered by the liquidator the magnificent sum of $6.18 for every $1,000 Consolidated Gold Bond they possessed! Bonds to the value of $1,500,000 were issued and the poor innocent purchasers get back but $6.18 out of every $1,000 put up. The holders of the common stock will get back—experience. It was unloaded on them at about 30.

The danger from over-capitalization and stock rigging cannot be over-emphasized. The pulp and paper industry is enjoying a period of prosperity and is rapidly becoming one of the country's greatest manufacturing and export industries. We do not want to have the East Canada Power and Pulp Company's fiasco repeated in other parts of Canada. Other professional promoters and mergerers are now as eager to "aid" the industry as Forget was a few years ago. It will not assist the industry one bit to have the promotion offices moved from St. Francis Xavier to St. James street or any other street if the same "saintly" methods are to be pursued. The eagerness of certain financial houses in Montreal to lend their Midas-like touch to the industry bodes ill for its best interests. We want no get-rich-quick-Wallingford's connected with the pulp and paper industry in Canada.

"FIBRE CONTAINERS" APPEARS.

The first issue of "Fibre Containers", a monthly magazine devoted to the fibre box industry appeared last month. It has made a modest but promising start and presents a very nice appearance. Such an important and growing industry ought to welcome and support such a magazine.

A GOOD RECORD.

There is no doubt about the loyalty of T. McAvity & Sons, Ltd., of St. John, N. B. This firm has sent eighty men, including five McAvity's, to the front. Five of these men will not return.

The Press Machine for Wood Pulp

By KNUD DAHL, Jr.

Most of the pulp manufactured in Norway is exported, and is generally pressed to fifty per cent dry matter. The cost of the raw materials and the wages have increased immensely in the last years, and the pulp mills have been studying how to save material and labor. The machinery-builders have spent a considerable sum of money in order to improve their products, and also in trying out new ideas with the same object in view.

The introduction of the continuous barking drums was a great step forward, and most of the mills in Norway are now equipped with these drums. The installation of modern screens and refiners followed, which further tends to increase the output of first grade pulp. The save alls and the grinder governors, which secured a better utilization of the available horsepower, followed successively.

The latest improvement, and regarded as a very important one, is the Continuous Pressmachine for wood pulp, patented and brought on the market by Messrs. J. & A. Jenson og Dahl, of Christiania, Norway.

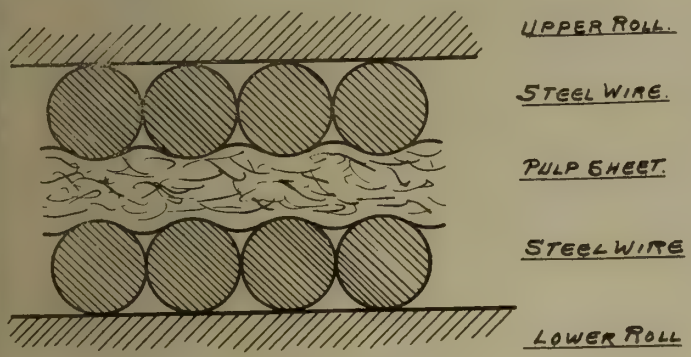


FIG. 1.
ENLARGED SECTION OF PRESS-ROLLS WITH PULP-SHEET.

The object of the pressmachine is to press the pulp automatically, to fifty per cent dry or better, thus eliminating the hydraulic presses and all the labor and repairs connected with same. The machine did not succeed without considerable experimenting. It now is a perfected and reliable machine, and has excited considerable attention. Many pressmachines are now in operation in Norway and Sweden, and several of the mills are equipped entirely with them.

Many attempts have been made to obtain the desired fifty per cent by increasing the pressure on the pressrolls of the wet machine, and also by increasing the number of presses. With the ordinary pressrolls, however, a satisfactory result is never obtained. A limit is soon reached where the increasing of the number of presses is impractical, and where a higher pressure on each individual pair of pressrolls will squeeze the pulp into shreds without making it any dryer. The wear of the felt also makes the heavy pressure prohibitive.

It was not until Jensen og Dahl abandoned the feltpress and had some of the pressrolls on their experimental machine wound with steel wire that they succeeded. Fig. 1 shows an enlarged section through one pair of these rolls with the pulpsheet between them. The result of the trial with the rolls was most satisfactory. The desired fifty per cent was easily reached and the machine produced the pulp suitable under the heavy pressure.

The reason for this excellent result was first that the pulp did not entirely fill out the grooves between the windings, thus allowing free passage for the water which was pressed out of the pulp. Second the corrugated surface of the rollers prevented the shredding of the pulp and allowed the heavy pressure. Indeed the pressure was increased over the necessary amount for producing fifty per cent pulp, and pulp as dry as 55 to 59 per cent was frequently obtained during the experimenting. Attempts with pressures up to about 2,000 pounds per inch face of the rollers were made with satisfactory results.

It soon became evident, however, that the steel wire did not stand up well under the heavy pressure and it had to be abandoned. Instead of the wire, grooves were turned on the periphery of the rollers, which served the same purpose and provided a lasting surface. Means were also provided to prevent the rollers from coming in contact with each other when there was no pulp between them.

The pressmachine aggregate is now made in two different styles, one for ground wood pulp, and the other for chemical pulp.

The Pressmachine for Ground Wood Pulp.

The pressmachine for ground wood pulp is shown in Fig. 2. It consists of a wet machine with two cylinder moulds "A," and an iron part "B" on which a cutter is situated, which delivers the pulp in laps of desired size and thickness to the "Forepress" "C."

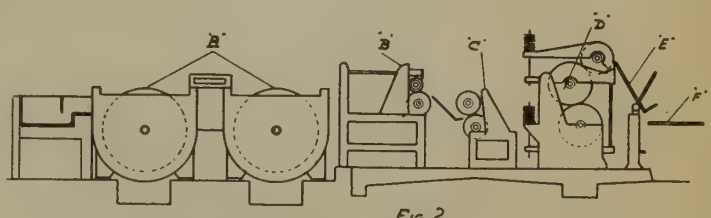


FIG. 2
PRESSMACHINE FOR GROUND WOOD PULP.

This press is a feltpress and has a lower roll provided with a jacket and an upper roll with turned grooves, somewhat coarser than the grooves in the pressmachine rolls. In this Forepress the pulp is prepared for the heavy pressure in the pressmachine "D." This has grooved rolls and is run without a felt. The three pressrolls are arranged in such a way as to make two individual presses. The pressure between the rolls is very heavy, and the pressed laps are piled up on the

table "E." This table is turned over from time to time, and the laps landing on the conveyor "F" are carried away to the baling press where such is used.

Everything except the turning of the table "E" is automatic, and one man can take care of 3 to 4 machines.

Where the dryness of the pulp is not the most important factor a somewhat cheaper arrangement has been made, which has given very satisfactory results. In this case the forepress and sometimes also one of the pressmachine rollers have been eliminated. Without forepress and with three pressrolls fifty per cent pulp is often obtained, and the same arrangement with only two pressrolls gives generally pulp 45 to 48 per cent dry.

Besides being a labor saving machine the pressmachine has also other advantages. The repair expenses on the hydraulic presses and pumps are eliminated and the machine delivers pulp sheets of uniform dryness.

The following figures were obtained from an installation in a ground wood pulp mill in Norway.

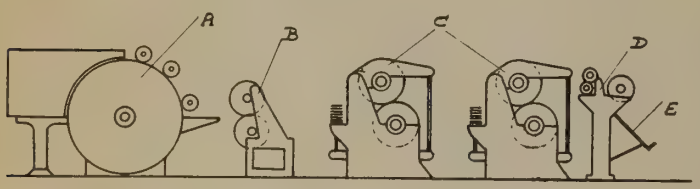


Fig 3. Pressmachine for Chemical Pulp.

The mill had a capacity of max. 33 tons dry wood pulp in 24 hours and was run on a two-tour system. Prior to the pressmachine installation the equipment consisted of 7 wet machines and the usual arrangement of hydraulic presses, four pressmachines of the type shown in Fig. 2 replaced this equipment, and the number of men employed on the wet machines, hydraulic presses and baling presses in 24 hours was reduced from 22 to 6—a saving of 16 men. With a labor cost of one dollar per man per day the annual saving was $4,800, and an additional saving on pressfelts, repairs, etc., made the total saving in one year $5,200. The rearrangement of the mill cost about $22,000, and the annual saving equalled consequently 24 per cent of the capital invested.

Where the mills are run on a three-tour system, and where the wages are higher the saving is still further increased. The same is the case where a new pulp mill is to be built, as the cost of the pressmachine arrangement does not to any great extent exceed the cost of the usual arrangement of hydraulic presses. A large mill in Sweden which was burned down was rebuilt last year and was equipped with pressmachines, 16 of them being installed.

The Pressmachine for Chemical Pulp.

The pressmachine aggregate for chemical pulp is a little different. Instead of the two ordinary cylindermoulds a large diameter suction mould is generally used. In Fig. 3 the suction mould is indicated by the letter "A." The pulp from the mould runs as a continuous band to the forepress "B," which is not provided with any felt, but has grooved rolls. The forepress prepares the pulp for the heavy pressure in the press machines "C"—two of these, both with two grooved rolls are generally used. The cutter "D" behind the pressmachines delivers the laps in sheets of desired size on the table "E." The capacity of this machine is very high. The pulp runs with a speed of about 25 feet per minute.

Special Press.

A special pressmachine has been built with a hydraulic diaphragm press. This machine was ordered for a sulphite mill in Norway, where it is now being installed, instead of two of the presses in the wet part of their drying machine. The machine is provided with two grooved rolls, 32 in. diameter, and about 100 in. face. The pressure between the rollers is about 1,750 pounds per inch of face. The sulphite mill ordered this machine after having had one of the press machines shown in Fig. 3 in operation for a year. The machine has not yet been tried out, but the mill estimates that the pressmachine will deliver the pulp to the dryers about 45 per cent dry, compared with 33 per cent on the old machine.

There is also a three roll pressmachine for ground wood pulp, of which there is an installation in a board mill in Norway, where the pulp generally was pumped from the slushers to the board mill. The two press machines installed take care of the surplus of pulp ground in the summertime, when there is much water in the river and consequently a surplus of power. The pulp is pressed to 50 per cent and is stored for use in the winter time. These machines are provided with special suction moulds for ground wood pulp.

* * *

Mr. Dahl is now associated with the Dowingtown Manufacturing Co. of East Dowington, Pa., as engineer for the construction and installation of these machines.

A BIG CRUISE.

Mr. Kenneth McR. Clark of the James W. Sewall timber cruising and forestry force, Old Town, Maine, is making a thorough estimate of certain wild lands on the Mattawamkeag watershed in Maine. Mr. Clark has been in Gaspe County, Quebec, the major part of the season, estimating and mapping a large tract of land for the estate of Louis Cabet of Boston. He reports an excellent summer and fall in the woods, with enough rain to prevent fires and not enough to hinder work. This has been the busiest season that Mr. Sewall's men have had in several years his various partise having surveyed and cruised about 500,000 acres of land since April, 1916, the work extending from southern New York state to the northern part of Quebec.

U. S. PAPER EXPORTS DOUBLED.

Exports of paper and paper manufactures this year will reach $40,000,000, doubling those of any previous year, according to figures assembled by the Bureau of Foreign and Domestic Commerce.

News print paper export this year have reached a total value of $3,430,000 against $2,260,000 last year, about half of it going to Latin-America.

Canada's White Pine Possessions Threatened with Extermination

By H. T. GUSSOW, Dominion Botanist, Ottawa

The Forest resources of the Dominion of Canada, it has been said, are inexhaustible. This statement, on careful inquiry, may need some modification. The forest wealth of Canada undoubtedly is inexhaustible as far as the present generation is concerned; it will be found ample yet for many more generations. We must however, bear in mind the wonderful opportunities Canada offers for settlement. With an increased population such as Canada requires to develop its natural resources to the fullest degree the demands on the Dominion forest resources will increase simultaneously, very probably in an increasing ratio. The white pine is commercially our most important tree.

On account of its value it was introduced into Europe where it contracted this disease. Seedlings from European nurseries brought the infection to this continent (we should have raised our own seedlings). There are now almost no white pines in Northern Europe.

Description of White Pine Blister Rust.

The first and most essential point is to know the disease. If everybody made it his business, when in the woods, every camper, every hunter, every Boy Scout, every lover of our beautiful forests, and most of all, every forester and wood man, from lumber-jack to owner—to know, recognize, and immediately report, where the disease was observed, and, if in doubt he send a specimen to those who know it, then we may hope to cope with it before it is too late.

The disease is most of all dangerous to the young pine. When it attacks the main stem—and as many as one hundred separate infections and more have been observed on one tree—and girdles it, which it is sure to do eventually, the tree dies. During May and June each year, this disease can be recognized by any one looking for the following symptoms; later on, only experts can determine it. All know the appearance of the fine smooth dark green bark of stem and branches of this white pine. But does everybody know the white pine from other pines? Of course he knows that the white pines have five needles or leaves in a cluster, while others have but two or three. To make sure of this, he need only cut or pull off a cluster of leaves where they are attached to the branch, and count that little cluster held together at the base by a small sheath—if there are five needles it is almost sure to be a white pine—and even if not (this disease only attacks five-leaved pines) it should be reported nevertheless.

During May and June, rarely after the middle of June, the disease is most conspicuous on the pine. The formerly smooth dark green bark will be found swollen, puffed up, "blistered," and breaking through the bark will be seen small whitish-orange scale-like bodies of a dusty floury appearance, composed of the spores or seeds of the disease. There may be a few or many at each point of infection. Often times one can see these from a short distance. They may be on any young branch or on the older wood, but they disappear after June, and only the blister remains, though far less pronouced to the casual observer.

Where the scales had been are often small drops of resin, or gum in the popular phrase, though these are not always present—(or may be present from other causes)—since even mechanical injuries to the bark, such as squirrel bites, etc., will cause gumming. In time, this bark becomes rough and cracked, the disease slowly makes progress up and down, or around the limb or stem, and kills the branch, or the tree if it has girdled the stem; or the wounded area may give rise to another series of spores, but at no other time of the year except May or June will the spores be seen. In old pines the disease may live for years, young pines will succumb as soon as the main stem has been girdled.

Thus far, the disease is on the pines. The symptoms should be carefully borne in mind, and always looked for, when one is in the woods in May or June.

Another Stage Occurs on Currants or Gooseberries.

The fungus, as was said, produced orange white dust—like a colored flour. This dust, when viewed under a powerful microscope, is composed of thousands of minute grains, spores or, popularly, seeds of the fungus. These spores, like seeds of wheat or other plants, germinate in a similar way. But not in soil like the latter. They require living plant tissues to develop. These little organisms or plants, for they belong to the vegetable kindom, are parasitic and live exclusively on living plant tissue, somewhat as the mistletoe in Europe grows upon and with its roots within the living apple tree or other tree. The spores produced by the white pine blister rust cannot germinate on the pine direct, but pass the next stage of their life history on another host plant. When they fall upon the leaves of wild or cultivated currants or gooseberries, particularly the cultivated black currant, they germinate and produce on the lower surface of these leaves minute little spore blisters, from one to a few hundred on one leaf. These blisters are filled with bright orange-red spores, as small as those on the pine; to the naked eye they appear to be merely a reddish dust, which is the early summer stage. This stage may appear on currants in the neighborhood of the pines from which the spores originally came, at any time from June throughout the rest of the season; though, later they produce a second kind of spores. The early summer spores spread the disease known in this stage as currant rust; from currant leaf to leaf, shrub to shrub, plantation to plantation, and thus infection may travel for miles in districts where either wild or cultivated host plants occur. These plants are not killed; premature defoliation may result, with consequences injurious to the cultivated plants, but the parasite does not kill the plant so essential to the continuation of its life cycle. Towards the end of the season the so-called late summer spores are produced. These occur on very short peg-like protuberances growing from the lower

side of the leaves; and these later spores only germinate on white pines anywhere in the neighborhood. This occurs in fall, and it may take several seasons before a blister is produced on the pine, which will give rise to the pine rust stage and the spore already described. This is the life cycle, rounded off: From pine to currant—and back from currant to pine.

Lessons from the Life History of the Disease.

This mode of life has acquainted us with two very important features. Without currant or gooseberry bushes there can be no pine disease, that is absolutely certain. If there be no pines—then the currants cannot be affected. Please note this point very carefully! If we wish to keep the currants or gooseberries, the pine should be destroyed: if we prefer the pine—the former should be destroyed. When one or other is done, this disease has lost its sting. Can this be done? Would we recommend, for instance, the destruction of pines to save the currants, or, vice versa, of the currants to save the pines? These would certainly be the most efficient means to arrest this disease. The next important lesson to be learned from the life history is the modes of spreading of the disease. It spreads of its own accord on currants or gooseberries, for miles in one season, in all directions; and eventually reaches a pine, a pine plantation, or a forest, and these then, in turn, may start new outbreaks. Hence the next lesson to be learned is this:—no currants or goseberries near pines; no pines near gooseberries or currants.

How far apart should these different host plants grow from each other? This point is still an open question—but the farther apart the better. Can this be carried out? Sometimes a single pine, or a few pines menace the cultivated currants; sometimes a few shrubs of the latter, the former. Therefore, whichever, in a given locality, is the more important must remain, and the other be destroyed—certainly if affected, but better at any rate. Most important of all, all wild currants and gooseberries should be destroyed: they are most serious offenders. This should be done everywhere in or near valuable pine woods.

There is yet another danger, that currant rust spores may adhere on baskets of currants or other fruit, when shipped from an infected area, and spread the trouble very widely—that the disease will eventually find its way to a pine. So far as now believed, currant bushes in themselves and sold as such, do not appear to carry the disease, once the leaves are gone. Doubt still exists on this point, which we are now endeavouring to settle. Should the diesase be conveyed by infected currant bushes, this would constitute a new menace, and the question become more difficult. However, it is generally held that infection of currants occurs every year afresh from nearby pines, strange as this may seem.

The Disease is Carried of Pine Nursery Stock.

We know for certain that the pine carries the disease—it was by pine seedlings from Europe that the disease was introduced; hence importing pines into Canada should be stopped. This was done shortly after taking up my work in Canada. No pines (five-leaved) can enter Canada from anywhere abroad, reads an order-in-council,

Quarantine and Control Measures Necessary.

A federal quarantine against white pine seedlings or other five leaved pines, and, if possible, against currants, etc., from infected provinces or areas, or individual nurseries, is desirable. The first work to do is the accurate location of every infected locality—this requires men and time, the more men the shorter time. The shorter the time it takes to know accurately the distribution, the better the chance to fight this disease. Therefore, let all concerned come to the fore! The question is of greatest moment; and the experiences of other countries are on record. Shall we too fail, where others have also failed? It may become necessary, but not until the distribution in Canada of the disease is fully ascertained, to establish a safety belt of considerable breadth in which currants and pines shall be wholly eradicated, isolating, if possible, the infected area from valuable timber limits. Wherever diseased pines are located they should be immediately destroyed.

Note.—Extra copies of the illustrated bulletin from which this abstract is taken may be had by addressing the Canadian Forestry Association, 119 Booth Building, Ottawa, Ont.

CANADIAN FORESTERS AT OTTAWA.

Many new problems in forest conservation have come to the fore during 1916 and several of these will be included in the programme of addresses at the Annual Meeting of the Canadian Forestry Association, Chateau Laurier, Monday next. Mr. T. J. Welsh, a leading Minnesota lumberman is expected to be present, to tell how the lumbermen of that State, under the laws now in effect, destroy all "Slash" immediately following their lumbering operations and thereby eliminate a great fire hazard. The grave danger of a virulent disease "White Pine Blister Rust", now attacking white pine in Canada and the United States, will have a thorough discussion at the hands of Dr. H. T. Gussow, Dominion Botanist, and with the assistance of other speakers. In the evening a dinner will be held at the Laurentian Club, Ottawa at which several public men of note will be the speakers.

INDUSTRIAL CLASSES STARTED AT THOROLD

Last month in the town of Thorold the first of a series of evening industrial classes for boys and workmen was opened in the opera house of that town. The course of teaching which will be given aims especially at the needs of the pulp and paper industry. The ten pulp and paper mills of the Niagara Peninsula have undertaken to support and encourage these evening classes, which really take the form of a local branch of the Technical Section of the Canadian Pulp and Paper Association. The subjects being taught are: mechanical drawing, chemistry, English, arithmetic and electricity. The paper manufacturers, who are principally interested in this new educational venture, hope that through it they may help to meet growing labor problems, and at the same time cultivate efficient workmen for their industry.

ST. MAURICE PAPER CO.

Some further evidence of the growth of the Canadian pulp and paper industry is furnished by the developments taking place in connection with the St. Maurice Paper Company, of Three Rivers, Que., whose large new plant is nearing completion. This Company is a subsidiary of the Union Bag and Paper Company, one of the large American Paper Corporations, and whose securities are listed on the New York Exchange but from present indications it looks as if the subsidiary company would eventually be more important than the parent company.

The St. Maurice Paper Company controls 2,000 square miles of centrally located spruce limits in the Province of Quebec. These are easy of access, which is always an important factor in the economical manufacture of paper.

The St. Maurice Paper Company have an output of one hundred tons per day of ground wood in their pulp mill now running, and they have almost completed a 100 ton per day newspaper mill, a 60 ton per day sulphite pulp mill, also a 50 ton per day kraft mill.

With these four mills in full operation during 1917 their profits will be a big acquisition to the balance sheet of the Union Bag and Paper Co.

The Union Bag and Paper Corporation has reversed the procedure of most other paper companies of recent date by squeezing the water out of their capitalization and reducing the old capitalization of $27,000,000 preferred and common stock to $10,000,000 new common stock. The $11,000,000 of old preferred being exchanged for $8,000,000 new common stock and the $16,000,000 old common stock for $2,000,000 new common stock. Quarterly dividends of 1½ per cent. are now being paid on this $10,000,000 new stock.

As $3,750,000 of this $10,000,000 stock is represented by Capital Stock of the St. Maurice Paper Co. every share of Union Bag and Paper Co. represents 37½ per cent. St. Maurice Paper Co. stock.

The Union Bag and Paper Corporation's largest plants are located at Hudson Falls, New York State, where they develop and control large water power, having exclusive rights to the Hudson River at that point.

They manufacture daily at Hudson's Falls 125 tons of sulphite pulp and 200 tons of paper, also considerable ground wood pulp.

Their mill at Kaukauna, Wis., has a daily capacity of 80 tons of paper.

Their Michigan plant at Cheboygan which they purchased lately produces 50 tons of sulphite pulp, 10 tons of ground wood pulp and 70 tons of paper per day.

Their output of paper bags from their three bag factories which are located at Hudson's Falls, N. Y., Chicago, Ill. and Kaukauna, Wis., is over 19,000,000 bags per day.

With this enormous output and comparatively small capitalization and the present highly efficient management, the shareholders will benefit greatly by the exceedingly high prices for sulphite pulp, paper and paper bags.

The present fiscal year ends January 31st and it promises to be a phenomenal one as regards profits. The following year should be even better as the full earning power of the St. Maurice Paper Co. will be an important and valuable factor in the year's operations.

WHO PLANTS A TREE.

John Greenleaf Whittier's poem for the agricultural exhibition at Amesbury contained this verse:

Give fools their gold, and knaves their power;
Let fortune's bubbles rise and fall;
Who sows a field, or trains a flower,
Or plants a tree, is more than all.

More men are planting trees. With clearer vision, large wealth is finding services that look to the long future and the common good. A country boy loved a big hill near his home. He went forth and made a fortune. He has bought the hill and on its slopes he has planted 50,000 trees and shrubs. Thousands visit it.

Less than fifty miles away a man is planting forty acres in trees a year; so far he has planted 320 acres; he is beautifying a mountain-side. He came from a family of foresters in Germany; love of trees was born in him, and this is his tribute and his token to America, which has made him rich. A score or more of individual forestry operations are in progress.

Where is the personal return? A case will give the answer: Seventy years ago a lover of trees did much planting on his fine estate on the outskirts of Baltimore. He brought new kinds from different parts of the earth. In 1860 he died and Baltimore bought the estate, and this became the renowned Druid Hill Park, whose tree beauty has been more written about and illustrated and praised than anything of the kind in America. What is the point? This: The name of the man who planted the trees is emphasized in local history. Other notabilities of his day are forgotten. He bought living fame by planting trees.

Often Wealth says: "I'll not wait. I want quick returns for my money." And he puts up a hotel and names it after himself, or a whale of a house in which he is lonesome. If Wealth is wise he says: "I'll put it where it will grow." And when he plants trees it grows into blessings.

Surely there is something noble and uplifting in the company of trees. And the good of it grows whether you plant a single tree or a mountain-side.—The Country Gentleman.

THE NEWSPRINT SITUATION.

The 43 newsprint manufacturers in the United States and Canada who report to the News-Print Manufacturers Association produced 134,910 tons of newsprint in October, which compares with 129,308 tons in September and 125,776 tons in October a year ago. Stocks of newsprint on hand at all points on Nov. 1 totalled 60,312 tons, an increase of 1776 tons for the month.

In October last year the demand for newsprint began to show a decided increase. All mills have now been running for 12 months practically at maximum capacity and have been shipping even more than they have made. It is expected, however, that storage stocks will increase from this time on rather than diminish. Fall advertising is now undoubtedly at its zenith. After the holidays there will probably be a decided diminution in demand of newpsrint, allowing the manufacturers to build up storage stocks during the winter months.

Paper Knowledge a Big Asset

First and Biggest Thing for the Salesman to Learn is the Goods Themselves—Must Know Paper in Order to be of Real Service.

The active executive head of one of the biggest jobbing houses in the country recently declared, in the course of a conversation, that he had begun studying paper when he first entered the trade, about seventeen years ago, and that he has been studying it ever since, with profit to himself and his house. And it may be remarked, incidentally, that his present position, in his house and in the trade, is undoubtedly due to the fact that he knows very nearly all that there is to know about paper.

It might seem to the outsider, of course, that there is not much to know about paper; but a man in contact with the business ought not to have much trouble in learning that there is a good deal to know in the paper trade. From this it ought to follow, as a matter of course, that anybody who proposes to stay in the business should know as much as possible about the commodity which is handled in the trade; but this, it seems, does not always occur to the youngster who has been able to connect himself with the pay-roll of a paper house.

It is almost axiomatic among salesmen that the first and biggest thing to learn is the goods themselves; and yet there are paper salesmen who can and do find themselves not infrequently stumped by the innocent inquiries of their customers about their own lines. This is not as it should be; it is bound to hurt a salesman's business, even in the best of times, to be compelled to confess that he doesn't know, or, what is worse, to "stall" and get caught in it; but just now it is perhaps harder on a salesman than ever before, for the simple reason that customers need more service, on the one hand, and that jobbers are not so conscious of the need for the salesman's services.

When buyers of paper, from the largest to the smallest, are worrying about their inability to get what they want when they want it, and are berating the paper house about the matter, the situation calls for the services of a real diplomat in the person of the salesman making the rounds. And, on the other hand, when some jobbers are dispensing with the services of their travelers, whether mistakenly or not, on account of the rush of business coming in without solicitation, it is no time for an ambitious man to arouse the ire of a good customer by getting on the wrong side of an argument involving the difference between the goods ordered and the goods delivered.

These considerations of the moment, aside from those which indicate pretty convincingly that the man who moves up is the man who knows, ought to be sufficient to prove that it pays in a good many ways to get familiar with the goods. The old salesman, who has sold and studied and investigated paper until he has it at his command from every angle, can be of the highest service to his house just now; and so can the young one, provided he has taken the pains to post himself thoroughly, as he can readily do if he desires.

Incidentally, it happens that the men higher up, such as general managers, sales managers, advertising managers, and presidents, frequently assume knowledge of this sort, when their salesmen have it not; which is bound to be sadly embarrassing all around. For instance, a big house recently ran out of covers of a certain quality, in several colors which had been regularly used by some of its biggest customers, printers who got out publications in large editions. The big guns of the house took the trouble to get in touch with the biggest customers who would be put out at finding that they could no longer get these particular colors: but they left it to the sales force to straighten out the difficulty where the general run of buyers was concerned.

"Just explain to them," carelessly instructed the sales manager to a pair of young city salesmen, in this connection, "that there are several imported colorsfi as well as papermaking supplies, which are making this cover scarce in all grades and colors, and impossible to get in others. That's all there is to it."

That was all there was to it , of course; but this rather vague and general explanation, which was all that the sales manager seemed to have time to give just then, was far from satisfying the salesmen, and they found promptly that it was far from satisfying most of their customers. Indeed, the average printer eyed the salesman askance when something along the line indicated was handed out in explanation of the matter.

"The war, huh?" was about the way the printer's comment would run. "Say, son, I'm getting mighty tired of hearing about this war from you fellows. I'm beginning to think, from what I can see and hear and dope out for myself, that somebody's getting a little more for some lines than for others, and that the printer is the goat. How about that for a diagnosis?"

All that the common or garden variety of salesman could reply to an attack like this was a reiteration of the bald fact that the goods were hard to get, and let it go at that; but many a suspicious printer, an old customer of the house and accustomed to getting what he wanted, remained suspicious, in spite of his knowledge of the house's character. In this game of buying and selling, be it remembered, it is easy to arouse distrust, and hard to gain and keep confidence; which is one of the biggest things to be considered by the salesman who himself knows that he is not well posted on his goods.

The selling experts will tell you, to the tune of a complete volume on the subject, that one of the essential fundamentals to a successful sale is confidence, and that the house or the salesman which has not the customer's confidence will not be able to sell him paper or anything else. Now, there is nothing more certain to instill confidence than a quiet but convincing display of complete knowledge; just as there is nothing more certain to excite suspicion, not to say derision, than lack of knowledge of the goods being sold. It is worth remembering that the printer, as a rule, knows a little about paper himself.

Now, if the wise salesman, entitled, as he should be for fitness in his work, to the honorable name of expert in paper, is able to satisfy the printer, or any other

customer, that the situation is exactly thus and so, with reference to the essential materials for making and coloring paper, he is immediately next door to making the sale to that customer of whatever the necessary substitute may be. This is so because users of paper must have paper, and if they cannot get what they want, they will, as sensible men, take what they can get.

Moreover, the expert salesman can and most emphatically should show his printer customers how to get approximately the same results as of old with the use of different materials, if necessary; not necessarily cheaper materials, but with papers and covers which can be had, as distinguished from those which are not to be had, or can be had only with great difficulty. This is a real service, and one which is of real value both to the printer and to the house. To the house which has such salesmen its customers are bound with hoops of steel; and such salesmen are certain to find the just reward of their knowledge in the pay-envelope, sooner or later.

These are the reasons which move old paper men, big paper men, who know the business from the pulp to the printed page, to tell their juniors to learn paper. They know that knowledge of paper resulted in success, in their own case; and they know that if the rising generation is going to take care of the job in good shape, it mus talso know paper. And there is no better school than a job in a jobbing house, if the men on the job only knew it.—U. S. Paper Maker.

USE OF THE BLOW PIPE FOR CLEANING TUBES OF EVAPORATORS IN PULP MILLS.

In the economical operation of soda and sulphate pulp mills, and other industries where the recovery of alkali and other soluble substances is necessary, large quantities of liquids must be evaporated. Some types of evaporators are so constructed that a scale or deposit forms on the inside of the tubes and long shutdowns are often necessary for cleaning. The Brown Corporation at La Tuque, Que., recently experimented with a specially constructed oxy-acetylene blow-pipe on the evaporators used in their sulphate mill.

In sulphate mills it is necessary to reduce the liquor made, by evaporation, and for this work, evaporators of large dimensions are used.

These evaporators are made of a large cylinder standing on a circular base, and divided in the length by two partitions, making three compartments. The top and bottom compartments are connected by numerous boiler tubes, while the middle compartment serves as a steam jacket and live steam plays around the boiler tubes, as shown in Fig. 1.

In the specific instance we are considering, the total height was 45-ft., of which 30-ft. was the height of the top compartment, 7-ft. for the steam jacket and 8-ft. for the bottom compartment. The diameter of the cylinder is about 9-ft. The top and bottom compartments are connected through the steam jacket by 900 boiler tubes of 2-in O. D. diameter.

In the operation of the evaporator, it is found that the inside of these tubes get dirty and they may finally get plugged with a deposit of silica residue of brick, carbonate of soda and other impurities which reduces considerably the efficiency of the evaporator by acting as insulator agains the transmission of the heat from the steam.

It is necessary, once in a while, to clean these tubes, and after emptying the evaporator, a kind of scratcher, driven by an air turbine, was passed through each tube to remove the deposit. This method was found very unsatisfactory because the deposit is very hard, sometimes so hard that the scratcher, instead of scaling off the deposit, would cut into the tube and damage it and necessitate costly replacement. Moreover, the cutter would never clean out the tube thoroughly, but would only open a passage, leaving on the inside of the tube, a scale which served to catch further deposit at the next run.

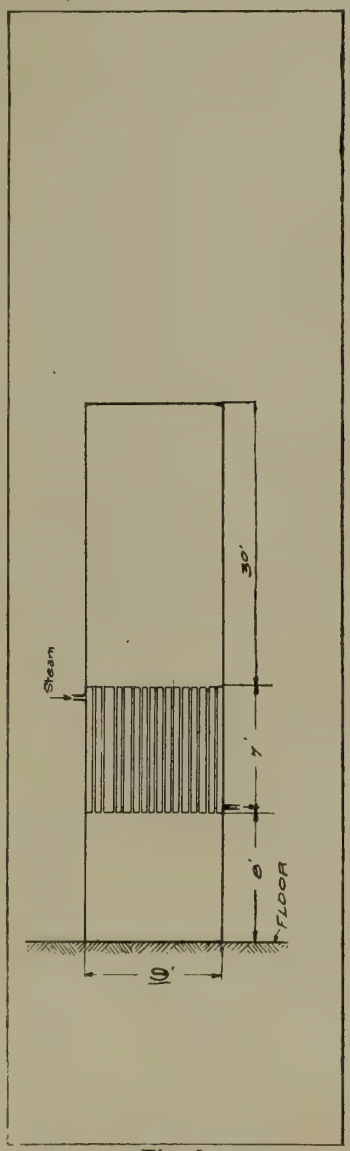


Fig. 1
Evaporator used in Sulphate Mill

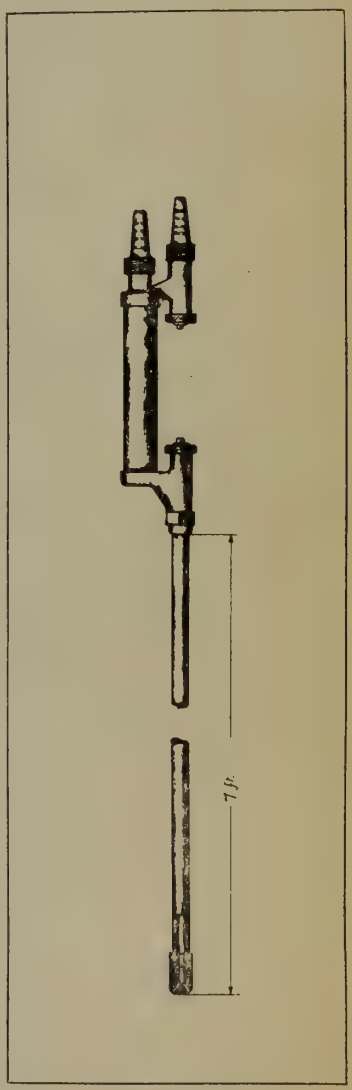


Fig. 2
Special Blowpipe for Cleaning Tubes

It was decided to try a new process for such cleaning and thought was given to the use of the flame of a blowpipe, and it was believed that the high temperature of same would cause the deposit to scale off and fall down the tube.

For this purpose an Oxy-Acetylene Blowpipe (Fig. 2) was specially constructed, about 7-ft. long and head of a diameter small enough to pass through the tubes. The head was straight and four small holes were pierced in the tip, at an angle of about 60 degrees from the axis and spread around the tip, so making a flame touching the whole circumference of the tube.

This blowpipe was made to descend the boiler tubes until the bottoms of the two rubber connections were above the beginning of the tube. The blowpipe was connected in the usual way, with two cylinders of gases under pressure, one of oxygen, the other of dissolved acetylene with their respective regulating values, as used in a welding plant. Before operating, the steam jacket compartment was filled with water to prevent the heat of the blowpipe from damaging the tubes, either by expansion or by burning.

The blowpipe was lighted and passed slowly through a tube and as soon as the high temperature of the Oxy-Acetylene flame struck the deposit, it causes it to scale off clean to the iron of the tube and fall to the bottom. As the scaling off takes place, the blowpipe is raised progressively until the tube is completely clean.

The use of the blowpipe for cleaning the tubes proved more satisfactory than the previous process employed by the air turbine, as with the air turbine it took from one to two hours, and sometimes longer, to clean a tube, according to the thickness of the deposit, while with the blowpipe, it took five minutes for the worst tube, and an average of about two or three minutes for each tube, leaving a clean surface and without the slightest injury to the tubes.

Upon the satisfactory results obtained, an order was placed immediately for several sets of these special blowpipes to quickly clean any evaporators temporarily put out of action for such cleaning.

It is also worth while to remark that a Demonstrator of a very well known Canadian Firm, having made this test, has proved most satisfactorily that a welding outfit in a paper mill is not only suitable for such cleaning of tubes, but is also a large saving process for every day uses around the plant. This Demonstrator, in looking over the scrap pile, picked up and reclaimed many valuable pieces of machinery which otherwise would have been lost, and in a short period, saved many dollars worth of broken parts of machinery by thhe use of the Oxy-Acetylene Blowpipe.

The plant used for this purposes, consisted of only two cylinders, pressure regulators, rubber tubings and a blowpipe; only two taps to open, a match to strike, a regulation of the flame and a temperature of 6,300 degrees Fahr., is available for melting together any kind of metal, cast iron, steel, copper, aluminum, etc.

This process is a big money saver, and one of the greatest advantages is that it reduces to the minimum the delay required for effecting a repair, and sometimes saves many valuable days waiting for a new spare part, the broken one being repaired in a few hours, and just as good as new, and sometimes better.

There is practically no limit to the length of the blow pipe for cleaning tubes. Other types of evaporators, or boilers where scale forms in the tubes can be cleaned in a similar manner.

CANADIAN TIMBER VALUES.

According to a recent Commerce Report the values of the various classes of timber produced in Canada in 1914, together with the values of the forest products, total $176,672,000, being divided as follows: Lumber, lath and shingles, $67,500,000; fire wood, $15,500,000; posts and rails, $9,600,000; cross ties, $9,000,000; square timber exported, $400,000; cooperage, $1,900,000; poles, $700,000; logs, exported, $850,000; tanning material, $22,000; round mining timbers, $500,000; miscellaneous exports, $300,000; miscellaneous products, $10,000,000.

STEEL BALING PRESS.

The attention of our readers is called to the announcement of the Climax Baler Company of Hamilton, Ontario, who are manufacturing Steel Fireproof Baling Presses, specially suitable for the paper trade. The Climax Baler Company have made installations of these Balers throughout the country from coast to coast, and they are giving every satisfaction. Under present conditions, owing to the shortage of paper making material that is facing the manufacturers at the present time, these Presses are specially adaptable to present needs, and should find a place in the warehouses of every paper dealer, throughout the country.

CAN'T SELL WRAPPER AS MEAT.

New York State families will save $3,000,000 annually on the meat they buy, it is asserted through the affirmation by the Appellate Division of the Supreme Court, Second Department, of Armour & Co.'s conviction for selling wrapped meats without marking the net weight of the meat on the wrapper. In effect the decision prevents the sale of wrapping paper at meat prices.

The case in point was tried in Yonkers and a fine of $100 was imposed upon Armour & Co. for selling six pounds of bacon for 26 cents a pound, in which six ounces of the package was wrapping paper. John H. Farrell, State Superintendent of Weights and Measures, who estimated that the public in this State bought $3,000,000 worth of wrapping paper a year at meat prices, declared that his estimate was conservative. The saving would be $1,500,000 in New York City alone, he said.—Paper Mill.

NORWAY'S COAL SUPPLY CUT OFF.

The following despatch from Christiania, Norway, appeared in the New York dailies of January 4th:

"Only the British Legation here and the Norwegian fishing steamers which supply fish to England are exempted from the British Government's prohibition against the export of coal to Norway. Dissatisfaction with Norway's method of exporting ore and fish from this country and her failure to fulfill certain other provisions of the agreement with Great Britain are said to be responsible for the British Government's action.

"It is feared that the British action may bring about a coal famine, and the Norwegian Cabinet is considering the next step in what is regarded as a serious situation. Several of the leading papers criticise the Radical Cabinet's methods and advocate that it be succeeded by a nonpartisan body."

AUSTRALIA'S IMPORTS OF TIMBER AND PAPER.

Australia's imports of timber from Canada during 1912, 1913, and 1914-15 were valued as follows: 1912, £70,922; 1913 £67,982; 1914-15, £17,653. Imports of wood manufactures from Canada during the same years were valued as follows: 1912, £2,850; 1913, £4,077; 1915-15, £3,909. Imports of printing paper from Canada were valued as follows: 1912, £197,173; 1913, £149,050; 1914-15, £122,688.

The imports of timber from the United States during these years were valued as follows: 1912, £1,314,314; 1913, £1,511,665; 1914-15, £1,021,175.

Practical Advantages of Export Business

The following article comprises part of an address delivered by Edward H. Huxley, president of the United States Rubber Export Company, Ltd., before the Cleveland Chamber of Commerce on October 31st, and published in the Exporters Review:

I doubt if the average manufacturer who has not already given the matter consideration, or who is not already engaged in the export business, has a clear idea of the specific advantages of such a business and a realization of just what is necessary to successfully solicit and maintain it.

Probably the principal advantage of an export business is its stability and the fact that it offers a balance which becomes especially valuable in times of domestic depression. A second advantage is its permanency and security. The foreign buyer generally finds himself at somewhat of a disadvantage, and more or less in the hands of the seller from whom he purchases, particularly in countries which have not developed along industrial manufacturing lines. It is quite clear, therefore, that a customer located in a foreign country who is treated fairly, whose goods are shipped promptly, whose specifications are carefully observed, and who receives goods which are above criticism, will conceive a loyalty towards and a trust in the company whom he buys wihch is exceedingly difficult to overcome. As long as foreign customer is fairly treated, he will stick.

These two advantages are applicable to foreign business in distinction from domestic business. There are other advantages of a more general nature which exist alike for foreign and domestic business, but are none the less prominent for foreign business. The principal of these is the added volume, with its contribution towards overhead, which while no more desirable from the standpoint of volume alone than a like amount of domestic business, is at least equally so, while the diversity of the markets offered makes it usually easier to obtain. Further than this (despite the lay opinion to the contrary), it is generally possible to secure foreign business with less selling expense than a like amount of domestic business. The ratio of selling expense of foreign business to its total volume, according to the records of most large manufacturers, is considerably below the similar ratio for securing a like amount of domestic business.

The reasons which I have advanced seem to me to indicate beyond any reasonable question that foreign business is desirable as a part of the total; first, because of its stability and the fact that it offers a desirable balance; second, because it is permanent and secure, and third, because it offers a splendid field for securing additional volume at a smaller ratio of expense, thereby reducing costs.

The question then is: How shall it be obtained, and once obtained, kept? The subject must be considered from two standpoints; first, that of the large manufacturer who can afford to establish branches and maintain his own organization in the field, and second, from the standpoint of the smaller manufacturer who cannot afford this expense, and who must secure the business by some other means. In either case, the one seeking the business must believe in it, and believing in it, he must back it up. The decision is to go in permanently and enthusiastically or to stay out altogether. Do not fool with it any more than with any other important policy. If you cannot make a preliminary visit to the land that you are considering, make a single trip somewhere; if you cannot go to far distant countries, but can go to Cuba, for example, go to Cuba. In any event, go somewhere. Get away from the surroundings that you are familiar with and realize that whether or not the customs or methods of foreign countries are better or worse than ours, they are at least different, and that you must recognize that fact. Do this, and it is almost certain that you will come home an enthusiast and a warm supporter of export trade.

Having determined to seek export business, and having familiarized one's self with some of the fundamental essentials by travel, it is important that great attention be paid to an organization, be it large or small. The first and absolutely essential and obvious point is that the selling representatives should possess abolute and unimpeachable honesty and integrity. You must be perfectly sure that your representative in Johannesburg, in Buenos Aires, in Sydney or in the depths of China, must be on the job protecting your interests and above the least suspicion of unreliability or dishonesty. It is difficult of course, to find ready-made and available men who possess thorough familiarity with the production of the goods and with a thorough familiarity of the country, particularly if there is anything intricate in the goods themselves or in the requisites for selling them. He must also, as the Spaniards say, be "simpatico"—that is, he must be persona grata to the people with whom he is dealing.

To the smaller manufacturer who cannot send his own representative there are three methods open. One is to utilize export commission houses located in this country and to give them the exclusive privilege of selling his products in various countries. The second is by sending a representative to make one trip to the countries in question, and there appoint local agents. The third is to co-operate with other small manufacturers in non-competing lines and to maintain a joint organization, handling a variety of products. Of the three methods, the latter is perhaps the least desirable, as it is inevitable that the manufacturer whose products sell the easiest will be the one who will derive the greatest benefit, and those whose products require a more technical knowledge, or which for any reason are more difficult to sell, will not benefit equally. If it is possible to send a representative to foreign countries to select local agents in those countries, this is the most desirable method.

Having determined upon the method of representation, or having installed the local organization, there follows the most important part of the work—that is, to follow it up and to actually secure the business. It is at this stage that what might be described as the export frame of mind becomes most valuable. Requests will come which may seem, from the domestic standpoint, absurd, and which may be dismissed without consideration. This cannot lead to success. The re-

quests are usually based upon adequate reasons and should be very carefully considered and granted, if possible. If a man wants his goods of a particular width or of a particular length, it is because it is customary in his country to sell goods of that length, and if we here are accustomed to some other width and length, we cannot force our conditions upon him.

Then comes the question of prices. We are accustomed here to fix our prices and to have those prices prevail all over the country and for all customers. To assume that these prices are correct for foreign markets, or to fix them and stick to them, means either the sacrifice of possible additional profits or the loss of the business. Forget everything in connection with price except the manufacturing cost of the goods, which of course includes labour, material and factory overhead. Start with this as your basis and this as the point below which you cannot go and on which your selling prices are to be established. This may mean the elimination of certain countries from the possibility of market. The point to be considered and to be sure of is that the general average of all of your foreign business in all countries is on a basis satisfactory to you consider the volume and the expense of handling.

Having fixed your prices and having solicited and obtained the business, it must not be neglected, but faithfully followed up and cared for. A foreign business cannot be had for the asking any more than a domestic business. It requires careful, consistent attention and careful building up. Do not seek or solicit a business in foreign lands which you cannot consistently care for at all times. Do not be too determined in seeking the same percentage abroad that you seek at home. Be especially careful in your shipments that your products comply exactly with specifications and are free from obvious defects. Do not be too sanguine in your contemplation of an export business; it is not all a bed of roses; the orders do not come for the asking, and special care must always be exercised in handling the business. Nothing is ideal and an export business is not any more free from vexatious things than is a domestic business. Two things are important: one is transportation or traffic, and the other is financing and credit. The business credit risk in any foreign country is probably far better than the worst credit risk at home. All of the honest men do not live in the United States and all of the crooks are not outside. I do not by any means wish to be understood as advocating a wholesale or unintelligent extension of credit in foreign countries, but I do say that there are many business houses in foreign countries that are just as worthy of credit as concerns in our own country, and that it is the business of the credit department to find out which concerns are in this category, and then not to hesitate to extend reasonable terms.

What I have said I am painfully aware is by no means complete. The whole matter may perhaps be summed up in the one word—co-operation. In a domestic business you co-operate with your sources of supply in purchasing your raw materials; you co-operate with your factory manager in purchasing the goods and you co-operate with your customer in selling them. Do this in your foreign business and you will be successful, and co-operation must be broad and intelligent, complete, real and unselfish. We are bound sooner or later to be forced in spite of ourselves into foreign trade, and being so forced, it is the wise man who recognizes the advantages to be obtained, who realizes the benefits that must come to his domestic business and who carefully, slowly and intelligently develops part of his business in foreign fields. It is an unwise policy to carry all your eggs in one basket.

WISCONSIN FORESTRY PRODUCTS.

During the past year the Wisconsin Forest Laboratory has received over 18,000 inquiries for data on the properties and uses of American forest trees. In addition to these, over 1,000 samples of wood were submitted for identification. Sawdust, fibrous materials, chips, roots, dyewoods and barks, as well as pieces of furniture, sections of ties and timbers, are among the various materials submitted.

Co-operative investigations are being conducted by the Laboratory with one of the largest alcohol manufacturing plants in the world at Bogalusa, La. A representative of the Laboratory is now at the plant in Louisiana applying the Laboratory data on the manufacture of alcohol from wood waste to this commercial plant, which at the present time is producing about 5,000 gallons per day.

At the recent tractor demonstration in Madison the Laboratory exhibited a farm lighting plant, including gas engine, generator and storage batteries. The engine was operated on alcohol which had been made from sawdust.

PULPWOOD STATISTICS INCLUDED.

Figures showing the amount of wood used in the United States for making pulp will, it is announced, be obtained by the Forest Service in connection with its 1916 census of the lumber industry. Because of the increasing scarcity of the pulpwood in some parts of the country, the need for accurate figures showing the consumption of this class of material is realized by manufacturers and foresters alike and it is expected that such figures will be made a part of the yearly statistical work of the Forest Service. The pulp manufacturers will co-operate in the work, through their trade organization, the Newsprint Manufacturers' Association.

Detailed information in regard to the amount and cost of different kinds of pulpwood consumed in the different states is to be collected. Comparative figures showing the total pulpwood consumption of the country for 1899, 1909, 1914, and 1916 are to be compiled.

The data to be obtained will, it is stated, be of considerable value to pulp manufacturers, as well as to the Forest Service. Owing to the comparatively small number of pulp mills in the United States, it is thought it will be possible to issue a report on the work at an early date.—American Forestry.

FIRE PERMITS.

The Canadian Forestry Association has taken up with the governments of Manitoba, Saskatchewan, and New Brunswick, the question of introducing legislation looking to making "fire permits" compulsory throughout these provinces. The response met with has been favorable, and we hope that the legislation will be passed at the coming session. This will practically make a "Dominion-Wide Permit System" for protection against forest fires, and will be a long step toward the conservation of Canada's natural resources.

Hemp Hurds as Paper-Making Material

The United States Department of Agriculture has just issued a very interesting booklet dealing with the manufacture of Hemp Hurds into paper. Just now when efforts are being made to conserve our pulp resources and at the same time increase the output of paper experiments such as those carried on at Washington are of usual interest. A summary of the report follows: The woody inner portion of the hemp stalk, broken into pieces and separated from the fiber in the processes of breaking and scutching, is called hemp hurds. These hurds correspond to shives in flax, but are much coarser and are usually softer in texture.

Hemp hurds form a crop waste, in that they necessarily are produced in the raising and preparation of hemp fiber, and their present use and value are comparatively insignificant.

The assembling of the hurds may be effected with economy, since the area in which hemp is handled with the use of machine brakes is restricted. Although it must be stated that the present annual supply would not be sufficient to justify the installation of a pulp mill nor would its transportation to existing mills appear feasible, it is expected that the available annual tonnage, especially in certain general sections, will increase, due to the increased use of the machine brake. The present tonnage per annum is approximately as follows: In the region of Ohio and Indiana, 2,500 tons; in the Wisconsin section, 1,000 tons; in the California region, 1,400 tons.

Without doubt, hemp will continue to be one of the staple agricultural crops of the United States. The wholesale destruction of the supply by fire, as frequently happens in the case of wood, is precluded by the very nature of the hemp-raising industry. Since only one year's growth can be harvested annually the supply is not endangered by the pernicious practice of overcropping, which has contributed so much to the present high and increasing cost of pulp wood. The permanency of the supply of hemp hurds thus seems assured.

The broken pieces of wood contained in the hurds varied in length from mere particles which were somewhat finer than sawdust to pieces about 3½ inches long, exceptional pieces being found which measured 6 inches in length. The majority of the long pieces were between 2 and 3 inches in length. In thickness the pieces ranged from one-eighth of an inch, in case they were derived from the base of the hemp stalks, to about one sixty-fourth of an inch in those pieces which were derived from the top and branches of the stalks. In cross section the pieces often were found to be a quarter or half of the rounded rectangular woody shell of the stalk, although there appeared to be no regularity in this respect.

From the pulp-maker's standpoint the great irregularity in thickness, length, and mass of the woody pieces militates decidedly against economy in pulp production. The smaller pieces reduce by chemical treatment sooner than the larger fragments and are thereby overtreated, which results in a lower yield of cellulose fiber and a product composed of undertreated and overteated fibers, the production and use of which are not satisfactory or economical. It probably would be found more satisfactory, therefore, to screen or sort the hurds and treat the various sizes separately and differently.

The yield of total fiber obtained from the hurds may be placed at 35 per cent of bone-dry fiber calculated on the bone-dry weight of hurds used, or 33.1 per cent of air-dry fiber calculated on air-dry hurds. The yield of bleached fiber was not determined in this preliminary work, but may be safely estimated as 30 per cent, which is low when compared with a yield of about 47 per cent of bone-dry bleached fiber from bone-dry poplar wood. It is believed quite possible that satisfactory cooking conditions may be found which will give a higher yield than was obtained during these tests. The stock should be classed as easy bleaching, and 11.4 per cent of bleach is a satisfactory figure, although a little high.

As to beating cost, in the last two and most satisfactory tests the total washing and beating time was three hours, which may be about an hour more than ordinarily is used in making papers of this grade, although the practice varies to a considerable extent.

In regard to furnish, there is such a diversity of practice that it is difficult to make a comparison, but if the hurd stock can be produced as cheaply as soda-poplar stock, the furnish used in these last two tests should be regarded as satisfactory to the book and printing paper manufacturer.

The finish of the paper was not all that might be desired, but that was due almost entirely to the calendar stack available for the work, which was composed of nine light rolls, many of which were about 6 inches in diameter and which had not been reground for some time. From a small test on a large calender stack it was readily shown that the paper produced is capable of taking a satisfactory finish.

This comparison, satisfactory in many respects, develops two factors which are decidedly unfavorable to hemp hurds, namely, raw-material storage and digester capacity, and they must be taken into full account in considering the paper making value of this material, although it should be recognized that investigation may result in the material improvement of these conditions. Moreover, it is not at all improbable that further investigation would develop more satisfactory treating conditions and more suitable furnish compositions, and the belief in this possibility is strengthened by the fact that material progress was being made at the conclusion of this preliminary work.

The following is a summary of the report regarding the supply of hemp hurds and the cost at the mill:

Hemp hurds are the woody inner portion of the hemp stalk, broken into pieces in removing the fiber.

They are not used at present for any purpose that would compete with their use for paper.

Hurds are available only from machine-broken hemp, for the cost of collecting them from the hand brakes would be too great.

About 7,000 tons are now available in restricted localities in Ohio, Indiana, Wisconsin, and California.

(Continued on page 62).

PULP AND PAPER NEWS

The Riordon Pulp and Paper Company have started tree planting operations on their limits. Forester Volkmar is in charge of the operations.

Chile has appointed a Commission to make a study of the water powers of that country available for the purpose of hydro-electric development.

Experiments with jack pine have shown that it is well suited for making kraft paper. On some of the national forests in the United States, this tree is used to plant land which is too poor to grow other timber.

Experiments at the Forest Products Laboratory at Madison, Wisconsin, have resulted in the discovery of a method whereby the yields of alcohol and acetate of lime from the destructive distillation of hardwoods have been increased fifteen per cent.

It is estimated that there is enough waste form the sawmills of the Southern States alone to produce 20,000 tons of paper per day. The waste from Canadian sawmills is undoubtedly in proportion.

More people spent their vacations on National Forests, in the United States, during the summer, than have ever done so before, many persons travelling long distances by automobile in order to camp in these public playgrounds.

It is the intention of S. Frank Wilson and Co., publishers, Toronto, to erect a new office building and warehouse on the south side of Adelaide Street, just west of Bay. It will be a brick and steel structure, nine stories high, and in dimensions, 68 x 200 feet.

R. S. Waldie, President of the Toronto Paper Mfg. Co., whose plant is at Cornwall, Ont., states that the fourth machine which the company are adding to their equipment will not be ready for another month, owing to freight embargoes and other causes beyond control. Mr. Waldie adds that they had hoped at the beginning of the present year to name customers definite prices for a fixed period, but conditions will not now permit of this. The company are booking only at prices prevailing when the goods are delivered. Within the last month the firm has experienced some trouble in getting coal which has advanced materially in price. Shavings, glue, felts and other raw materials have also steadily gone up in quotations, and it is almost impossible to figure on any costs. Mr. Waldie thinks that, in a month or two, the top should have been reached, but whenever the same forecast has been made before, it has proved wrong. There is no letting up on orders and all paper mills should do well during the coming year as they are working to capacity, which tends to more economical running.

W. P. Gundy, Vice-President and General Manager of W. J. Gage and Co., Toronto, reports that the company has been exceedingly busy both at the Kinleith Paper Mill in St. Catharines and at their own business in Toronto, during the last six months. The difficulty, of course, in both places has been to secure sufficient quantities of raw materials. Gage and Co., during the past year, opened a branch business at 181 Bannatyne Ave., Winnipeg, which is in charge of W. E. Buck. Reviewing the present conditions in the trade and the outlook for the coming year Mr. Gundy says: "We can only say that in our experience the price of paper has not yet advanced at all in proportion to the increased cost of raw material and that the prices of manufactured stationery have only been in proportion to the increased cost of paper supplies.

Several paper box manufacturers in Toronto have sent out notices that owing to the increase in the cost of board, paper and other materials used in the manufacture of their products, they are compelled to withdraw all prices for the first time in many months. This step is taken also owing to the unsettled condition of the market due to the fact that mills will not give definite prices for the usual yearly period and paper box firms cannot undertake to make contracts but will give all customers the best possible prices at the time of delivery.

It is understood that some Toronto capitalists are interested in the negotiations for the establishment of a big pulp mill in British Columbia which will be the largest of its kind in the west. Behind the enterprise is William Gilfoy of Calgary, who is a large owner of timber areas in British Columbia. Mr. Gilfoy states that preliminary matters are well under way in connection with the gigantic undertaking and there is no question but that the ground wood mill will be erected.

There is used in the locality of Thorold, Merritton and St. Catharines an immense quantity of raw materials. Probably one hundred thousand cords of pulp wood are consumed annually by the mills along the Welland canal, with a constant increase in the number of cords required. It is suggested by a leading pulp manufacturer of the Niagara Peninsula that a subsidiary or holding company should be formed to handle all the wood. Such an organization could buy, ship and sell this large quantity of wood much better than the various mills are now doing. Competition in buying would be eliminated and regularity of delivery and supply be assured. The various bank charges could be reduced and the labor could be handled with much more economy. "Yes", declared the speaker, "the wood is in the country, the means of conveyance is here, both by rail and water, and all that is needed is a good, experienced man to develop the proposition which I have outlined. Now is the opportune time because the New Welland canal is being built and quarters for unloading the immense quantities of wood should be secured and facilities for handling the same looked after."

The Wayagamack Pulp and Paper Co., of Three Rivers, Que., report that trade conditions during the past year have been very bright. The company are gradually bringing up their output. They expect to turn out two hundred tons of kraft pulp by May 1st next and foresee good prospects in the kraft line for the coming year. The believe that prices will hold as they are at present.

It is understood that A. P. Costigan, who has been Safety Engineer for the printers and publishers under the operation of the Workman's Compensation Act in Ontario, will succeed A. G. Pounsford as Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association and will enter upon his new duties about February 1st, Mr. Costigan is well qualified for the responsibility and comes highly recommended for the new post.

* * *

A charter has been granted to the North Bay Toy Company, Limited, with headquarters in North Bay and a capital stock of one hundred thousand dollars. Among the incorporators are: L. W. Henderson, George Gordon, Wm. G. Armstrong, G. W. Duncan and Dr. Edgar Brandon, all of North Bay. The company has wide powers and among them is to manufacture paper, wood pulp and the products thereof, to purchase timber lands and licenses, and buy, sell and deal in timber, logs, wood products, etc.

* * *

The three plants of the Foley-Rieger Pulp and Paper Co., at Thorold, Ont., are now turning out fifty tons of ground wood daily, in bleached and unbleached. Both the Davy plant and the Peerless mill, when taken over some months ago, were in a poor state of repair. A new up-to-date grinder of extra large type was installed in the Davy mill and also two new wet machines while the screens and wheels were given a thorough overhauling. In the Peerless mill two months were spent in putting the place in order and among the features added were two new Boving refiners to take care of the waste material.

PAPER MILL ENGINEER MARX A MAJOR.

We have recently been informed by Mr. J. A. DeCew that his friend, Mr. Renold Marx, son of Mr. Robert J. Marx, of London, England, has recently been honored by being raised to the position of Major for the work he has done in the field. Mr. Marx visited Canada and the United States in 1912, in connection with paper mill engineering projects and became personally acquainted with a number of manufacturers in the paper trade. At the outbreak of the war he obtained a commission as Lieutenant in the British Artillery and served throughout the entire campaign at Gallipoli, being one of the forward observers in the naval bombardment. He was wounded in these engagements but after his recovery returned to the Front and has since been serving with the Army in France. Mr. Marx has earned his honors in the field and has several times received special comendation from his superior officers. Mr. Marx is a graduate engineer and he was working with his father on paper mill problems until the outbreak of the war and we trust that he will again take up this work when the Artillery have no further need for his services.

BEVERIDGE PAPER COMPANY'S DINNER.

The officials, staff and salesmen of Beveridge Paper Company, Limited, Montreal, held their first Annual Dinner in Cooper's restaurant last Tuesday evening. Mr. James Home, President, occupied the chair. After ample justice had been done to the viands, covers were removed and the usual loyal and patriotic toasts were honored. Mr. Robert T. Lanskaid, secretary of the Company, gave the toasts. A most satisfactory year's business was reported and an enjoyable evening was spent.

THE PORT ARTHUR COMPANY.

A charter will shortly be granted to the Port Arthur Pulp and Paper Co., Limited, with headquarters in Port Arthur, Ont. The capital stock will be two million dollars, one half of which will be preferred and the remainder common. Toronto and other capitalists are interested in the proposition. The new General Manager of the Company is A. G. Pounsford, who for the past eight months has been Safety Engineer of the Ontario Pulp and Paper Makers Safety Association in which he has done splendid work. He enters upon his new duties on February 1st. Mr. Pounsford, whose parents reside in Cincinnati, graduated from Cornell University in 1913, and his first position was as head of the engineering staff of the Champion Fibre Co., of Canton, North Carolina. He has always been interested in the pulp and paper line, one of his uncles having the first paper mill west of the Alleghanies. Mr. Pounsford will continue his present duties as Safety Engineer for the Ontario Pulp and Paper Makers Association until the end of the present month when his resignation takes effect. He has rendered faithful energetic service among the thirty-two pulp and paper mills of Ontario and found hearty co-operation on all sides. At the meeting of the National Safety Council, held in Detroit some months ago, he was made secretary of the Pulp and Paper branch, which is a high honor. The new plant of the Port Arthur Pulp and Paper Co. will eventually have an output of one hundred and fifty tons daily and the first unit will be completed within twelve months. It will have a capacity of fifty tons daily. There will be two digesters, 16 x 52 feet, and it is expected that ground will be broken for the new enterprise on March 15th. The buildings will be of brick and reinforced concrete and will embody the last word in sulphite mill construction. The chief engineer of the company will be Thomas Murphy, late chief engineer of the Mattagami Pulp and Paper Co., and more recently of New York, where he has been doing some special work for the American Newsprint Association. The Port Arthur Pulp and Paper Co. have opened temporary offices in room 205, Bell Telephone Building, Toronto, but as soon as possible will establish permanent quarters in Port Arthur. The site of the new mill is at Bare Point and the location is an admirable one in every respect. Hydro electric power will be used in the operation.

Purdy and Henderson Co., contractors for the new sulphite plant of the Lincoln Paper Mills Co., at Merritton, Ont., are making excellent headway with the work. The wet room, the room for the three acid towers and the blow out pits are well under way. The structures are of brick, steel and concrete. There will be two digesters. It is expected that the plant will be in operation by March next.

The pulp and paper mills of the British Columbia Sulphite Fibre Co. at Mill Creek, Howe Island, were recently inspected by the Mayor and members of the city council of Los Angeles, Cal. They were accompanied by George F. Whalen, of Whalen Bros., who showed the visitors the large plant and its operation. The announcement is made that Whalen Bros., who have quietly developed a number of pulp mill projects in British Columbia, have decided to erect a large plant at Port Angeles. The new undertaking will be started at once.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

NEW YORK, January 6th.

For the purpose of cultivating timberlands suitable for wood pulp manufacture, State Senator A. W. Oberlin, of Ohio, is planning to introduce a bill into the Legislature of that State this month to provide against the prospects of a paper shortage. Senator Oberlin wants his state to be assured of a plentiful supply of paper in case there is a shortage throughout the country.

* * *

"In the face of the increasing cost of paper," says a resolution prepared by Senator Kenyon, of Iowa, "and an increasing demand for it, great quantities of useless bulletins, pamphlets and books are constantly being printed by the Government." The resolution further provides that the Senate Committee on Printing shall report to the Senate as to what bulletins and publications issued by the Government may be suspended, at least temporarily, and as to what further economies in the use of paper may be practiced in various departments.

* * *

The California Press Association has appointed a paper committee to deal with the newsprint situation. This committee is composed of Messrs. Day, of San Luis; Wickerhiser, of Pasadena; Mixon, of Woodland and Mason of Bakersfield.

* * *

The Walden-Mott Trade Service, Inc., has been organized to take over and publish the stationery publications formerly published by the Walden-Mott Co., of New York City. The paper trade publications to be handled by the reorganized company are: Walden's Red Book Quarterly, Walden's Register of Stationers, and Walden's Register of Trade Changes. Charles C. Walden, Jr., the president, is well known in paper circles throughout the country.

* * *

Your correspondent heard this story the other day about a publisher of a leading local daily renewing his print paper contract. It seems that the publisher in question had a contract with a large manufacturer at 2c at the mill. Though the contract does not expire until April of this year, the publisher was approached by a representative of the manufacturer about a month ago with regard to 1917 deliveries. Information was sought as to what the publisher wished to do upon the expiration of the present contract, coupled with the statement that the mill had an opportunity to contract elsewhere if the publisher did not care to renew the agreement. A proposition was made to the publisher to relinquish the remaining three months on his contract and sign a new one dated January 1st at 3c a pound at the mill, freight, storage, cartage and insurance to be paid by the publisher. Though this meant an increase of approximately three quarters of a million dollars a year for print paper requirements, the publisher acted wisely and signed the contract.

* * *

Included in the list of the Delaware charters of the past week was the Bristol Power, Pulp and Paper Company, of Dover. The new company is capitalized at $1,000,000, and is to deal in wood pulp, paper, etc. The incorporators are: K. M. Dougherty, M. C. Donohue, and Ferris Giles, all of Wilmington, Del.

* * *

The conservation of paper is now being urged throughout the country. The latest suggestion comes from the Legislative Committee in its report to the National Editorial Association. The Committee requests "that every newspaper take up the matter of saving and selling old newspapers and at the same time stop using wrapping paper on goods that are already in boxes or cartons. The print paper manufacturers declare that much more profit is obtained in manufacturing wrapping paper than in manufacturing print paper and they are steadily putting more machines on the manufacturing of wrapping paper."

* * *

It its last issue, The Editor & Publisher says editorially: "President Dodge says that the International Company is taking machines off kraft and restoring them to the manufacture of news print, and that the company has added sixty tons a day to its output in this way. Perhaps this marks the return of the manufacturers to a policy of sanity and of fairness to their real customers."

* * *

The erection of a government pulp and paper mill has been approved by the Joint Congressional Committee. The Government uses approximately 30,000,000 pounds of print paper annually, which is sufficient to absorb the output of a fifty ton mill. The house Committee on Printing has also recommended the building of the mill, and as the Government has many reservations with fine water power and extensive forests, it is believed that it will not be long before the plans are carried successfully through.

* * *

According to the reports of the News Print Manufacturers' Association, the news production of this country and Canada is 187,200 short of the present normal requirements. The annual production of news is about 1,838,300 and the normal requirements are about 2,025,500. This shortage amounts to about 600 tons per day, equivalent to the capacity of the machines transferred to other grades of paper. R. W. JOLLY.

FINE WORK.

The Wind River Forest Nursery, on the Columbia national forest, has an annual output of 2,000,000 young trees which are used in reforestation work on the national forests of Oregon and Washnigton.

MEETING OF U. S. TECHNICAL ASSOCIATION.

Preliminary arrangements for the annual meeting of the Technical Association of the Pulp and Paper Industry, which will be held at the Waldorf-Astoria Hotel, New York, in conjunction with the fortieth annual meeting of the American Paper and Pulp Association, are now being made, and Secretary Naylor, of the manufacturers organization, and Secretary Keenan, of the Technical Association, have met and discussed details. It has been arranged tentatively to hold a meeting of the Executive Committee in room 107 of the Waldorf-Astoria on Tuesday, February 6th, beginning at 10 A. M. The general meeting of the Technical Association will probably be held in the Myrtle room, the sitting being scheduled to open at 10 o'clock in the morning. An afternoon meeting for the presentation and discussion of papers and reports will be held in the Astor gallery, provision being made for the operation of a lantern by which views and graphs can be thrown on a screen. It is planned to continue the presentation and discussion of papers in the Astor gallery on Thursday, but these arrangements may be altered in a few details before the final announcement of the meeting is issued from the secretary's office.

In addition to the reports of standing and special committees there will be papers and exhibits of special interest. Among the papers already promised are the following:

Management of the Beater Room. By A. B. Green, of S. D. Warren & Co., Cumberland Mills, Maine, (Illustrated by Lantern Slides).

Cotton Rope for Power Transmission. By J. Melville Alison, of William Kenyon & Sons, Ltd., Dukinfield, near Manchester, England. (Illustrated by Lantern Slides).

A Method of Analyzing Sulphur Gases. By Robert B. Wolf, chairman of the Committee on Sulphite Pulp.

Electric Motor Application to Pulp and Paper Machinery. By W. W. Cronkhite, of the General Electric Company, Schenectady, N. Y. (Illustrated by Lantern Slides).

Forestry Work of Ranger School Students in the Adirondacks. By Hugh P. Baker, dean of the New York State College of Forestry at Syracuse University.

The Bleaching of Groundwood Pulp. By Otto Schutz, chairman of the Committee on Dyestuffs Adulteration.

Production of Methyl Alcohol from the Spent Liquors of the Soda Pulp Process. By Profs. Albert E. White and John D. Rue, University of Michigan, Ann Arbor.

CORRESPONDENCE.

Brampton, Ont. Dec. 5, 1916.

Messrs. The Pulp and Paper Magazine of Canada,
Montreal, Que.,

Gentlemen,—

We not that you have an honor roll in your Magazine containing the names of the men identified with the paper trade who have gone to the war and we would ask you to add the following names as having gone from Gummed Papers, Limited,—Major R. R. Barber, President of the Company, Edwin Harris, George Harris, John Neal, Yours truly,

GUMMED PAPERS, LIMITED,

NOTICE OF AMERICAN PULP AND PAPER ASSOCIATION ANNUAL MEETING.

The preliminary announcement of the fortieth annual meeting of the American Paper and Pulp Association has been issued by President A. B. Daniels. The notice reads in part as follows :

The fortieth annual meeting of the American Paper and Pulp Association will take place at the Waldorf-Astoria Hotal, New York City, February 6, 7 and 8, 1917. Meetings of the various affiliated associations will be held on these three days, the annual meeting of the American Paper and Pulp Association being scheduled for the afternoon of Thursday, February 8. Due notice will be issued giving the hour and place of all meetings.

The annual dinner of the American Paper and Pulp Association will be held at the Waldorf-Astoria Hotel, on Thursday evening, February 8, at seven o'clock. The Banquet Committee has limited the attendance to 700 and the price of tickets has been fixed at $10 each.

President Daniels requests that application for tickets be sent in at the earliest possible date. All requests for invitations must be received at the office of the American Paper and Pulp Association, 18 East Forty-first street, New York, not later than January 25, 1917.

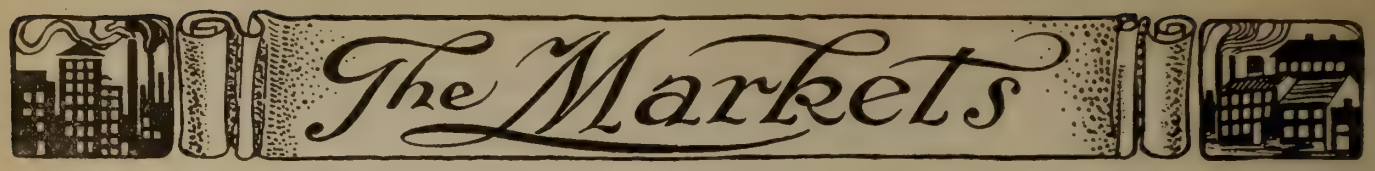
JAND FORESTS.

The jand forests of the Punjab are spread over the arid, alluvial plains, where, as a rule, the rainfall does not exceed ten inches. The area covered is 3,500 square miles. The tree is remarkable owing to the length of its tap root, specimens having been found with a tap root as much as eighty-four feet in length descending vertically to a depth of sixty-four feet. This tap root enables the tree to obtain its water from the permanent water supply in the subsoil. Doubtless at one time the jand lived in a region liable to flood, since it has been found that no natural regeneration occurs in the jand forests, though in irrigated or flooded districts the jand is reproduced readily from seed. It seems probable that the explanation of the long tap roots is due to the effort on the part of the tree to keep pace with the gradual lowering of the water table of the soil, resulting from the lowering of the riverbeds by erosion.

A company has recently been formed to build and operate a modern paper mill at Jabatao, a suburb of Pernambuco, where a very favorable site has already been secured. Mr. A. Ommundsen, a prominent business man and Norwegian Consul in Pernambuco, promoted the company, and is its president. According to the statement of one of the interested parties,, more than $250,000 has actually been subscribed by Norwegian and Brazilian capitalists. The present plan is to manufactture all kinds of paper, the wood pulp for which will be imported from Norway.

GERMANS INCREASE SILK PLANT FOR GUN-COTTON.

The Vereinigte Glanzstoff-Fabrik, Elberfeld, before the war the largest of the German makers of artificial silk, are increasing their capital from £375,000 to £750,-000. It is stated that the new capital is required for large extensions to the gun-cotton plant. Gun-cotton has been the company's principal product during the war.



CANADIAN MARKETS.

Toronto, January 9th, 1917.

There is a sort of mark time attitude among the pulp and paper men and the work of inventory taking is not yet completed. Matters are being sized up generally in the trade and the outlook for a big year's business is considered bright. Newsprint prices for the coming twelve months have not yet been fixed at the time of writing, although a decision by the federal authorities is expected at any time. In the meanwhile, no contracts are being renewed and some publishers are buying in small quantity lots and taking chances. There have been many conferences and both sides are standing firm and awaiting the issue with considerable interest. Buyers from the United States continue to visit Canada in the hope of securing supplies and are offering from five cents up. In some instances as high as eight and nine cents have been proferred for spot lots and immediate delivery. There is an offer on the part of some mills to renew contracts at the present price of three cents for three months but no longer, and just what turn affairs will take it is impossible to foretell.

In the ground wood situation matters still continue acute and there are very small offerings. As high as forty-six dollars has been paid at the mill. Inquiries continue to pour in from all sides. There is a feeling that the growing scarcity of raw material will be accentuated as time goes on. Rossed wood is quoted as high as $22.50 in an eastern province.

Speaking on the prospects a large manufacturer of mechanical pulp this week said: "If the military authorities insist in pressing for more men the condition will naturally grow worse. What foreigners we have in Canada do not adapt themselves to the getting out of timber like the native bush man, and consequently with the scarcity and poor quality of labor, prices of pulp wood are bound to keep high. As to the price of ground wood pulp for the coming year the mills who make for the market are situated differently from the paper mills in respect to the maintaining of prices. The paper mills as a rule have to deal with an unorganized body of buyers while the pulp maker, who sells to the paper mills, has to negotiate with a highly organized body, many of whom make ground wood more or less themselves, and consequently there is reason to feel that the figures on the various qualities of pulp may not maintain the high level that many qualities of paper will. The ground wood mills throughout the country as a whole did not get back a new dollar for an old one for several years, and I would suggest that the ground wood men form a separate organization, the same as the paper-makers have. While to the general public the affairs of both bodies may appear identically the same as a matter of fact it is only in fancy and not in reality. For the greater stability of them both they should be governed from different standpoints of action.

In the sulphite pulp arena prices are a little easier in the open market but most of the output of Canadian plants is covered on contract and there is no anxiety regarding the future as stocks available are low. The manufacturers appear to think that present quotations will hold for some months in spite of increased receipts on the Atlantic seaboard.

In the book and writing line orders are coming in as rapidly as ever, but the high figure for all kinds of raw material keeps up unceasingly. In bond papers there has been another advance during the past week from a cent up. It is not many days ago that there was a similar increase. The difficulty of getting coal is worrying many of the mills and, with shifting quotations on raw materials it is impossible to figure prices with any degree of certainty. Whether there will be further advances on book and writing papers remains to be seen.

One large Canadian concern which has been doing considerable figuring along the line of erecting another mill is holding the matter in abeyance for the present, as estimates procured for a fifty ton a day plant place the outlay at some two hundred thousand dollars more than was at first deemed possible. The motto is, therefore, to make haste slowly and wait until conditions resume a more normal level.

Wrapping paper mills are still far behind in deliveries and the figure for kraft is strengthening all the while. It is now at the highest point ever known. Board of all kind is in the same state and the mills may soon quote new price lists. Toilet and tissue plants are rushed to the limit and in spite of an advance of some fifteen per cent a few days ago, there is no dimution of orders. One Toronto wholesale concern, which had purchased some five thousand reams of toilet paper in Sweden, considered itself fortunate but this week came the intelligence that the whole lot which was on the SS. "Alexandria", bound for Boston, had been commandeered by the Germans. No further information has been received.

In the rag and paper stock market matters are rather quiet at present as buying has not yet been undertaken to any large extent this month. Several new mills will shortly be entering the arena for supplies and a good year is expected by local dealers. There are few changes in prices to record this week and the following quotations prevail, f. o. b., Toronto.

Paper.

News (rolls) $3.00 up, at mill, in carload lots.
News (sheets), $3.75, at mill, in carload lots, smaller lots higher.

Book papers (carload), No. 3	$7.50
Book papers (ton lots), No. 3	$8.00 to $8.50
Book papers (carload), No. 2	$8.75 to $9.50
Book papers (ton lots), No. 2	$9.75 to $10.25
Book papers (carload), No. 1	$9.25 to $10.00
Book papers (ton lots), No. 1	$10.00 to $11.00
Sulphite bonds	13½c up
Writings	9½c up
Grey Browns	$4.50 to $5.50

Grey Browns	$4.25 to $5.00
Fibre	$7.25 to $8.50
Manila, No. 1.	$7.25 to $8.50
Manila, B.	$5.00 to $6.50
Unglazed Kraft	$9.00 to $12.00
Glazed Kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap.	80c to $1.15
Natural, greaseproof	13c to 18c
Half Bleached Greaseproof	15c to 19c
Bleached greaseproof	17c to 21c
Genuine Vegetable Parchment	25c to 30c
Drug papers, whites and tints	10c to 13c
Paper bags, Manila	20% discount
Paper bags, kraft	35 discount
Confectionary bags	25 discount

Pulp.

	F.O.B. Mill.
Ground woodpulp	$42 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$95.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

NEW YORK MARKETS.

New York, N. Y., Jan. 6th.

It is remarkable when one thinks of the way in which the ground wood pulp market is strengthening. From reports which we can regard as authentic, it is maintained that the market is practically "bought up" and that it is a most difficult matter to buy stock even at the very high prices which one hears named in different parts of the city. A particular instance is actually known where a large paper manufacturer, a member of an association, has asked the body to aid him in getting supplies of ground wood at "a reasonable figure." It is also known that this association sent out a letter to its various members asking them to help the concern in question. We don't know just what the results of this scheme were, but it is sufficient to show how acute conditions are in the pulp market. At present, there is no likelihood that any weakening will be witnessed for some time—at least, that is the opinion of those in the trade who seem to be well acquainted with the situation. The demand has been so heavy that it has practically drained all of the supply which was available. The news mills, the wrapping mills, tissue mills and others have all been consuming much more than their ordinary quota of pulp with the result that, even with capacity now at its very zenith, it is impossible to make any impression on the trade. As can be understood, there is always present some condition which will prevent the operation of various machines. Such conditions are felt very keenly under a market like the current one. No definite information has been obtained as to whether or not the grinders have been accepting contracts. As a matter of fact, it is believed that, owing to the very high prices, the paper manufacturers are showing an unwillingness to enter into any long-term agreements. This can be readily understood when it is known that present quotations are over $40.00 per ton, at the grinders. Continued drought and the uncertainties connected with pulpwood supplies being a matter of great concern to consumers. Most of the large grinders find themselves outsold and mechanical therefore, continues firm with a strong upward tendency. Sales have been reported up to $47.50 f.o.b. point of shipment. The future of this market, is, of course, dependent on the situation in the paper market. It is possible, however, that even if paper shows a tendency to decline, it may be a little while before the influence will be felt by ground wood. This is all mere speculation and should be considered solely in this light.

With regard to the chemical pulp market, practically nothing new can be noted. The tendency is to remain firm, with a slight upward inclination, according to general opinion abroad, owing to the fact that the navigation on the Baltic Sea is pretty well blocked by the ice. This means that, at least up to the early part of May, there will be little or no attempt on the part of the Scandinavians to get pulp to the United States. Shipments of Foreign Sulphite from abroad are not materializing as rapidly as expected and as navigation from the Northern Baltic Ports has closed, the Sulphite situation is full of doubts. Congestion at seaboard is delaying shipments and this is a feature which will probably cause much trouble during the next few months, as railroad transit is very uncertain and the mills will probably want a bigger supply on hand. It is also a fact that importers are not looking forward to any large shipments after the Baltic Sea is again opened, for it is believed that the demand on the European continent may absorb even a greater part of the Scandinavian production than it has been doing during the past year—and this is something for serious thought—so say the importers. From the reports received here, the foreign pulp producers are still having their troubles in overcoming the various obstacles with which people in the trade are to a certain extent familiar. Sulphur is a difficult article to get. If gotten from the United States, it means that the cost will be most prohibitive—aside from the fact that it is contraband of war and may never even reach its destination. The labor question is perhaps more acute than it is here. We are told from various sources, that the Scandinavian governments still have their armies mobilized —for protection—which means that quite a large number of the mill workers are now appearing in the garb of royal soldiers.

The firmness of the domestic pulp market has, of course, been following the footsteps of the foreign. It is understood that short-term contracts are being made, at rather good prices. However, it is pretty well ascertained that there is no surplus available and that the market is fairly well sold up. There seems to be a good inquiry for sulphites of all kinds. Krafts are perhaps more scarce than any other grade. Practically none of this stock has come from aboard in some time, the entire trade being dependent on the domestic supply—which, of course, includes what can be had from Canada.

Rags and Waste Paper.

Organized buying, it is calimed by the stock dealers, has kept the rag market from enjoying the prosperity which had been predicted early last year. While it cannot be said that rags are "dull", they can hardly be considered brisk. Some dealers feel that the moment has passed when it would have been possible for the market to experience a boom. They feel that there is no actual shortage of stock and that, even if there were, the mills are buying in such orderly fashion and so carefully that it would not be possible to upset prices. On the other hand, it is known that in the West,

a number of dealers have undertaken to put rags into store. Evidently, they are expecting that something is going to happen. New white cuttings, No. 1, are reported at about 9¾c; old whites, No. 1, at 6c; house soiled whites, at 4¼c; street soiled whites, at 3¼c; thirds and blues, at 3¼c; black stockings, at 3c. Roofing stock is not considered very active, ranging around 2c. Bagging has gained a little in interest and it is reported is being viewed more favorably by stock men than has been the case in some time. Gunny is quoted at about 3c; bright bagging, at 2¾c; sound bagging at, 2½c; mixed bagging, at 2¼c; mixed bagging, at 2¼c. Rope is holding its firm stand at about 5½c, and often little higher. As the British embargo is on in full force, and except for a few shipments which were sold before the embargo was declared, none of this stock is forthcoming from Great Britain. Dealers look to see rope continue high for sometime on the basis of the embargo.

One is not certain as to what to think regarding the waste paper market. Various rumors as to weakening are heard, but it is problematical as to whether or not they ought to receive credence. It is known that the fact that many of the mills are now taking inventory has resulted in a temporary lack of interest in old waste papers, but this may be all. Quotations are being held fairly firmly. Hard white shavings are in good demand at 5½c to 6¾c; soft white shavings, at 5¼c to 5½c; magazines, at 2½ to 2¾c; ledger stock, at 3½c; old manilas, at a range of 1c to 2¾c; old krafts, at 3½c to 3¾c; overissue news, at about 1¼c; and mixed papers at 80c to 90c per hundred pounds.

Perhaps never more than during the past week was it so apparent, among the jobbers, that they believed that the paper market was running for a "fall." This refers only to certain grades of papers, such as fibers, coated, tissues and one or two others. One jobber was bold enough to make the statement that he believed that the mills in the grades mentioned hadn't been receiving orders for the past fifteen days. According to some reports, most of the jobbers have considerable stock and are now trying to unload. It is known that there is considerable paper which can be bought from wholesalers at prices far less than those being asked by the mills. In fibers, a few mills have come down a cent or so in their prices. Coated papers are not strong and it is possible to force concessions from the mills in these papers. The tissue market is the one which jobbers claim will be hard hit. At this time, it is known that many of the leading concerns in this city, have carloads of tissues, napkins and similar goods enroute to New York—just at a time when the demand seems to have disappeared. Our readers must use their own discretion in reading the opinions of the jobbers regarding the immediate future. Personally, the writer feels, after having interviewed a number of the local dealers, that there is "something" in what they say. Whether or not the change will come very soon or whether it will be a few months in coming is the uncertain thing. Some dealers say it is already noticeable. In spite of these facts, wrapping papers are maintaining their firmness,—this refers to manilas and to krafts. The demand for news print has shown no perceptible change. The mills report that they are busy and are doing their utmost to take care of the general demands.

New York Quotations.

(These are a nominal range of prices).

Foreign bleached sulphite, ex-dock, N. Y. (and higher) 10c
Foreign easy bleaching sulphite, ex-dock, N. Y. ..... 5½c to 6c
Domestic bleache dsulphite, f.o.b. pulp mill ..... 7¼c up to 10c
Foreign unbleached sulphite, ex-dock, N. Y. (and higher) 5½c
Foreign unbleached sulphite, No. 2, ex-dock, N. Y. ..... 5c to 5¼c
Domestic bleached sulphite, f.o.b. pulp mill ..... 5¼c to 5½c
Easy bleaching, f.o.b. pulp mill, (and higher)..... .6c
Kraft pulp, f.o.b. pulp mill (and higher) 6½c
Foreign kraft pulp, f.o.b., ex-dock, N. Y.. 6¼c to 6¾c
Bleached soda pulp, f.o.b. pulp mill (and higher) .5¼c
Foreign unbleached soda pulp, ex-dock, N. Y. 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, N.Y. ..... 6½c to 7c
Bond papers, sulphite, (and way up) 12c
Ledgers papers, (and way up) 13c
News, contracts, f.o.b. mill $3.10
News, spot lots ..... 5c to 6c
Book, super, (and higher) 9c
Book, coated, (and higher) 8c
Tissues, good sulphite, bleached, per ream $1.30
Tissues, ground wood, manila, per ream..... $1.30
Kraft (and higher) 9c
Manila (and higher) 7c
News board, per ton, f.o.b. New York..... $75.00
Straw board, per ton, fo.b., New York. $65.00
Chip board, per ton, f.o.b., New York. $70.00

R. W. JOLLY.

GREAT NORTHERN PAPER.

Based on income return Great Northern Paper as a 10% stock, selling at its new high price of $475 per share, is almost in a class with United States government bonds.

The rapid climb of these shares has been among the unlisted sensations of the paper share market. It was only two years ago that the stock was obtainable in fair-sized lots at less than $150 per share, despite its 10% dividend payment.

It is believed that Great Northern Paper has progressed to a point where it has a permanent earning power of at least $50 per share, even on the basis of two-cent per pound prices for newsprint. Of course prospective 1917 profits promise results that it is hardly modest to discuss.

HELP THE MANUFACTURER TOO.

A paper maker suggests that if Sir Thomas White should favor the publishers by fixing the price of newsprint, he might help the manufacturer to meet that price by fixing the price of coal, for instance, which has doubled in price.

Another paper maker says that U. S. Federal Trade Commission refuses to allow the manufacturer to include some legitimate items in the cost of his paper. Among these is the paying for such dead horses as depreciation costs, that can now be met, in some cases for the first time.

A ROUND-ABOUT WAY.

The International Paper Co. is receiving a cargo of pulpwood from Nova Scotia via vessel to Portland thence by rail to Orono, Maine, near Bangor. "Some distance" to bring wood, yet they all are doing it.

FIRST VESUVIUS BURNERS IN CANADA.

Chemical Pulp Manufacturers will be interested in the Vesuvius Sulphur Burners recently installed by the Nichol's Chemical Company in their plant at Sulphide, Ontario.

These two burners, of 7 ton capacity each, were manufactured by the Waterous Engine Works Company, of Brantford, Ontario, and are the first machines of this type built in Canada. They embody several new ideas and the claims advanced for them, by the manufacturers, show various special points of difference from sulphur burners of existing design.

Special emphasis is laid on their large capacity, size considered. Being self-contained, requiring no auxillary combustion chambers, and handling the entire process from melting the sulphur to complete oxidation, the Vesuvius Burner is said to represent a considerable saving in floor space, compared with the rotary or flat burner of the same capacity. One Vesuvius Burner for instance, installed at the Marathon Paper Mills, Rothschild, Wis., furnisehs SO_2 gas for a sixty ton Sulphite Mill, having replaced three rotary burners which were connected to large auxillary combustion chambers. The whole installation occupied a floor space of 382 square feet, whereas the Vesuvius Burner doing the same work, requires but 36 square feet.

Constructionally the Vesuvius Burner is very simple. It is cylindrical in shape, and contains in its upper portion, the melting pot, into which the sulphur is charged. Below this, the burner is divided into five compartments by horizontal dish-shaped trays, each compartment being provided with a cast iron cleaning door and damper. The gas outlet is placed above the upper tray, and is provided with a combustion chamber in which complete oxidation is readily controlled. Special claims are made for the efficacy of this combustion chamber, and for the ability to secure a pure rich gas without the use of expensive scientific apparatus or expert attendants.

The dish-shaped trays are also of particular advantage it is claimed, in that they retain a large amount of burning sulphur upon them; the light particles of impurities thus having time to rise to the surface to be carried away while the heavy impurities sink to the bottom of the trays. This means a clean bright fire surface and obviates the necessity for frequent cleaning, which is such a nuisance with the ordinary flat burner.

The burner is built of iron and steel throughout, is lined with heat-resisting fire brick and is designed for exceptional convenience in handling.

A number of Vesuvius burners are already in use in the United States, and the exceptional success these installations have obtained should presage a large sale for them in Canada. The Waterous Company report that they have several orders on their books, which they are rushing to completion.

REFORESTATION IN THE U. S.

Approximately 10,390 acres of denuded lands within the national forests were reforested in the fiscal year 1916. The total number of trees planted was 6,146,637 while 8,280 pounds of tree seed were sown.

"SAVE THE SPRUCE BARK WHEN FELLING WOOD."

(Translated from "Svensk Pappers Tidning", Stockholm, Sweden, by the News-Print Manufacturers' Association).

Great demand for spruce bark exists from manufacturers of tanning compounds and now is the season to look out for this extra profit from the wood felling. With prices up to $17.02 and $19.45 per short ton dry spruce bark, which now are offered, it pays to save the bark even when felling wood at points distantly situated. The trees have to be felled during the saptime (June-August). There may be figured a yield of 1.87-2.18 pounds dry bark per foot of pulpwood, which at the prices mentioned, gives a gross profit per tree, which helps out materially. In addition there is an advantage to the pulp makers when they get the wood fully barked, which makes it lighter in shipping and better protected when stored.

As soon as the bark is stripped from the tree, it should be spread out on the trunk with the outer side up. At night or when rain is threatening, it should be gathered on some kind of support and be covered by the longest pieces. Strong sunshine on the inner side (the sap side) makes the bark turn dark. The bark should be throughly dried before it is broken up, otherwise it gets dark and even gets moudly and then it is of no value. where as it should dry slowly. Outgrowths are removed by a draw shave or an axe, and moss by a big knife, before the bark is broken up. The breaking up may be done with a straw-cutter or with an axe. In the evening, when the resin is dried, the spruce bark may be broken on a flax-brake.

First rate bark must be throughly dry, have a light inner side with thick "flesh" (the light yellow inner side), it should be broken into small pieces, about 1.87 in and not more than 3.94 in. long, and with the outer side as much as possible free from growth and moss. Dark colored moss, thin "flesh" and large pieces lessen the value of the bark.

Spruce bark should be kept in a dry place. A flour bag of 220 pounds will hold about 66 pounds of bark. When storing, it may be figured at from 9.36 pounds to 31.21 pounds per cubic foot. — (From "Wood Industry").

PRESIDENT OF AMERICAN WOODPULP CORPORATION.

Mr. James Rosenberg has accepted the Presidency of the recently organized American Woodpulp Corporation, which will deal in all kinds of foreign and domestic Woodpulp, both chemical and mechanical, and will also handle in its Pater-stock Department all grades of old and new Rags, Bagging, Flax and Jute Waste, etc.

He will maintain for the new concern his former connections in France, Italy, Spain, South America and other countries. Mr. Leo W. Baumohl will be associated with him as Vice-president and Treasurer of the company. The American Woodpulp Corportion will maintain offices at Kalamazoo, Mich., under the management of Mr. F. D. Haskell, and at Dayton, Ohio, under the management of Mr. Robert R. Reed.

Review of Recent Articles of Interest tothe Pulp and Paper Industry

Raw Fibrous Materials for Celluloid.—H. Nislisda. Journal Industrial and Engineering Chemistry, Dec. 1916, by Paper, Jan. 3, 1917, p. 13-15. The fibres treated; preparation of raw materials; chemical comparison of raw materials, as to copper number, acid number, per cent oxycellulose, per cent ash. Six classes of raw materials.

Analysis of Sulphite Acid.—[Paper, Dec. 27, 1916, p. 22). The usual method of Winkler and the new method of Oman are outlined. Hægglund (Chem. Zeit, 1916, 40, through Jour. Soc. Chemical Industry) has compared the methods of Winkler and of Oman with results obtained by standard analytical methods and found that both are subject to large errors, both frequently giving to low calcium oxide. The following modification is proposed: 10 c c of the clear sulphite "acid" is added to about 50 c c of water and 3 c c of strong ammonia. The liquid is made up to 100 c c, 15 minutes are allowed for the precipitate to settle and 10 c c of the clear supernatant solution drawn off and titrated with iodine. A correction based on the average percentage of calcium sulphate in the liquors, = + 0.13%SO_2, is applied. The maximum divergences recorded in a series of twelve analyses were equivalent to 1% and 4.1% of calcium oxide

E. K. M.

Extracting Cellulose from Bamboo.—Paper, Dec. 20, 1916, p. 18).

William Raitt takes out new patent supplementary to patent granted him in 1912. Continues two preliminary treatments into one for removing strach and pectin. Uses soda liquor from digester where liquin is removed. The original soda liquor is made of such strength that an excess will be left for the attack on pectose. The dissolved pectose and starch are drained off and the residue cooked with the strong soda liquor.

E. K. M.

New Refiner for Use in Paper and Pulp Industry.—(Paper Trade Jour., Dec. 21, 1916, p. 32). The Howard Refiner, made by the Maintowoc Engineering Works, of Maintowoc, Wis., is a new but throughly tried-out machine for working up both sulphite and ground wood screenings. It consists of a cylindrical steel shell with cast iron heads and is mounted on bearings at both ends by means of a hollow trunnion. It revolves at 26 R.P.M. The shell is lined with hard wood blocks and is filled half full of small, round flint pebbles. The operation is continuous, the material being fed from an adjustable feed box, through one hollow trunnion: as the shell revolves it is exposed to rubbing and rolling action of the pebbles and is reduced to pulp.. The pulp is discharged through the hollow trunnion at the opposite end from the feed. The pebbles are retained in side the machine while the pulp passes through a slotted screw plate. The proper amount of water is supplied in the refiner and the pulp discharges over a special weir box which automatically maintains suitable conditions within the machine. The quality of the pulp is good. Sulphite screenings and knotter screen waste can be used in papers with a net value of ½ to 1 cent per pound more than the grades for which these screenings are generally used. The power consumption is low, 25-H.P. at the maximum. The only labor attendance necessary is an occasional inspection and adjustment. E. K. M.

Water Absorption by Vulcanized Fiber.—Rollin G. Myers.—Journal Industrial Engineering Chemistry, Vol. 8, (1916) pp. 1108-9. Absorption can be decreased, perhaps eliminated. There may be difficulties in working the treated fiber.

Industrial Organization.—H. N. Strouck, Metallurgical and Chemical Engineering. Vol. 15 (1916) pp. 579-584.

How Waste Paper is Treated to Make New Paper.—Thomas J. Keenan F. C. S. in Scientific American. Dec. 23, 1916, pp. 574-5. Illustrated article on character of papers and of inks. Describes processes for removing ink and converting paper to fiber.

Recovery of Fibrous Material from old Parchment Paper.—Dr. C. Bartsch in Scientific American, Dec. 30, 1916, p. 597.—A reagent has been discovered in Sweden which dissolves all but the fibres. These are left free and detached and are excellent paper making material. New process shows that the fibres are not profoundly affected in parchmentizing. The conversion is merely superficial, affecting chiefly the outside layers. The character of the reagent is not mentioned. One photomicrograph.

Art of Papier-Mache Manufacture in India. Paper Making, Oct. 1916, by Paper, Jan. 3, 1917, p. 15.

HEMP HURDS AS PAPER-MAKING MATERIAL.

(Concluded from page 53).

The quantity is likely to increase as the use of machine brakes increases.

The hurds may be baled in hemp-fiber presses, with partial burlap covers like those on cotton bales, or possibly chip-board covers.

It is estimated that the farmers may deliver the bales on board cars profitably at $4 to $6 per ton.

Below are the conclusions arrived at by the chemists making the test:

There appears to be little doubt that under the present system of forest use and consumption the present supply can not withstand the demands placed upon it. By the time improved methods of forestry have established an equilibrium between production and consumption, the price of pulp wod may be such that a knowledge of other available raw materials mav be imperative.

Semicommercial paper-making tests were conducted, therefore, on hemp hurds in co-operation with a paper manufacturer. After several trials, under conditions of treatment and manufacture which are regarded as favorable in comparison with those used with pulp wood, paper was produced which received very favorable comment both from investigators and from the trade and which according to official tests would be classed as a No. 1 machine-finish printing paper.

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Lead Pipe and Waste Pipe made out of absolutely uniform chemical lead. Also **Antimonial Lead Pipe** in any percentages.

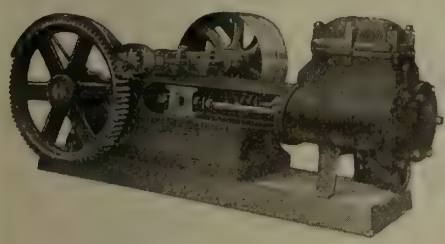
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This regulator gives you a higher and more uniform finished paper with less calendering.

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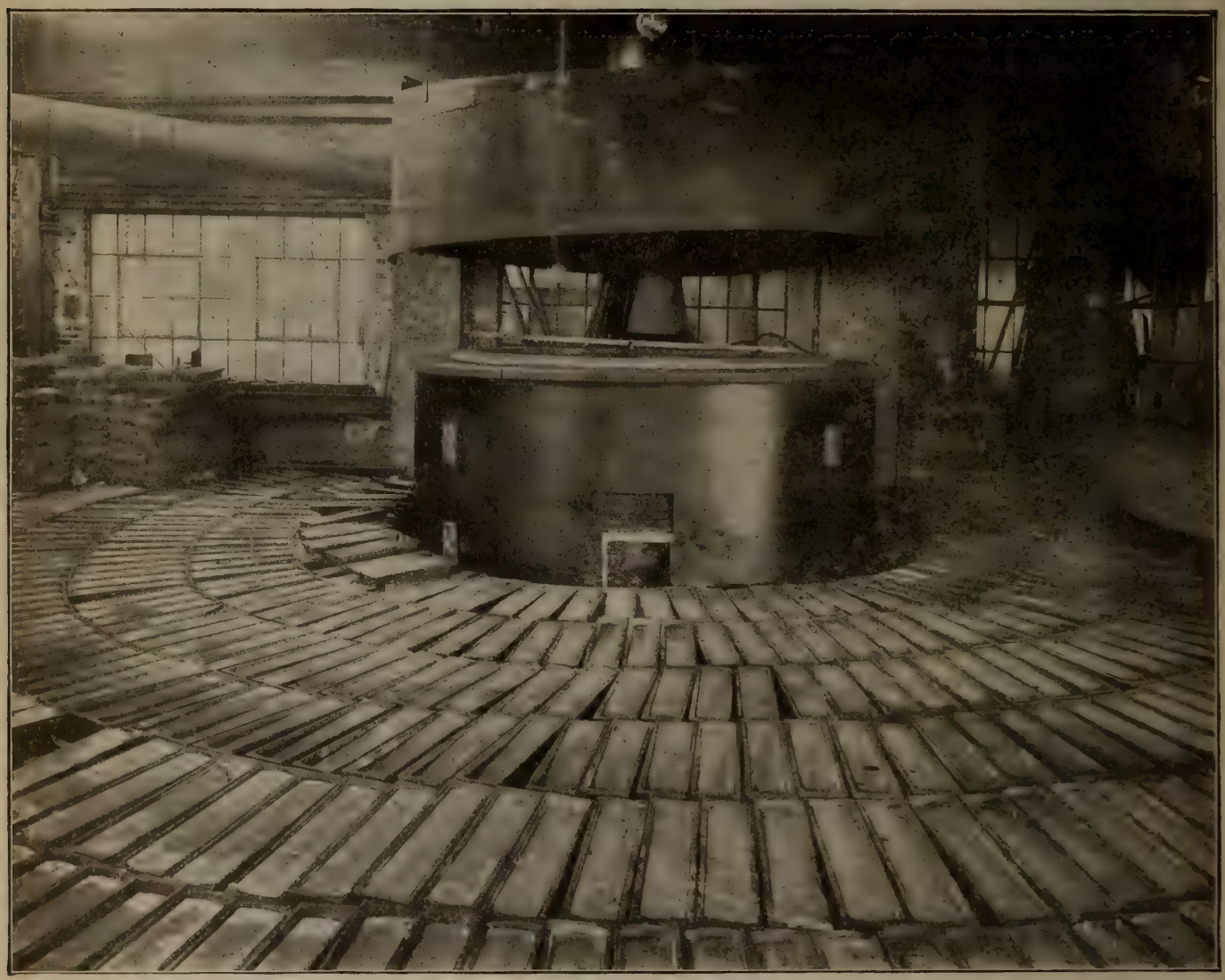
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CANADA METAL CO. HAS A BIG MELTING POT.

The capacity of this monster is 35 tons, and is without a doubt the largest of its kind in the British Empire.

In their well equipped laboratory the tin, antimony, lead, copper, etc., is analyzed by a metallurgical chemist to ensure nothing but the purest of raw materials being a satisfactory alloy and the Babbitt Metal poured, large pot to be melted, and during the melting process many laboratory tests are made to ensure that the mixture is perfectly alloyed. It is absolutely necessary to get the correct percentage of each metal if the resultant Babbitt Metal is to give the highest point of efficiency.

Even after the mixture is melted and passed as being a satisfactory alloy and the Babbit Metal poured, it is tested upon a friction testing machine. An excellent feature is that in making 35 tons of Babbitt Metal in one melting there is an absolute guarantee that the whole 35 tons will be of one uniform quality, and to those who use large quantities it is necessary to point out what this means in establishing confidence.



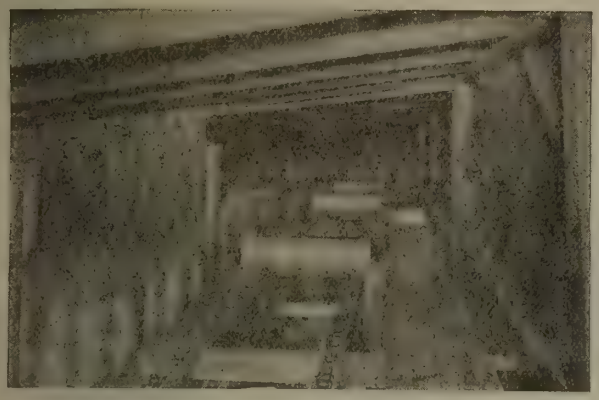
New 35-ton Melting Pot for Making Babbit and other Alloys.

CREOSOTED WOOD PAVEMENTS.

The continued popularity of creosoted wood-block pavements is indicated by the new contracts which are coming out from time to time during the summer. These include 66,140 square yards of streets in York, Pennsylvania, specifications for which call for wood block, as well as other materials, involving a total of about 2,400,000 feet of lumber. In Kansas City the contemplated pavements will involve about 39,227 square yards; while Fort Worth, Texas, has awarded a contract for about 30,000 square yards on the main street in that city.

LOST MORE THAN SHE HAS GAINED.

In submitting peace proposals the German government is in reality re-opening the negotiations which it closed when the Chancellor declined to accept Sir Edward Grey's suggestions. Germany in the meantime has had her war. Even her Junkers and her Bernhardis and her Tirpitzes and her Crown Prince party have had their fill of it. And what has Germany to show for it, in spite of the hostile territory occupied by her armies? Nothing but death and devastation and a reputation for bad faith which will require a century of right living to obliteratee.—New York World.



Jeffrey "Reliance" Chain Conveyer handling Rolls of Roofing Paper in Storage Building.



Jeffrey Cable Conveyer handling Pulp Wood. (Note Auxiliary Stacker Conveyer in the left of picture.) Wood is reclaimed through the openings in a frame tunnel way beneath the pile.

Plan Now for 1917

Handle Your Materials With the Least Amount of Labor and Expense

BY INSTALLING A

Jeffrey Standard Conveyer

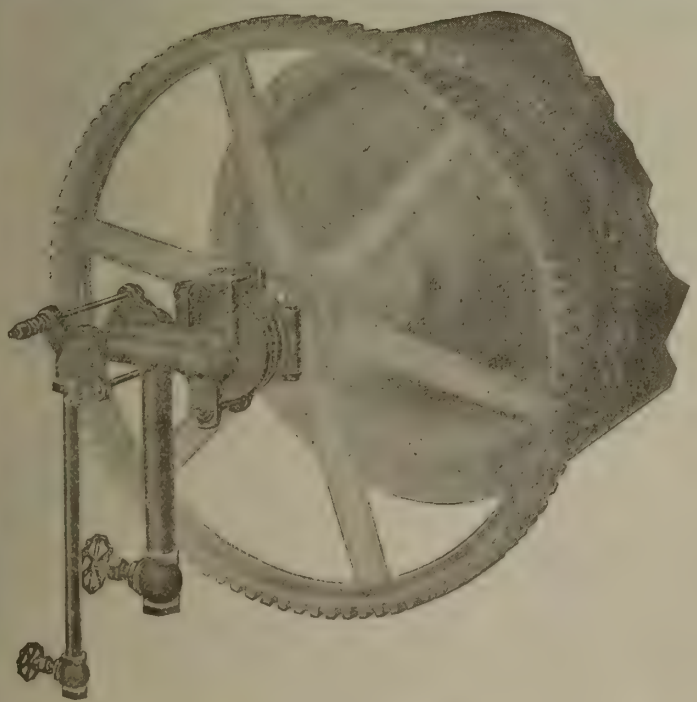
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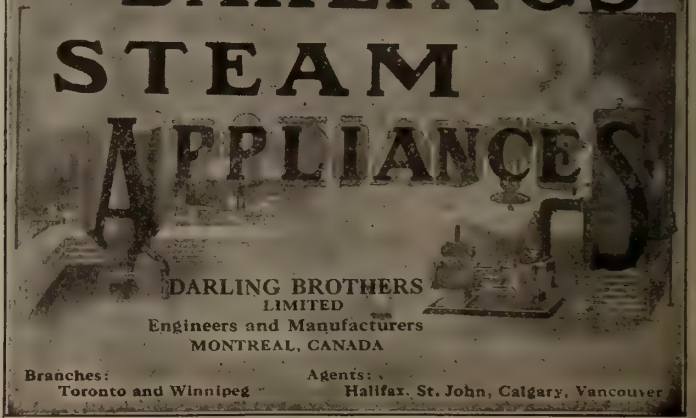


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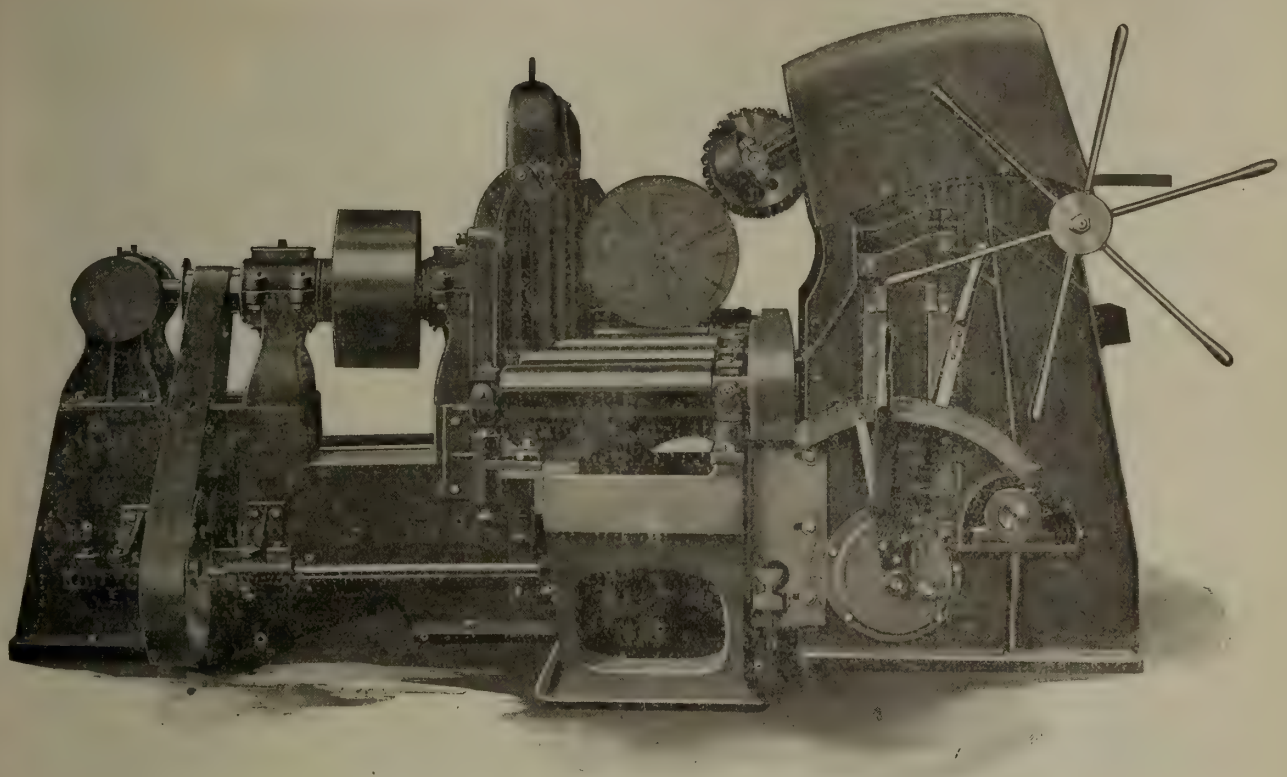
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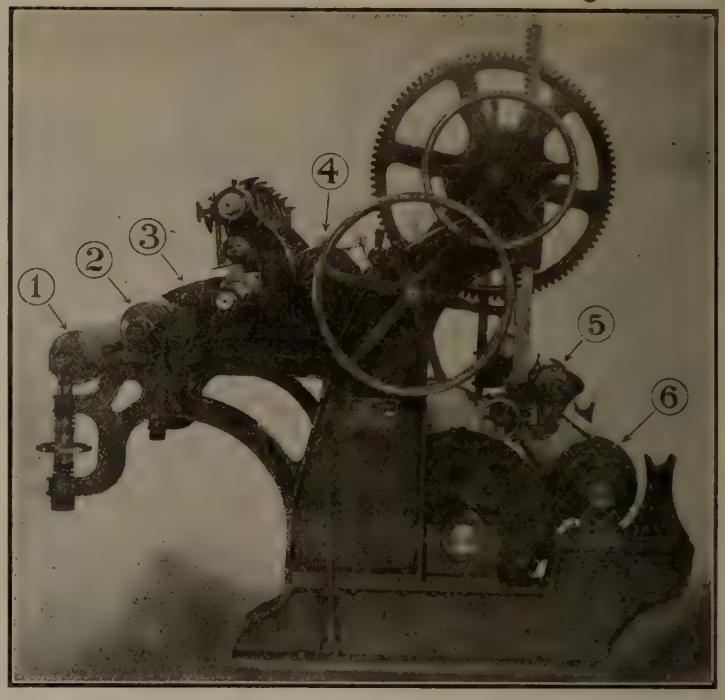
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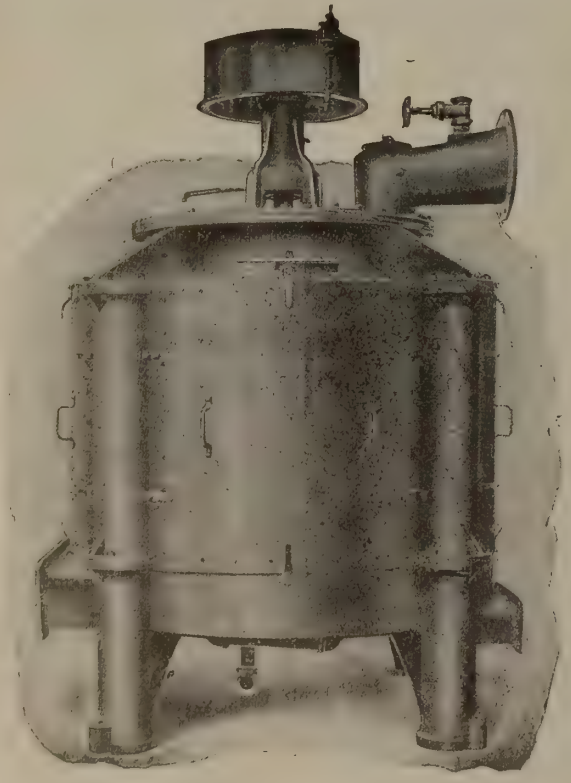
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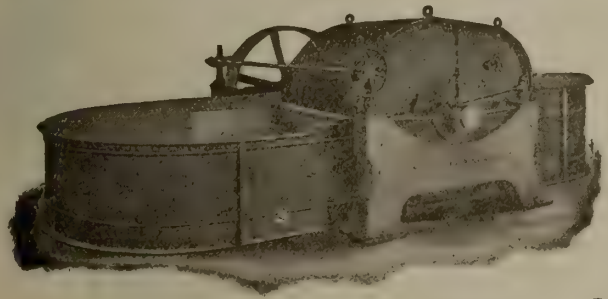
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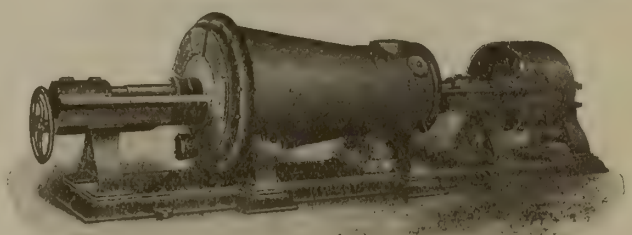
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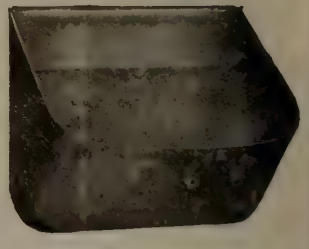
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Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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EDITORIAL

"WE NEVER MISS THE WATER."

How true it is that "we never miss the water till the well runs dry."

When our publisher friends south of the 49th parallel had plenty of print paper they did their best to dry up the wells of supply by persuading Congress to admit newsprint free of duty. They attained their object —cheaper paper. Since that time new projects for news mills became the rule in Canada and the exception in the States, because newspaper can be made more cheaply in Canada.

In 1914 about 2 per cent of the imports of newsprint into the United States came from countries other than Canada. In 1916 the imports from Canada increased about 50 per cent, while imports from other countries decreased 90 per cent. During this period exports of newsprint from the United States increased 28 per cent. From statements recently made in connection with the newsprint investigation, the diversion of news machines to other grades has probably resulted in there being but little if any increase in production of newsprint in the States.

A comparison of the big city papers now and those printed two and a half years ago shows no appreciable reduction in size. The extraordinary prosperity of the country has been an incentive to more advertising and larger issues. There has also been a clamor from countries in South America and elsewhere for paper. The result is that the well has been pumped dry and is not being fed as rapidly as thirsty publishers would like.

Nobody complains of paying an extra cent a quart for milk in the winter. Everyone knows that a cow gives less milk in cold weather and that her feed costs more. There simply is less milk. When the shoe salesman tells us that shoes cost more because so much leather is used by the European armies we do not question it, but pay the difference.

But when it comes to newspaper, perhaps the most common and cheapest of manufactured commodities, there are some who refuse to admit the possibility of an increase in cost of production, or to recognize the perfectly proper operation of the age-old law of supply and demand.

It is claimed that there exists an understanding among paper-makers. We believe there is — an understanding of the laws of nature and also of human nature. As regards the statement that the price of newsprint is practically the same in widely separated parts of the country, we have this to say: "Newsprint is composed of nearly constant proportions of ground wood and sulphite pulp and made into paper with the very same kind of machines the world over. The amount of power and labor varies but little, although a particular locality may have a slight advantage in one or another factor. There should then be a nearly uniform cost of production. If the manufacturers should decide to be satisfied with a fair return on their capital, why should not the price of paper at the mill be quite uniform?"

It is not only the cost of production, but the amount producable, and the demand for the product which makes the price of an article. In this case the well is dry and is not allowed to fill up. There is a prevailing bareness in the store houses of the paper mills.

ROBBING PETER TO PAY PAUL.

There are evidently two branches of the Publisher family in the United States, the Peter Publishers and the Paul Publishers. The latter, who disseminate **news** are much more numerous and important than the former, who distribute mostly **information.** The Federal Trade Commission, egged on by a resolution of Congress, is endeavoring to make it easier for the Pauls by forcing down the price of news print.

On the other hand, we see put before this same Congress, the proposition to increase the rate of postage on second class mail matter. Such action would affect the Peters more than the Pauls. It is only recently that the Post Office Department has shown anything but a deficit. Perhaps they have the gold fever and are not satisfied with a modest balance and want to get into the money making game and not just serve the public at the least expense. A change has been made in the parcel post system, intended to benefit the public and the mail order house. Why now pick on the publishers of periodicals. Perhaps some of them can afford to pay more postage, but many would be unable to meet the extra expense. Nobody is investigating the cost of their paper. If postage is to be a form of internal revenue, why not tax everyone alike?

FIRE PROTECTION ON UPPER OTTAWA.

The excellent work performed by the St. Maurice and Lower Ottawa Fire Protective Association promises to be duplicated on the Upper Ottawa. The credit for bringing limit holders of the Upper Ottawa into "line" rests with Mr. R. O. Sweezey. He first interested Mr. M. J. O'Brien and inaugerated a system of

fire protection on the latters limits and from this start has gradually extended his field of operations until the whole of the Upper Ottawa promises to join in the worthy movement of lessening fire waste.

The Upper Ottawa region is all Virgin forest and consequently is devoid of roads or operating trails. Telephone communication is somewhat difficult and altogether the situation requires treatment different to that in use use on the St. Maurice.

It is extremely gratifying to know that Mr. Sweezey has worked out a satisfactory scheme of fire protection and that it will shortly be put into use. Our forests are our most priceless heritage and anything done to lessen the danger of their loss by fire is to be commended.

WE HAD TO LAUGH.

The rfidiculous proposition of the Minnesota Editorial Association for establishing a Penetentiary Paper Mill (probably limited) appeals to our sense of humor. Our contemperary, "Paper", makes the matter plain by recalling that most of the print-paper makers would be in jail now if certain Congressmen had their way. "Paper" adds that some publishers might be induced to take up their abode in the peace and seclusion of such a government retreat and so complete the cycle of paper from pulp to public.

A part of this plan is already in operation. Prison papers have been published for sometime, so there must be printers now available. If editors were not sufficiently prompt and eager to enter a field where there would be no competition, a few German socialist editors who have had prison experience might be induced to take up quarters in some of America's free hotels.

We would add to "Paper's" valuable suggestion just this, that the Penetentiary Paper Mill be located out at Fort Leavenworth, first because it is a Federal prison and second, because it is so far away that all supplies, we understand, would have to be brought long distances. Even the water would have to be imported, for a good paper.

GETTING TOGETHER.

The progress of the world is due more to getting together than any other factor or condition. All kinds of associations, clubs, conventions and meetings are bringing men together. If they come in the spirit of mutual helpfulness the result is bound to be for the good of all. This is especially true of scientific meeting, where the gatherers realize the importance and necessity of the exchange of ideas and the discussion of common problems.

So we say—attend the meetings, belong to something. Your little push will often start a good movement.

THE FOREST DOLLAR.

Although the interests of the farm and the forest have been regarded in the past as more or less distinct and hostile, the broader outlook stimulated by the War has brought intelligent Canadians to understand the woodsman and the agriculturist as close partners in the great Canadian estate.

More than sixty per cent of the whole area of Canada is adapted by nature for growing timber or held as permanent barrens and will not produce field crops profitably. On this sixty per cent, no farmer desires an acre. At the same time it ought to be producing revenues for the nation. As much of it as possible should be kept under forest growth, producing wood crops regularly. This is the argument for "forest conservation" in a nutshell. No one asks to be allowed to use agricultural lands for tree growing. And no farmer will object if the country maintains non-agricultural lands in their natural money-making conditions, giving timber harvests year by year.

The Forest Dollar, therefore, is not earned at the expense of agriculture, but is the ally and supporter of agriculture. Canada takes $200,000,000 a year from the forests and a very great part of this amount goes to purchase farm products. Until every destructive forest fire is stopped and every timber-growing area restored to its productive condition, Canada's agricultural interests must suffer the chief loss. Of every hundred dollars that come out of the forest, seventy-five dollars go for wages and supplies. The remaining twenty-five dollars pay interest on the lumbermen's investment and help make up the $7,500,000 taken by the provincial and federal governments each year in taxes.

Canadian Forestry Association, Ottawa.



The Water Powers of the Prairie Provinces

One of the series of five monographs on the Water Powers of Canada published by the Dominion Water Power Branch, especially to further the public interest in connection with the notable Water Power Exhibit of the Dominion Government at the Panama Pacific Exposition, relates to Manitoba, Saskatchewan and Alberta, the Prairie Provinces, and is under the authorship of Percival H. Mitchell, E. E., of Toronto, a well known engineer and one of the consulting engineers to the Water Power Branch.

To adequately review such a pamphlet which even in its rather extensive form has condensed its facts so as to be able to enclude mention of all the water powers of prominence throughout the Prairie Provinces, is almost impossible. The following is reproduced in parts verbatim but the full reading of this and the companion monographs on British Columbia, Ontario, Quebec and the Maritime Provinces, will well repay by the complete information available as to the magnitude of the water powers of Canada.

Within the provinces of the Dominion of Canada and excluding the Northwest Territories, practically all of the Yukon, and the Northern and Eastern portion of Quebec, it is estimated that 17,764,000 horse power is available, this amount being inclusive, in the case of Niagara Falls, Fort Frances and the St. Mary's River at Sault Ste. Marie, of only the development permitted by International treaties, and further does not contemplate the full possibilities of storage for the improvement of capacities. The developed powers which are inclusive of all water powers whether for electrical production, pulp grinders, for milling or for the great many other uses, aggregate 1,711,188 horse power.

The Prairie Provinces are essentially agricultural, Red Fife and Marquis are names to be conjured with in the wheat markets of the world. The deep rich prairie soil is a mine available to hundreds of thousands of farmers whose dividend of golden grain is never failing. The settlement of the great west has been fabulously rapid and the industrial development has far from kept pace with the agricultural requirements; the industrial era has, however, dawned ,and it is to be expected that in the near future the local consuming market will be to a great extent satisfied by local manufacturers.



LAC DU BONNET PLANT SPILLWAY USED TO GENERATE POWER FOR TRANSMISSION TO WINNIPEG 65 MILES DISTANT.

The uses of electric power in an agricultural country are threefold; first, directly applied to the production, operation and marketing of the products and natural resources; second, for manufacturing purposes in the supplying of the market created by the people of such a country; and third, in the community life, the public utilities and transportation.

It is hard to predict the future of electric power under such conditions. The enormous strides of the last twenty years, in reality the period since the establishment of the first commercial electrical transmission system, has developed established loads necessitating in the United States and Canada, alone, the development of water power plants aggregating ten millions of horse power, the last ten years more than doubling the first ten years in the rate of growth. The load curves showing the growth in power requirements from year

to year in each of the large cities of Canada show an increase from very small dimensions of from five to ten years ago to enormous demands, and at a rate of doubling in from one to three years, and with the curve of the load diagram indicating most vigorously similar increases in the years to come. While it is quite apparent that the greatest portion of these loads is consumed in the older districts of the Great West, the population and the quantity of output is, too ,increasing very rapidly, adding a new factor of growth to the swelling power demand, the combined effect of which is readily borne out by the evidence of the respective records.



SPRAY RIVER ABOVE FALLS.

The water powers of Manitoba, Saskatchewan, Alberta, the Northwest Territories and the Yukon are under control of the Dominion Government. The Dominion Government water power policy, as administered by the Water Power Branch of the Department of the Interior, affords every reasonable protection to the public as to rentals, periodic revisions, control of rates, limited grants, etc., and at the same time fosters legitimate private enterprise to return reasonable profits. Regulations are in force ,affording all possible assistance to the development of water powers which have every reasonable assurance of economic realization, and further, before the authorization is given to proceed with development, complete investigations are undertaken to prove the economic features of design, capacities and costs, and eventually supervision is carried out during construction. Proper government

supervision and control of the construction and maintenance of all developments is the only safe method of intelligently initiating construction and maintaining an adequate system of river improvement for power purposes.

In the consideration of the water powers of Manitoba, Saskatchewan and Alberta, two river systems stand out pre-eminently, that of the Winnipeg River in Manitoba and the Bow in Alberta. The rapidly increasing utilization of these rivers for power purposes, the power plants at present contemplated for construction, and the value of the potential water powers not yet awarded, has required the immediate attention of the Dominion Government as to the possibilities in each case, and these demands have resulted in exhaustive investigations. The complete reports in these two instances have been embodied into the "Water Resources Papers" of the Water Power Branch of the Department of the Interior, under the title of "Bow River power and storage Investigations" and "Manitoba Water Powers" respectively.

The Winnipeg River is notably one of the most important power rivers on the Continent, draining as it does an area of some 55,000 square miles into Lake Winnipeg. This great watershed comprises the Rainy Lake and Lake of the Woods and the English River, all inclusive of the immense circular area about 250 miles in diameter, lying immediately north-west of Lake Superior.

The application for the respective power sites on the Winnipeg River are so varied and so conflicting, while at the same time supported by such reputable engineering advice that the Government found it inadvisable to commit itself, with respect to any future developments on the river, until from an exhaustive survey and investigation could be constructed a proper basis of consideration which would determine the maximum possible advantageous utilization of the water power resources. This river study has advanced to the final stages and the full possibilities can only now be fully recognized.

After several years of work by the Government's Engineers, the various power sites have been established; the proper combination of the smaller falls selected to conform to the most economic development, the most feasible scheme of utilization planned, and the general design proceeded with sufficiently to determine constructional costs on a reliable basis, and from these, the yearly cost of power deduced.

The Department is therefore in a position to dictate a policy of power development which will ensure the full and maximum utilization of the river resources.



WINNIPEG RIVER RAPIDS.

While the headwaters of the Winnipeg River lie for the most part in the Province of Ontario, the power possibilities of greater magnitude are included in the Province of Manitoba. Two sites are already developed, the City of Winnipeg having constructed a plant at Point du Bois, the first site on the river within the Province, where 51,500 horse-power of machinery is installed, delivering power 77 miles distant in Winnipeg, and the second plant being that of the Winnipeg Electric Railway on the Pinawa Channel, a short cut across a great elbow of the river which empties into Lac du Bonnet; this plant has 28,200 horse-power of machinery, and the power is also transmitted to Winnipeg a distance of 65 miles.

The investigation and conclusions have been compiled into a report to be issued by the Dominion Water Power Branch as "Water Resources Paper No. 3."

The available undeveloped sites in their order coming down the Winnipeg River after leaving Point du Bois Falls, are Slave Falls, with a possible development of 44,400 horse-power; Upper Seven Sisters, 29,600 H.P.; Lower Seven Sisters, 37,900 H.P.; McArthur Falls, 37,000 H.P.; DuBonnet Falls, 95,500 H.P.; and Pine Falls with 63,100 H.P. The figures of power contemplate the storage and regulation of the river when instead of the natural minimum water flow of 12,000 cubic feet per second, 20,000 cubic feet per second would be available. These sites range from 52 to 74 miles from Winnipeg.

The Bow river rivals the Winnipeg river in immediate importance although its various power sites are smaller in capacity. The sources of the Bow River lie on the Rocky Mountains within an area of 3,138 square miles on the eastern slope. The river falls 2,750 feet

before reaching Kananaskis Falls, 55 miles above Calgary, and from this point to Calgary a drop of 720 feet takes place. Six power sites of large dimensions are available, the Kananaskis Falls and Horse Shoe Falls, the highest of the series being now developed by the Calgary Power Company which in these two plants has a generating capacity of over 30,000 horse-power which is transmitted to Calgary and to the cement mills at Exshaw.

of the South Saskatchewan has one economical site capable of over 10,000 horse-power capacity and located but 33 miles from Calgary.

In the neighborhood of Lake Winnipeg are several valuable sites, these are the Fairford, Dauphin and Waterhen, in the Lake Manitoba and Lake Winnipegosis headwaters; those at Minnedosa and Brandon on the Little Saskatchewan and at Currie's Landing on the Assiniboine near Brandon. The rivers on the



MINNEWANKA DAM, NEAR BANFF, ALBERTA.

Four sites are available for economic development on the Bow. These are the Bow Fort site, for which a head of 66 feet operating three 4,400 horse-power units is considered the best development by the Dominion Water Power Branch engineers; the Mission, to utilize a head of 47 feet on three units of 3,500 horse-power; the Ghost site, also with three units of 3,500 horse-power, on 50 foot head; and the Radnor site with three 3,500 horse-power units at 44 feet head. All these four sites are located between the Horseshoe Falls and Calgary and are within short transmission distance of Calgary.

Further dealt with in considering the water powers of the Prairie Provinces are the North and South Saskatchewan Rivers which traverse the prairies and while not having many favorable sites include the La Colle Falls at Prince Albert and the Grand Rapids below the junction of the two rivers.

The Elbow River, one of the mountain headwaters East shore of the Lake are all under study from the power standpoint.

The Nelson River is fabulously rich in water power and from the list of possible sites enumerated the aggregate for the minimum unregulated flow is over two and one-half million horse-power while with the extensive regulation proposed for the headwater rivers this would be much increased. The Churchill, lying even more northward than the Nelson, and flowing into Hudson Bay, promises many sites which the future will probably find playing an important role in Canadian industry.

The Athabaska, in Alberta, rises in the mountains and has occasional power sites all of which require more or less expensive developments.

The Peace River flowing through the 45,000,000 acres of arable land just recently made accessible for settlement, will no doubt rise to the demands for the electric



WINNIPEG ELECTRIC RAILWAY POWER HOUSE.

power necessary in the many communities and industries bound to develop.

The Slave River drains Lake Athabaska into the Great Slave Lake and as there are some 16 miles of rapids in one stretch its investigations will no doubt reveal an excellent power site.

The Mackenzie River flowing from the Great Slave Lake to the Arctic is not as yet investigated from the power standpoint.

The future of water power in the West requires no questioning as to its ultimate complete development. The new uses of electricity, bound to be evolved from time to time and quickly to be absorbed into the routine requirements of ordinary life, combined with the present rapidly growing power loads, will, within the period of one or two generations hence, demand the utilization of practically all of the available water powers of the country.

In conclusion Mr. Mitchell states that it is not out of the way to predict that the Prairie Provinces will be served with transmission lines joining the Eastern, Northern and Western powers, augmented by steam driven plants at the coal mines and serving the transcontinental railways, the municipalities, the rural population, electro-chemical works, electro-metallurgical works and wide spread industries, and that the power necessities even with the millions of horse-power now available in the rivers, in the near future will demand the greatest of conservation, regulation and efficiency of development at all these respective sites.

PULP LANDS BETTER THAN WHEAT.

In a recent interview Sir William Mackenzie, President Canadian Northern Railway stated, that he looked forward with the greatest confidence to future traffic on his road through Northern Ontario, especially that furnished by pulp forests.

"One of Canadian Northern's greatest assets in the East is the vast pulpwood tract of Northern Ontario, where there are 20,000,000 acres of arable land unoccupied. The problem is how to get settlers. This area is north of the great mining camps of Ontario, and abounds in waterfalls.

We consider one acre of good pulpwood country better in future traffic possibilities than several acres of good wheat land. There is abundance of pulpwood scattered all over our territory and no end of water power."

CHECKING WASTE OF PAPER.

A novel means of checking waste by clerks who have the handling of Government paper was adopted recently at the Victorian military headquarters. Acting on instructions, the caretaker of the building went round the various departments one evening and collected all the loose sheets of paper found lying about the floors. These were put into bags which were labelled with the name of the particular department from which the paper had been taken. The following day the commandant convened a conference of all the heads of departments and introduced the officials to the row of bags, which bulged with the loose papers taken from their departments, and which had been thrown aside as useless. It was a convincing lesson of the need for economy. There has since been a striking reduction in the number of requisitions to the storekeeper for fresh stocks of writing paper.

Forestry Facts

The thirty-seventh annual meeting of the American Forestry Association will be held at Washington, D.C., on Thursday and Friday, January 18th and 19th, 1917.

* * *

During the past thirty-five years thirty per cent of the wood pulp of Canada has been burned over and rendered useless for generations to come.

* * *

Canada's total stand of timber is between 500,000,000,000 and 600,900,000,000 feet, and the cut in any one year has never exceeded 5,000,000,000 feet, so that the supply might be considered inexhaustible or at least reproducible, by merely keeping fire out of the forests.

* * *

A strip of almost solid forest, approximately fifty-five miles long and from two to eight miles wide, has been covered by topographers of the Pennsylvania Forest Service in the most accurate survey of Pennsylvania's forests ever made. The purpose of the surveys is to secure data on which to base plans for the future development of the State Forests.

* * *

Almost eight million trees will be available for next spring's reforesting operations from the stock now in the Pennsylvania State Forest nurseries. This is an increase in production over last year of about thirty per cent, and is the largest number of seedlings ever grown in the nurseries. Last year private individuals planted 1,500,000 trees furnished by the Department.

* * *

At the recent election the people of New York State voted to tax themselves $10,000,000 for the purchase of forest preserves. The fact that this was not done by act of legislature, but by a referendum shows how popular the idea of state forests has become with the people at large. The forest preserves of New York are not only of great economic importance for the preservation of the war supply and of local industries, but serve as an immense park which is visited annually by millions of people. Of the total amount voted, $7,500,000 will be available for further purchases in the Adirondacks and Catskills where the State owns already 1,714,550 acres of forests and lakes, and $2,500,000 for the Highlands of the Hudson Preserve.

LIGHTNING FAVORS CHESTNUT.

Lightning shows a marked preference for chestnut trees, according to data based on reports submitted to the United States Department of Forestry by its foresters. Of a total of about 2,000 trees struck by lightning on the State Forests in the past four years 655 were chestnut. Pitch pine comes next with 327 trees struck and then follow in order rock oak, white pine, hemlock, red oak, white oak, black oak, locust, and sugar maple. Black birch is at the foot of the list with only one tree struck in four years. Poplar and walnut come next, only two of each being struck.

William Reid of St. John, N. B., Eastern Representative of Beveridge Paper Co., Ltd., spent the first week of the year in Montreal, arranging for future business with the head office, and visiting many of his old friends in the city.

War-Time Uses of Forest Products

By A. W. SCHORGER

Chemist in Forest Products, Forest Products Laboratory, Madison, Wisconsin

One of the mysteries of the present war is the source from which Germany obtains the nitrocellulose necessary in the manufacture of smokeless powder and ordinarily made from cotton. A well-defined belief exists in England that at least part of the nitrocellulose needed by German powder factories is being made from wood; and if this is true it furnishes another instance of the surprising dependence upon wood, in one form or another, on the part of the fighting nations. The actual extent to which forest products are put to use in time of war, both for military purposes and for supplying the nation with some of the things it needs to carry on its daily life, is not generally recognized. Conditions, of course, have changed vastly since the day when Pepys offered up thanks in his diary for "the very good news of four New England ships come home safe to Falmouth with masts for the King; which is a blessing mighty unexpected, and without which we must have failed the next year. But God be praised for this much good fortune, and send us the continuance of His favor in other things."

Wood has ceased to be a large factor in ship building. Sea battles of to-day are fought by all-steel dreadnoughts; even the wooden backing of the armor plate is giving way to other materials. Wooden decks alone remain to link the old fighting ship with the new. But warfare on land has developed in a way to give timber an importance in field operations it never had before, while the vast number of accessories needed for the smooth runnning of the modern fighting machine, from ammunition to absorbent cotton, have led to an extraordinary demand for certain forest products, and have even brought about new uses for wood born of necessity and unheard of a few years ago.

For one thing, there is the matter of explosives. Ordinary black powders contain 75 parts saltpeter, 10 parts sulphur, and 15 parts charcoal. The charcoal employed must possess special properties, and is made largely from dogwood, willow and alder. In spite of the advent of smokeless powders, enormous quantities of black powder are still used. It is employed in shrapnel, for which only a moderately powerful explosive is required to drive the bullets. Besides, the smoke produced when the shell explodes is an actual advantage in enabling the gunners to determine the correct range. Black powder is also used to fill the rings of the time fuses with which shrapnel shells are equipped, for which purpose no satisfactory substitute has yet been found. Furthermore, it is used in most armor-piercing shells, which should attain great penetration before they go off, and for which the majority of high explosives would be unsuitable because of their explosiveness on contact. Another product of the forests, resin, is employed for filling the spaces between bullets in shrapnel, so that on explosion the missiles will be evenly distributed in all directions. Its brittleness and, at the same time, its hardness, together with its low melting point, fit it admirably for the purpose.

The period since the beginning of the war has witnessed a great amount of discussion in England as to whether Germany is actually employing wood from which to make the nitrocellulose for her smokeless explosives. When, after a long delay, England declared cotton contraband of war, it was maintained by many that this would not inconvenience Germany greatly, since she was already making explosives from wood cellulose. During the discussions that followed, it was proposed to destroy the forests of Germany by a giant fleet of aeroplanes armed with bombs; however, as one English editor naïvely remarks: "This would scarcely be feasible, since about one-third of Germany is forested."

As a matter of fact, little or no reliable information exists in regard to Germany's use of wood for introcellulose, and expert opinion in England differs widely about the matter. Sir William Ramsey believes that such explosives are being made, and Mr. Walter F. Reid, who introduced the important gelatinization process in the manufacture of smokeless powder, is emphatic that a nitrocellulose can be made from wood pulp that is equal in every respect to that made from cotton. On the other hand, Mr. Clayton Beadle, whose opinion is entitled to great respect, holds that the difficulties attending proper purification of the wood cellulose previous to nitrification are all but insurmountable.

However, this may be, records published by German scientists before the war show that a high explosive can be manufactured from wood cellulose, though at that time its stability was questionable. While it required forty years of experiment to render gun cotton stable, anything like the same time might not be necessary in the case of wood cellulose, for the experience with gun cotton should facilitate solution of the present problem. It is highly probable that the chemical difficulties have already been overcome.

In this connection, it is an interesting fact that the first successful smokeless powder was made from wood about 1865. This powder, invented by Schultze, consists of a mixture of saltpeter and nitrated purified wood. While inferior to gun cotton in ballistic powder, it still retains high favor among sportsmen. Various other explosives, known as "white powder," "yellow shooting powder," and "Bautzen blasting powder," contain nitrated lignocellulose.

Aside from munitions, wood is serving many useful purposes in the war. Millions of gunstocks are made from American walnut, which is the best wood yet found for the part. A new rifle, it has been estimated, is required monthly for every man at the front. In the modern infantry weapon the wooden stock is prolonged to the end of the barrel, which means just so much more wood needed in its manufacture. So great, in fact, has been the demand by gun makers for seasoned walnut that it has often been necessary to use birch and other woods as substitute.s

With characteristic foresight, the Germans brought portable sawmills with them into France, and have

utilized their enemy's forests to supply their need for timber at the front, while reserving their own forests for home demand. The development of trench warfare, when vast armies of men dig themselves in on fronts hundreds of miles long, calls for an amount of timber for trench walls, floors, and braces that is difficult to estimate. Millions of feet of lumber are required also for temporary buildings behind the fighting line and for housing non-combatants made homeless by the fortunes of war. Still more goes into bridges, wharves, and the like. High explosives have made it possible for a retreating army to destroy stone and steel structures behind them in short order, and such structures the pursuing army must have the means of quickly replacing. Wood is, in most cases, the only material that will answer the purpose, and it served the German army in good stead during the pursuit of the Russian army through Poland.

Turning from the materials needed for actual fighting to the no less important ones required for proper care of the wounded, we find Germany, fully prepared for England's embargo, making a soft, absorbent surgical cotton from wood cellulose. Two factories in Sweden also are making this substitute. Slings are made from tough crepe paper, and splints from fiber boards.

Wood is also contributing to the personal comfort of the men at the front. Russian soldiers are wearing paper shirts made in Japan, where such clothing has been in use for many years. The chief raw material for the manufacture of paper is, of course, wood pulp. Paper clothing is warm and cheap, and special waterproofing processes are overcoming its tendency to tear when wet. It may be discarded when soiled, an advantage to the soldier from the standpoint of hygiene. The Germans and Austrians, mainly the poorer classes of the civilian population, use paper vests, socks, and handkerchiefs. Blankets and coats are padded with cellulose wadding. So many paper articles, in fact, are produced for the comfort of the people of Germany and Austria as to lead the Socialist organ, Vorwaerts, to declare, "To be without wood is almost as bad as being without bread."

To insure the presence of every factor that tends to eventual success, a country at war needs to maintain its economic conditions as nearly as possible at their normal level. Products of the forest play an important part in many peaceful industries which must be kept going in war time.

Methyl alcohol, the other product besides acetic acid obtained from the destructive distillation of hardwoods, has a multitude of uses. For one thing, it is essential in the manufacture of many medical preparations. For another, it is employed in the making of aniline dyes, the scarcity of which is being felt throughout the world. It is the source, also, of formaldehyde, one of the safest and most efficient antiseptics known, for the manufacture of which large quantities of wood alcohol are exported to Europe.

The longleaf pine forests of the South furnish 90 per cent of the world's supply of turpentine and resin. In normal times turpentine is used mainly as a solvent in the arts. It is entirely possible, however, should the need arise, to make from turpentine a synthetic camphor as good for practical purposes as the natural product. In the event of the blockade of the Pacific Coast, this should be the means of preserving our celluloid industry, which now consumes the greater part of the 5,000,000 pounds of Japanese camphor imported annually.

Resin, the use of which is shrapnel has already been mentioned, is employed mainly in the manufacture of cheap soaps and as a size for paper. So acute has become the scarcity of resin in Germany that the Prussian Minister of Agriculture has suggested such measures for increasing the supply within the empire as distilling resinous wood and collecting the oleoresin which exudes from trees peeled by deer. Prices being paid for resin by the Central Powers are almost fabulous. Curiously enough, a substitute for paper size, recently proposed by a German scientist, has wood tar as its base.

In connection with the use of resin for paper should be mentioned the fact that in time of war the demand on the forests for print papers deserves serious consideration. Of the 6,000 newspapers and periodicals in Germany and the 3,000 in Austria at the beginning of the war, it is estimated that some 1,100 of the German and 900 of the Austrian have since suspended publication either through inability to obtain paper or because of its prohibitive price. Germany has always imported large quantities of pulp wood from Sweden and Russia, so that cessation of importation of Russian pulp wood and American resin is a partial cause of the trouble. On the other hand, German war literature has been augmented by the 7,000 books and pamphlets since beginning of hostilities; and it is the invariable rule in all countries that the demand for newspapers and periodicals of all kinds increases enormously in a time of national crisis. The total daily circulation of French newspapers before the war, for example, amounted to approximately 7,000,000 copies. Their circulation has now increased to 15,000,000 daily, in spite of the suspension of a number of journals. The bulk of print papers is made from spruce and balsam fir. Experiments at the Madison Laboratory of the Forest Service have shown, however, that satisfactory newsprint paper can be made from some seven or eight other American woods, which places the United States in a position of preparedness, at least so far as the production of paper is concerned.

The binder twine, used everywhere in the United States in connection with harvesting our crops, is at present made from sisal imported from Central America and Mexico. As a result of the disturbed conditions in Mexico, American twine manufacturers are seriously embarrassed for raw material. A substitute has been sought in paper twine, and experiments in this direction are still under way.

Strong cordage, ropes, burlap, and similar articles can be made from paper, and, in fact, are being made from it. Our common burlap and course bags are ordinarily made from imported jute. Shortly after war was declared the price of burlap bags increased so greatly that one large grain dealer seriously considered taking the profit to be derived from the sale of his reserve stock of bags and going out of business. In the case of a war of our own, the United States should be in a position, through its enormous supplies of wood fiber, to meet all, or at least the great part of, its needs for the twine necessary to harvest its crops and for substitutes for burlap bags and hemp ropes.

The American public, perhaps unawares, has long been accustomed to articles of clothing made from wood under these terms "fiber silk" and "artificial silk." The viscose process transforms wod pulp into

a strong, durable, lustrous thread that may be woven into any desired fabric; accordingly, the morning newspaper and handsome cravat may have a common origin.

Finally, should the South ever be invaded and its cotton crops seized, a happening which military and naval authorities regard as not at all unlikely in case of war with a strong power, the cellulose from our forests would have to serve us, not alone for explosives, but for textiles as well. Thus, in more way than in the production of lumber, the forest may serve a nation called upon to meet the conditions of modern warfare, and for that matter, too, of commercial progress in times of peace. Nor is it beyond the bounds of possibility that the investigations and experiments which are being carried on at the Government's Forest Products Laboratory and elsewhere may find still other uses for wood that will add just so much more to the importance of the forest in our national life.

—American Forestry.

HOW BRITAIN DEALS WITH HIGH PAPER PRICES.

Part of the recent regulation with respect to the imports into Britain of paper products is as follows:

"No further reduction is at present being made in the weight of paper-making materials for which licenses are being issued. Buyers of paper who are entitled under the regulations of the Commission to supplies of British-made paper on the basis of their 1914 purchases will still be entitled to their two-thirds supply as heretofore, but buyers who are entitled to supplies of imported paper will now be able to have only one-half of their purchases in 1914, so far as the period November, 1916, to February, 1917, is concerned. If they have already had more than their proportionate supply their rights will be adjusted in the same way as licenses will be under the preceding regulation.

"It is hoped that makers of and dealers in paper will not increase the price of paper here in consequence of the reduction of the supply of foreign paper. Should, however, complaint be made and established that prices have been unreasonably advanced, the Commission may at once reduce or stop the supplies of the offender.

"For the purposes of the regulations the word 'paper' includes all kinds of paper and cardboard, including strawboard, pasteboard, and mill pulp board, and manufacturers of paper and cardboard, such as printed forms, paper for writing with printed headings, calendars, showcards, poster, label, color and lithographic printing other than in book form, and catalogues and price lists printed for persons in the United Kingdom, and all periodical publications exceeding sixteen pages in length imported otherwise than in single copies through the post."

DUNDEE JUTE MILLS SOLD UP.

The British government has just placed orders which will mean the appropriation of fully one-half the Dundee jute cloth production. This is the largest demand that has been made on the jute industry during the war. It engages the works extensively until the end of April. The Government itself supplies its raw material. Supplies of jute goods now available for general trade are not large.

Richard J. Balston, maker of Whatman Papers is dead

We regret to announce the death, which occurred at Springfield, Maidstone, on the 7th inst., after a short illness, of Mr. Richard James Balston, J.P., D.L., in his 78th year. Deceased was the head of the well-known firm of Messrs. W. and R. Balston, Ltd., Springfield Mills, Maidstone, makers of the famous J. Whatman's papers.

J. Whatman started papermaking at Maidstone in the year 1731, and his protege was Mr. William Balston, whose knowledge of papermaking was acquired at Turkey Mill. Starting business on his own account, Mr. William Balston built the Springfield Mill on the Medway, and thus founded the great firm of W. and R. Balston, Ltd., as it is known to-day. The mill commenced operations in January, 1807, with ten vats, and with the right conceded by James Whatman of using his name as a watermark. Mr. William Balston died in 1849, after successfully working the mill for 42 years, and the business passed into the hands of his two eldest sons—William, born in 1807, and Richard Ellis-ton Phillips Balston, born in 1808, both of whom had been trained in the art of papermaking. Trading under the name of W. and R. Balston, the firm in 1859 acquired the sole right to manufacture the celebrated "Turkey Mill" papers, and the use of "Turkey Mill" as a watermark, Messrs. Hollingworth, of Turkey Mill, at that period giving up vats for the production of machine-made paper. In November, 1862, the mill was destroyed by fire, but was speedily rebuilt and improvements and developments since that date have been consistently carried out. Mr. William Balston died in 1882 and Mr. Richard E. P. Balston in 1888.

Mr. R. J. Balston, the eldest son of the late Mr. R. E. P. Balston, then became head of the firm, with which he had already been connected for 32 years, entering the business after being educated at Eton, at the age of 17. The centenary of the firm was celebrated in 1907, and by that time the active direction of the mill had passed into the hands of deceased's sons — Messrs. Charles, Frank and Maurice Balston. As the two former are on active service, the mill for the time being is in charge of Mr. Maurice Balston. One of the latest specialities of production is filter papers, which have achieved a reputation in this country and have successfully supplanted the German product in markets abroad.—World's Paper Trade Review.

NEW BRUNSWICK'S LUMBER OUTPUT.

New Brunswick's lumber production for the calendar year 1915, according to a report made by the Forestry Branch of the Dominion Department of the Interior, amounted to 633,518,000 feet, board measure, compared with 414,808,000 in 1914. These figures were obtained from 240 active mills.

In the production of spruce, balsam, fir, white pine, and many of the minor classes of lumber in New Brunswick, the returns show a considerable increase in 1915 over 1914. In the quantity of hemlock sawn there was a notable decrease, while in 1915 it composed only 2.4 per cent. The total value of the 1915 production is given as $9,902,202.

After-War Possibilities

Such considerations, based as they are upon a time of war, would have little permanent use either for French Importers or British shippers if it were likely that after the conflict Anglo-French and Anglo-German commerce were to revert to the status quo ante bellum. But the Paris Economic Conference and the subsequent trend of public opinion in France, as well as in England, make it tolerably certain that enemy trade will never be tolerated in the future as it was in the past, if it be tolerated at all. It is quite within the bounds of probability, therefore, that after the war France will for a long time to come refuse to resume commercial relations with Germany, from whom in 1913 she purchased goods to the value of £42,970,000; from Austria-Hungary, whose supplies to France in that year amounted to £4,080,000; and from Turkey, which contributed merchandise to the Republic to £3,567,480. But it is obvious that the realization of a complete severance of commercial relations from Teutonic countries rests upon the possibility of finding other sources of supply for nearly £50,000,000 worth of goods annually. The United States might fill the gap, but French sentiment, which means much in commerce, and the influence of the entente cordiale, point to a distinct and lasting preference for British goods, and it will not be the fault of French merchants and importing houses if the bulk of that £50,000,000 is not obtained from Great Britain, providing its industrialists meet them in the right spirit.

A Market to be Well Studied.

The totals already given of Anglo-French trade even in normal times, and therefore quite apart from the peculiar demands which war makes upon commerce, indicate how keen are our own manufacturers and shippers to the great variety of trading opportunities in the valuable market of our ally. A glance down the long list recently issued by the British Chamber of Commerce in Paris of English firms already represented by agents in France is to realize how fully every branch of British trade is well to the fore in this, one of the most remarkably comprehensive markets in regard to range of requirements in the world. Such firms need no fresh urging; they will take, and are doubtless now taking, the best possible advantage of the present situation. But we regret to say there are many others who do not yet fully appreciate it. It is, indeed, to be feared that the geographical proximity of our ally is apt to deaden the sense of enterprise on the part of numerous British exporters. To attempt the introduction of new lines to a distant and comparatively unknown market awakens a due regard for the importance of understanding the prevalent business conditions, for ascertaining what classes of goods are really required even to the smallest details, and of paying attention to all the accessories to export procedure. When, however, an adjacent market like France is in question, such matters are too often taken for granted, the necessity of grasping details is ignored, and the attitude adopted may be summed up in the prevalent idea that 'what is suitable for England must be suitable for France. Such a conclusion is, of course, fallacious in the extreme. Packing, trade marks, tare regulations, weights and measures, customs duties, certificates of 'origin, travellers' samples, and a score of other matters require as much sympathetic and careful attention and assimilation in regard to the French market as any other in the world. It is only by realizing this, and acting upon the realization, that any successful and permanent business can be transacted by British manufacturers and merchants with our French friends.

Preparing for the Future.

Big operations of a permanent character are, of course, out of the question at the present time. Industrial and commercial activities must be directed in the main to the strenuous upholding of the Allied cause against an enemy who, if showing some signs of exhaustion, is still strong and vigorous. But the future can be prepared for; the unprecedented opportunities for cementing intimate relations with the market, for acquiring a personal grip of its needs, and for getting into closer touch with its importers can be seized. Hundreds of young men of business capacity, drawn from the offices of manufacturers and shippers, are now in France, picking up a first-hand knowledge of its customs, forming ideas as to what classes of British goods would suit the market or as to how they could be adapted to suit it; picking up, too, a wider knowledge of the language such as they would never have acquired in England. Beyond that, they are making themselves 'personoe gratoe with Frenchmen of all classes, by whom the British character is now estimated at its true worth. Shall the opportunity for organizing such a personnel in the interests of Anglo-French commerce be missed? Rather let the entente cordiale, sealed by the co-mingling of precious English and French blood in the common cause of an outraged humanity defending civilization from a despotic militarism, find fullest expression in an entente commerciale, not merely between the respective Governments, but in an increasing realization of the trade possibilities by merchants and manufacturers in both countries.

WAUSAU SULPHATE FIBRE CO.

At the annual meeting of the stockholders of the Wausau Sulphate Fibre Company, of Mosinee, Wisconsin, held on January 8, the following Board of Directors was unanimously elected:

O. Bache-Wiig, Neal Brown, Louis Dessert, M. C. Ewing, G. D. Jones, A. L. Kreutzer, Karl Mathie, B. F. McMillan, and F. P. Stone.

Immediately after the meeting of Stockholders the Board elect met for organization, elected Karl Mathie Chairman of the Board and the following officers of the Company for the ensuing year:

F. P. Stone, president; O. Bache-Wiig, vice-president and general manager; Louis Dessert, vice-president; Neal Brown, secretary; B. F. McMillan, treasurer; and J. P. Sill, assistant secretary-treasurer.

NEW PATENTS

SECURING MEANS FOR THE OUTER ENDS OF PULP ROLLS.

Canadian Patent number 173,315, dated Nov. 21, 1916.

This invention has for its object to provide means whereby the free or outer end of a roll of pulp or other sheet material may be securely held during transportation to prevent the roll from unwinding.

Another object is the provision of a roll having tongues cut out from the portion adjacent the end of the roll and adopted to engage in slots formed in the folded terminal of the roll, whereby the outer end is held in position.

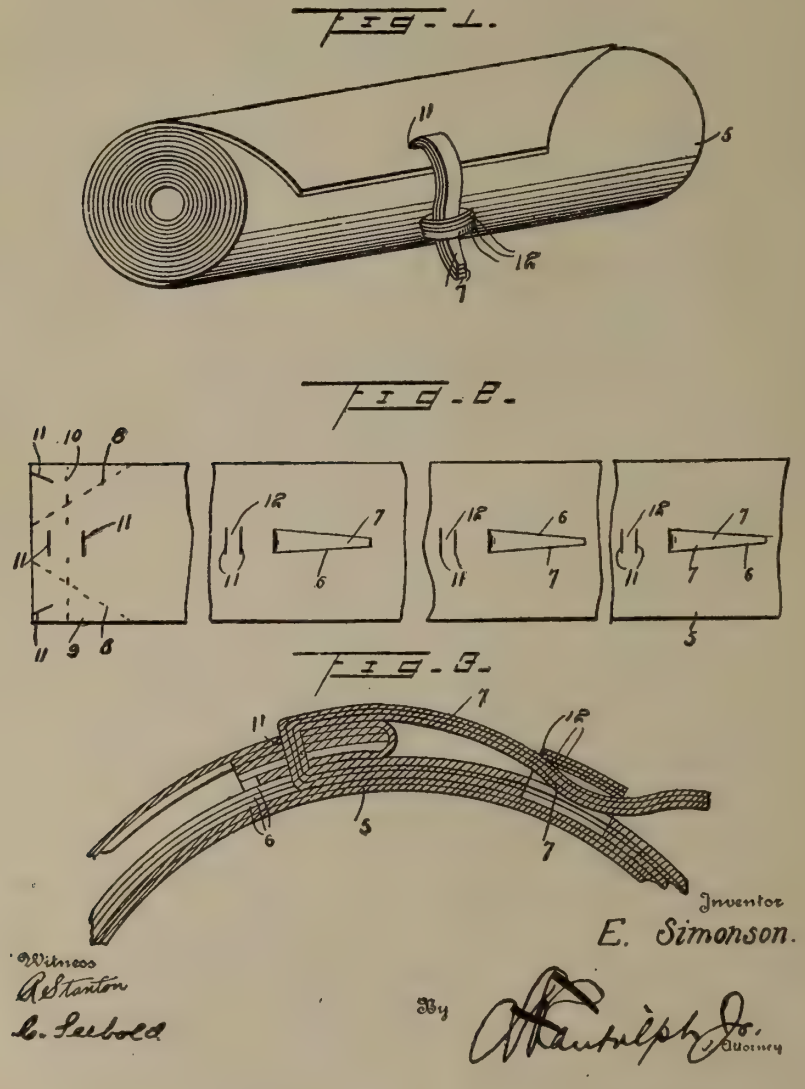
With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts as will be hereinafter specifically described, claimed and illustrated in the accompanying drawing, in which:

Figure 1 represents a perspective view of a roll of pulp, illustrating the manner of securing the free end thereof in position.

Figure 2 represents a fragmentary plan view of the end of the sheet of pulp, illustrating the manner of cutting and folding.

Figure 3 represents a fragmentary transverse sectional view through the roll, illustrating the securing means in detail.

Referring to the drawing in detail, wherein similar reference numerals designate corresponding parts throughout the several views, the numeral 5 indicates



a strip of pulp or other sheet material, which is put up in rolls, as shown in Figure 1, for convenience in transportation. In order to secure the free or outer end of the roll in position and prevent the roll from unwinding I form at points adjacent the end of the sheet a series of substantially U-shaped slits 6, providing inwardly directed and longitudinally extending tongues 7, which are preferably tapered from their inner to outer ends for convenience in inserting them in the

slits in the extreme end of the sheet, as will hereinafter appear.

The extreme end of the strip or sheet of pulp or other material is folded in diagonal lines represented by the broken lines 8 in Figure 2, whereby the extreme end of the strip is tapered, as clearly shown in Figure 1. The triangular sections 9 provided by bending the strip inwardly on the lines 8 and the extreme end of the strip 5 lying intermediate the lines of fold 8 are turned back on a transverse line 10 and are formed with lined slits 11 through which the tongues 7 are inserted.

Several of the convolutions or layers of the roll are formed with parallel slits 11, providing securing straps or loops 12, through which the free outer terminals of the tongues 7 are positioned in order to prevent accidental withdrawal of the tongues through the slits 11.

From the foregoing it is clearly evident that by fastening the end of a roll of wood pulp or other sheet material in the manner herein described, the roll is reliably held against loosening or unwinding and may be conveniently transported from one point to another. It is further evident that the material used for fastening the roll is supplied exclusively by the roll itself, thereby eliminating the necessity of attaching separate fastening devices to the roll, or tying the roll with cord or other material, which method has been heretofore employed.

What I claim is:

1. A roll of sheet material having one end formed with a slit, and a tongue struck out from said roll adjacent the outlet and positioned through said slit.

2. A roll of sheet material having one end folded back and formed with slits, and a tongue struck out from said roll adjacent the outer end and positioned through said slits.

3. A roll of sheet material having a slit in the outer end thereof, and a tapered tongue cut out from said material adjacent the outer end and positioned through said slit to secure the outer end in position.

4. A roll of sheet material having the outer end folded back upon itself and formed with alined slits, and a plurality of overlying tongues cut out from the roll at a point adjacent the outer end and positioned through said slits.

5. A roll of sheet material having one end folded on diagonal and transverse lines, and slits formed in the folded end, and a plurality of tongues cut out from the material and positioned through said slits.

6. A roll of sheet material having a slit in the outer end thereof and parallel slits adjacent the end providing a securing strap, and tongues struck out from said material and positioned through the slits in the outer end of the material and through said straps.

JAPAN SENDING PAPER PULP ACROSS THE PACIFIC.

Attention is directed to the development of the manufacture of paper pulp in Hokkaido and Karafuto by the report that Japan is becoming a pulp exporter to America and India. Since the outbreak of the war in Europe the manufacture of paper pulp has been well maintained, as all the circumstances are in favor of its development. Dense forests in Hokkaido and Karafuto supply excellent material, while coal and sulphur are cheap. Japan, indeed, is more favorably situated than Scandinavian countries in these respects.—Japan Times.

SIR EDWARD PARTINGTON, J.P. 80TH BIRTHDAY

As a pioneer of the wood pulp industry, an inventor of great repute, and a papermaker of high prestige the name of Sir Edward Partington, J.P., is widely known, esteemed and honoured in all the principal pulp and papermaking countries. It was a pleasing and gratifying act on the part of the staff and employees of Messrs. Olive and Partington, Ltd., to mark Sir Edward's 80th birthday by presenting him with an illuminated album. The text of the address testifies to the great powers of organization possessed by Sir Edward, and no better monument to his industry could be mentioned than the strong and unparalleled success of the Kellner-Partington Paper Pulp Co., Ltd., All sections of the British paper industry will voice with hearty accord that "Sir Edward and Lady Partington might be blessed with health and happiness to the end of their days."

Sir Edward Partington's name is a well known name in Canadian industry. The Edward Partington Pulp and Paper Co. at St. John, N. B., made the only bleached sulphite pulp produced in Canada till less than two months ago. The mill was recently sold to American interests and is now known as the Nashwaak Pulp and Paper Company.

KALBFLEISCH COMPANY'S OFFICIALS.

The Annual Meeting of the Stockholders of the Franklin H. Kalbfleisch Co. was held at 31 Union Square West, New York, on the 10th inst. The following Directors were elected for the ensuing year:

Franklin H. Kalbfleisch,
Robert S. Perry,
Alfred B. Savage,
Richard Sheldrick,
Harry L. Derby.

After the Stockholder's Meeting there was a meeting of the Directors of the Company, and the following officers were elected:

Franklin H. Kalbfleisch, Chairman,
Robert S. Perry, President,
Alfred B. Savage, Vice President-Treasurer,
Richard Shedrick, Secretary.

Mr. A. M. Huestis, 103 Mail Bldg. Toronto, Canada, is the Canadian Representative of the Franklin H. Kalbfleisch Co.

TIME TO MOVE.

"It is noteworthy that Wisconsin, Minnesota, Maine, and New Brunswick have taken comprehensive measures to prevent further disasters by organizing their forest patrol systems on modern lines, building trails, lookout towers, telephones, etc., as well as carefully supervising settlers' clearing fires, one of the worst sources of danger. Ontario, which has given the continent its two most recent fire catastrophes, has made no such move to modernize her forest-guarding system."—Toronto Star.

SAVING PAPER.

An efficient paper inspector, one who has had a paper mill training and knows what he is about, can also save the publisher's money by effecting economies in wraping papers as well as in news print. One of these paper experts recently declared:

"Any newspaper publisher whose paper bills run to $100,000 a year can save a lot of money by employing a paper inspector."

PULP AND PAPER NEWS

Alex Buntin of Buntin, Reid Co., wholesale paper dealers, Toronto who has been spending several weeks with his wife and family at Atlantic City, has returned home.

W. J. Gage of W. J. Gage and Co., Toronto, and the Kinleith Paper Mills, St. Catharines, Ont., has donated the sum of one hundred thousand dollars to provide comfortable homes at a nominal rental for the widows and children and other dependents of Canadian soldiers, who fall serving their country. The gift, which will form the neucleus of the new Grafton Homes Corporation, will be used to erect an apartment house with accommodation for fifty families. The generous benefaction of Mr. Gage is one that is greatly appreciated.

W. J. Thompson, M. P. P., for East Peterboro, who is the president and manager of the Monteith Pulp and Timber Co., met with a painful accident recently. He attempted to flag a train at Monteith, and the speeding express struck his hand and hurled him against the side of a coach. He had mistaken the north National Express for No. 47 which he wished to catch and hence his hurry. Mr. Thompson was taken to the Iroquois Falls hospital and this week was removed to a hospital in Toronto. Half of his left hand was amputated and his left elbow and right knee were badly bruised. No bones were broken and it is expected that he will recover in a few weeks. E. R. Heyland, of Toronto, secretary of the company is looking after the duties of Mr. Thompson during his confinement. The firm operate a large pulp wood rossing plant at Monteith as well as a saw mill.

It has been rumored for some time that M. J. O'Brien, of Renfrew, the widely known railway contractor, intended erecting a ground wood mill at Arnprior. Mr. O'Brien stated this week that there was absolutely no truth in the report.

A. G. Pounsford, of Toronto, General Manager of the Port Arthur Pulp and Paper Company, Limited, is spending a few days in Port Arthur making preliminary arrangements for the commencement of work of construction early in March on the new sulphite plant of the company.

Joseph Kilgour, Toronto, President of the Canada Paper Co., and wife, have left for the southern states where they will spend the remainder of the winter.

J. O. McArthur, the widely known lumberman and railway contractor, who is behind the new paper mill which will be erected at Winnipeg, Man., is preparing to go ahead with the project Tenders are now being called for the construction of the mill which will have an initial capacity of about seventy-five tons a day and will produce both news and wrapping papers. Timber along the Red River will be utilized. There are also great quantities of suitable wood in Northern Manitoba which can be brought to Winnipeg largely by water, while the conversion of waste paper into wrapping paper will also be undertaken. Mr. McArthur has carried out successfully many large undertakings and in the paper mill line there is no reason to doubt that he will meet with the same measure of success.

At the recent municipal elections in Dryden, Ont., J. B. Beveridge, General Manager of the Dryden Timber and Power Co., Limited, was re-elected a member of the town council. He has always taken a deep interest in the progress and welfare of Dryden.

BUSINESS PROMOTION FOR G. J. SHEPPARD.

At a meeting of the Directors of the Canadian Pneumatic Tool Company, Limited, recently held in New York, Mr. George J. Sheppard, who has been connected with the concern as Manager for a number of years, was elected vice-president of the Company. The honor being conferred on him by the Board of Directors in appreciation of his efforts in making the Canadian subsidiary concern of the Chicago Pneumatic Tool Co. a success under his business management. He still retains his position as the Canadian Manager, Mr. W. O. Duntley being the President and Mr. W. B. Seelig, Secretary-Treasurer. The parent Company is recognized throughout this continent as being one of the best business organizations, with a very large capital. Through Mr. Duntley's Presidency it has so largely grown that it has earned a world-wide reputation, now operating eight large manufacturing plants, with branch offices and agencies throughout the world.

It is the intention of the Directors to erect an up-to-date factory in Canada with the view to coping with future trade conditions.

AUSTRALIAN NOTES.

The newspaper men of Australasia have been meeting in conference in Sydney and have carried some resolutions having an interesting bearing on the paper-making industry, affecting both manufacturers and consumers. The over-ruling idea is to "further consolidate the Empire and help to materialise the economic suggestions formulated at the Paris Conference in regard to eliminating enemy trade," and preferential treatment to every portion of the Empire, in addition to reciprocity with the Allies, is advocated.

The conference was the seventh held by the Australasian Provincial Press Association, at which delegates attended from the principal States of the Commonwealth. One of the motions I have referred to related to imports of "news" paper and was as follows:—"That the Federal Government be urged to allow Canadian "news" paper to enter the Commonwealth on the same basis as British-manufactured paper."

It is interesting to note how our paper imports are growing, as revealed in recently published statistics. For the two months of July and August of last year and of 1915, the imports of printing paper into Australia were £220,517 worth last year, as compared with £112,726 worth previous year, an increase of $107,791. Imports of other kinds of paper increased from £152,-245 previous year, to £257,164 last year, an advance of £104,919. Higher prices evidently influenced the value last year.—World's Paper Trade Review.

ENGLAND'S THRIFT CAMPAIGN.

Everywhere throughout England may be seen huge posters telling English civilians what they ought or ought not to do to help the soldiers and the Empire. Great advertising campaigns have been started to teach the people to invest their money with the Government for the benefit of themselves and the government, and to exercise the stritest economy in every possible particular.

One of the most convincing posters was designed by Sir Hedley le Bas, and appeared on almost every hoarding. It makes its appeal to all classes, and reads:

Six Reasons Why You Should Save!

1—Because when you save you help our soldiers and sailors to win the war.

2—Because when you spend on things you do not need you help the Germans.

3—Because when you spend you make other people work for you; and the work of everyone is wanted now to help our fighting men, or to produce necessaries, or to make goods for export.

4—Because by going without things and confining your spending to necessaries you relieve the strain on our ships and docks and railways, and make transport cheaper and quicker.

5—Because when you spend you make things dearer for everyone—especially for those who are poorer than you.

6—Because every shilling saved helps twice: first, when you don't spend it; and, again, when you lend it to the nation.

Canadians, too, can well afford to heart the lessons the home land is trying to teach. Every kind of sacrifice is the need of the hour and those who do not or cannot go to the front, may do their bit in the practice of economy and saving and so help our governments in the great problems that confront the Empire.

PROPOSED FIBRE BOX EXPERIMENTS IN URUGUAY.

Importers in Uruguay state that they know of no fibre board received in that country other than that used in bookbinding and in the manufacture of such containers as shoe boxes and osap packages. In the shipment of merchandise straw or fibre board boxes have never been known in commerce here, except a few from the United States, packed with electric light globes, shoes, and perhaps a few other articles. The globes were satisfactorily packed, but on one occasion the shoe cases were exposed to dampness on the way and collapsed under the weight of other boxes, so that the consignee, who was in urgent need of the goods, retailing confectionery, cigarettes, etc., and for bookbinding were handled. This material was imported almost exclusively from Germany and Norway. He believed that, owing to the success achieved in the United States, the fibre shipping case was worthy of a trial here, and he is willing to attempt this if enough free samples are sent him to manufacture several experimental cases. He will have different sizes made by local paper box factories and experiment in the shipping of various classes of merchandise to the interior by river boat and rail. It is thought that the public carriers would willingly accept them if the consignor assumed all responsibility. The firm agreed to report fully to the American consulate the results of the trial, and in case of a favorable reception to place orders in the United States. The firm has an excellent rating and reputation and could be counted on to give careful attention to the experiment.—Fibre Containers.

UNION BAG INSURES EMPLOYEES.

The Union Bag & Paper Corporation has inaugurated a system of life insurance for its employees by which all the members of its working force will be protected in case of death by a sum approximating one year's salary.

The announcement of the plan was made through a note addressed to the employees of the company stating:

"We are constantly mindful of the loyalty and efficiency of our employees and appreciate those qualities upon which the continued success of the Company depends. After careful study as to the best method of showing our appreciation, it has been decided to furnish and maintain for all employees, without expense to them, an insurance policy in a substantial sum.

"It gives us pleasure, therefore, to announce that you are now protected by life insurance to the extent of substantially one full year's salary, with a limit of $3,000 to any one employee, payable to his or her beneficiary in the event of death while in the employ of this Company.

"In consummating this arrangement, it gives us pleasure to acknowledge the high order of intelligent and zealous service which has characterized the work of our employees in the past and we have every confidence that it will be continued in the future."

The insurance policies will be issued by the Equitable Life Assurance Society, under an arrangement by which no medical examination will be required.

BRITAIN'S DIMINISHING FORESTS.

So much timber is being used for the war it is said by advocates of a government scheme for re-afforestation that if the war lasts another three years the British isles will be entirely denuded of timber.

One feature of the situation is that some pre-war sources of supply are no longer available. Fifty-five per cent. of timber imported in normal times came from Russia, Sweden and Germany, four per cent. from Norway, and 41 per cent. from France, Portugal and Spain. Since the war this country has had to rely partly on supplies from Norway and Sweden and largely on French and Portuguese supplies, and to make good the deficit from woods and forests in the British Isles.

To maintain the supply the nation is making huge inroads into its own standing timber. It is impossible to travel by rail through parts of Scotland without seeing the wholesale cutting of trees. The axe is making a clean sweep of whole woods.

There are only three million acres of wooded land in the United Kingdom at the present time.

William N. Hurlbut, assistant to George H. Mead, President of the Spanish River Pulp and Paper Mills, has been appointed a member of the Executive of the Ontario Pulp and Paper Makers' Safety Association taking the place of Lieut.-Col. C. H. L. Jones who until recently was manager of the operating department of the mills but is now engaged in recruiting the 227th Battalion for overseas, of which corps he is the officer commanding.

Do the Irishmen in France spell Arras "Arragh"?

It is said that the Allies have also helped to make Austria hungery.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The Philadelphia Paper Trade Association held a meeting on Friday night, January 12th, at which date the annual banquet was decided upon. The banquet committee of which Harry Donohue, of the R. P. Molten Paper Company, is chairman, has been hard at work making preliminary plans.

The George W. Wheelerwright Paper Company, with mills in Fitchburg, Mass., announced recently a 5 per cent. bonus to its employees on their last six months wages. They will also be given a 10 per cent. bonus on each month's wages payable on the 15th of every month as long as present business conditions continue.

The Pequannock Valley Paper Company of Butler, N. J., has been incorporated to manufacture paper with a capital of 150,000. The incorporators are: Frederick S. White, Walter C. White, Butler; Joseph B. White, Plainfield, N. J.

The Columbia Box Board Mills, Inc., of Chatham, N. Y., has made an application for an $80,000 charter. The incorporators are; G. H. Hancock, L. C. Freeman, G. M. Hoss, Chatham, N. Y.

The Hence Wax Paper Manufacturing Company, Inc., has just been incorporated in New York to manufacture paper, paper pulp, cloth, textile fabrics, etc. The capital is $50,000 and the incorporators are: R. Ballantine, P. A. Schmitt, C. O. Maas, 57 West 75th St., New York.

The Cornell Pulp Reduction Company, Inc., of Watertown, N. Y., is a new company with a capital of 50,000, those interested in the concern are: P. B. Hudson, G. H. Burns, W. N. Cornell all of Watertown.

Franklin Ohio, is the latest applicant for the location of the proposed paper mills to be built by the Comfort Paper Company. Franklin possesses many advantages as may be witnessed by the number of its paper and pulp industries and it is deserving of more than ordinary consideration.

The newly-organized rag exchange of New York City put in operation on Thursday of last week when the first meeting was held in the Temple Court Building, 5 Beekman street to transact regular business. There were about 20 dealers at the meeting and it resulted in a goodly number of sales of small lots of supplies. Hereafter notices are to be issued of the weekly meetings each Thursday.

The newest publication in eastern Maine has just blossomed forth at the plant of the Eastern Manufacturing Company, at South Brewer, with the company of the year 1917. It is "The Mill", and is published by and for the employees of the Eastern Manufacturing Co., Wade S. Bridgham is the business manager and editor, and each department of the big plant has an associate editor. The first number contains a communication from President F. R. Ayer, of the Company.

Work has been resumed in fitting up the mill of the Riverside Paper Company formerly the plant of the Ballston Paper Company at Ballston, Spa, N. Y. It is reported that parties from Owego, N. Y., have purchased a controlling interest in the company and will push the work of getting the mill ready for operation.

A sulphite pulp mill is the newest possibility as an industrial acquisition for Gardiner, Maine. Mayor Lamb has received a letter from a large Western concern making inquiries regarding a location for such a plant, and asking what assistance the city would give toward the enterprise.

The Fine Stationery Manufacturers' Association will hold its annual convention at the Waldorf-Astoria, New York, Monday, February 5th. Among the other meetings scheduled to take place at the Waldorf, during the same week, are the following Tuesday morning, February 6th, the Tissue Manufacturers' Association Tuesday afternoon, the Converties Division of the Tissue Manufacturers' Association; on Wednesday afternoon the Sulphite Bond Division of the Writing Paper Manufacturers' Association; on Thursday morning, the Cover Manufacturers' Association. On Tuesday evening, following the meetings of the Tissue Association this body will hold its annual banquet at the Hotel McAlplin.

The International Paper Company last week declared a quarterly dividend of 1½ per cent on the preferred stock, payable January 15th, putting the shares on their normal basis of 6 per cent. per annum for the first time since 1908. The payment last quarter was 1 per cent and prior to that ½ of 1 per cent a quarter was distributed. The company now has 33½ per cent. accumulated dividends on the preferred.

W. C. Ridgway has issued the following announcement of the annual banquet of the National Paper Trade Association to be held during convention week. New York City, "the seventh annual banquet, vaudeville and dance of the National Paper Trade Association will be held at the Waldorf-Astoria Fifth avenue and Thirty-fourth street, New York City; on Wednesday evening, February 7th, at seven o'clock. There will be dancing in the Astor Gallery adjoining the banquet ball immediately following the vaudeville. The ladies will be most cordially welcomed, and the members are privileged to invite as their guests, any one and their ladies engaged in the manufacture or distribution of paper. Tickets are eight dollars, and application should be made at an early date on the enclosed card to the corresponding secretary William C. Ridgway, 41 Park Row, New York. Preferance in table allotment will be given to the ladies and it is, therefore essential that the names of those who will attend be given. The seating will be at tables of eight.

A dividend of 7 per cent. declared on the preferred stock at the last director's meeting of the Southern paper company is the first to be paid since the mill owned by that company was put into operation in 1913. Although no statement was made to that effect, it seems to indicate that earnings are now sufficient to gradually pay all accrued dividends. The present directors of the company are: Arthur S. Benn, J. Flowerdew Lowson all of London, J. S. Dantzler, of New Orleans, A. F. Dantzler, W. F. Hofstrs, and Alton Faunce.

Something is Going to Happen in the Paper Market.

(Special by ROWLAND W. JOLLY).

NEW YORK, N. Y., Jan. 12th.

It has been more apparent this week, than at any time during the past month, that something is brewing in the paper market. Your correspondent is not desirous of being either a "bull" or a "bear", but feels that the indications have developed to the extent where it would be the worst sort of folly to disregard them. As might be expected, most of my information has been derived from interviews with local jobbers. This, however, has not been all. There seems to be a different atmosphere among the buyers of paper—a change that one cannot describe, but which is so impressive as to leave but little opportunity to miss just what it means.

There seems to have been an undercurrent at work. The reverse of the present case will be recalled a little over a year and a half ago. At that time, when there seemed to be almost no market for paper, the undercurrent was working its way gradually upward and, when it became visible, was noted in the form of an unusual demand for paper of every kind. I dare not claim that the analogy is similar in every detail, even though the current be the other way, but that is the assertion being made in some sections of the city.

Many factors, which are at work, have resulted in the belief that the market has seen its zenith. In the first place, the impression has been spread that jobbers, under the stress of scare, have overstocked themselves. Now, after the inventory period, they are becoming aware of certain conditions which were formerly disregarded. Many of them are trying to unload on the market. This means that there is likely to be more material in its consequences. Jobbers, on and the manufacturer. This of course, is nothing new, for we had instances of such action several months ago, but this time it is expected to be more keen and to be more material in its consequence. Jobbers, on the other hand, though they are willing to dispose of large quantities of certain grades of paper at concessions claim that they are not finding ready buyers, as was the case just a few months ago.

It should be understood at this point, that the condition we refer to has not yet affected manilas, krafts, certain grades of book paper and one or two other grades. But, in the others, it is very noticeable. It will be recalled that only a short time ago, we were stating in our market reports, that the mills were finding it impossible to keep up with the demand for tissue paper in all forms. Good white tissues had reached as high as $1.35 a ream—in some instances, even higher—and were sought. Today, no one seems willing to pay this exorbitant price. One jobber claims to have a big lot in warehouse which he has been trying to get rid of at $1.23, supposedly a low figure under the present market, but he has not been able to use his "bait" with any effect. Tissues seem to have changed altogether. Dealers even state they can get all they want.

It may be surprising to state that weakening has been noted in news print—but this is only too true. To what extent this will develop, no one can tell. But, it is not believed that it will be very seriously affected.

In fibers, the market seems to have been hit with a "smash". Where formerly a good demand was exciting the hearts of the local trade, there is today a lull and it is possible to get good-sized lots from jobbers at prices considerably under the figures being asked by the mills.

No reports to the effect that we have just been describing have thus far come from the mills. In the majority of cases, they are still maintaining their high prices, although cases have been rumored where mills have gone after business and have taken it at concessions, fearing the near future. Jobbers state that the manufacturers are promising and giving good shipment on most orders To them, this fact is significant of a great deal, as can readily be understood. One large jobber interpreted it as meaning that the talk of enormous export business has been greatly exaggerated. It will be remembered that the statement was made by many of the mills that, if the domestic demand fell off, they would be able to continue their machines at capacity and maintain prices on the basis of the export demand. The jobbers doubt this, as we have said, because of the promptness with which many of the mills are filling orders.

Strange to say, few of the mill supply concerns have taken any cognizance of the condition existing at the present time. Pulp of all kinds—practically every sort of paper making material—is not in abundance at this time, and it is believed that the immediate change in the paper market will have no marked effect on supplies.

One dealer suggested that a calamity (if there is one in sight) could easily be averted. The mills have been running almost continuously for over a year—few of them have taken the time to stop for repairs, except where there was no option and it had to be done. The result has been the greatest production of paper in the history of the United States. Such a thing cannot long keep on when the demand has lost some of its strength. Hence, says the dealer, the time is most opportune for a good many of the mills to shut down for a month or so, to give their plants thorough overhaulings. There is enough of this work to be done in the ordinary mill to allow it to shut down for the time mentioned. This would immediately reduce the supply of paper to the extent where it would save the market from being flooded. However, up to the present time, there has been no initiative along this line, taken by any of the mills.

It has been rumored that the coming meeting of the American Pulp and Paper Association, which will be held at the Waldorf-Astoria Hotel, this city, February 6th to 8th, will bring out a good many manufacturers to give serious consideration to the future. The contrast between the coming meeting and the convention of last year will undoubtedly be unusual. The writer recalls well the manner in which the manufacturers, last year, thronged the lobbies of the hotel, buying whatever stock could be had. When offered a lot of rags, it was accepted without even asking about the price. Jobbers from all parts of the country had come in to meet the mill men personally, to plead for shipments. But, it is not likely that the coming convention will witness similar scenes. Yes, the scenes may be similar, but for different purposes—if present indications amount to anything.

The Markets

REVIEW AND PREVIEW OF CANADIAN PAPER CONDITIONS.

The speculative is always interesting. What is likely to happen possesses more moment very frequently than what has taken place. At the commencement of a new year the members of the pulp and paper trade are naturally concerned in the outlook for the coming season with respect to prospects, supplies, prices and market conditions generally.

Realizing this the **Pulp and Paper Magazine** has secured interviews with a number of leading representatives in various branches of the trade. The consensus of opinion is that high prices in all lines will prevail during 1917, that the market will be brisk and active and every plant operated to capacity. Notwithstanding the shortage of labor, the increasing cost in wages and production, the augmented prices for coal, shavings, felts, wire, glue, dyes, bleach casein, and other raw materials, an optimistic view is taken of the situation as it exists at present and while high prices are ruling, there is no telling where they will end. The one regret is that conditions in the raw stock arena do not permit of a fixed price for any definite length of time and that orders are still coming in so rapidly that it is utterly impossible to overtake them.

Here is what several firms are doing in the way of new installations increasing their output and perfecting their product for 1917.

"We anticipate that 1917 will be a year of exceptional activity in all branches of our business and, as you know, we have ordered an additional 162 inch news machine to duplicate theone which we are now running and we hope to get it started early in the fall," remarks J. A. Bothwell, general manager of the Brompton Pulp and Paper Co., East Angus, Que. "We are also making arrangements to put in another electrical development three miles below our plant at East Angus where we will develop 6,000 horse power. With this additional power we will increase our output of pulp and paper very materially. In addition to the foregoing the Quebec Streams Commission will have completed this spring their conservation dam on Lake St. Francis, which will give us an additional horse power over our present capacity of thirty-three per cent, making the St. Francis river one of the most powerful uniform streams in the province of Quebec."

The output of the Brompton Co., at the present time is sixty tons daily of news print, 320 tons daily of ground wood pulp, 40 tons daily of box board, 90 tons of sulphate pulp, and 60 tons of kraft paper as well as pulp wood and lumber of all kinds.

Angus McLean, President of the Bathurst Lumber Co., Bathurst, N. B., in referring to the market for pulp and paper for the coming year says: "We cannot come to any other conclusion than that the present prices will hold good or go possibly higher. The production of all kinds of pulp in Europe is very much curtailed and we understand that shipments from Scandinavian ports to United States and Great Britain are now over for this season. The inevitable result will be that both the United States and Great Britain and also France will have to look to Canada for their supplies."

The pulp and paper division of the Bathurst Co. is now turning out about fifty tons of sulphite pulp a day at its plant . The firm are just completing a sixty ton kraft unit in their pulp mill branch. They expect to be turning out kraft pulp in the course of the coming month. This is the only addition they are making in connection with the pulp department of their business. As soon as this is in operation, they intend working out a proposition for producing about twenty-five tons of container board, but it is not likely that this will be running until some time about mid-summer.

George H. Millen, President of the E. B. Eddy Co., Hull, Que., reports that they have turned out more paper of all kinds than ever before in the history of the company and that the outlook for the coming year is exceptionally bright. The company was established in 1851 and that the busiest twelve months in the history of this widely known organization has been closed, speaks volumes of the general activity of the trade in the Dominion. During the past year a number of minor improvements were carried out to the plant and at the present time everything is in tip-top shape. The company during 1916 installed a plant for making their own bleaching liquor, and also a new fire fighting outfit consisting of three, 1,000 horse power electric driven turbine pumps.

I. H. Weldon, President of the Provincial Paper Mills Co., Toronto, who have plants at Mill Roches, Thorold and Georgetown, Ont., says that the future market prospects for book and writing papers depend upon the condition of the consumer, and the most reliable basis upon which to form an opinion is naturally from such consumers as publishers, manufacturing stationers, printers, etc.

"All my talks with these customers have convinced me", adds Mr. Weldon, "that their requirements will greatly exceed any previous year. Manufacturing stationers say that they have sufficient business to keep them extremely busy for, at least, a year. Publishers claim that advertising space is taken up for months ahead and all seem to be planning on a campaign that will increase their trade publications. Catalogue publishers are the largest consumers of book papers in the Dominion and they have made some great increases in the number and size of their catalogues. Their requirements will run into a couple of years. We do not know how long we will be at war, nor what effect it may have on transportation, labor, etc., so one can not predict the effect on prices. So far as demand is concerned, I think that I am quite safe in saying that the production of book and writing mills in Canada has already been pretty well taken up for 1917." We have just closed the busiest year in our history with all plants running to their utmost capacity."

"Regarding prospects from a productive and price standpoint this is a very difficult question to answer," remarks A. G. Campion, sales manager of the Belgo-Canadian Pulp and Paper Co., Montreal, "every mill so far as I know is straining every point and working overtime to get out its maximum production to take care of the demands of all customers as far as possible. So far as I can gauge there is not going to be any let up in the present day shortage of pulp and paper during the coming year unless publishers materially curtail their consumption, which does not seem to be very likely from present indications. Regarding prices I regard the situation as being just as unsatisfactory as it can possibly be."

In the way of improvements during the past year the Belgo-Canadian Co. started their last new news print machine. It went into operation in April last and they contemplate no further developments in the news line in the near future. During 1916 another unit was added to the sulphite plant which increased the capacity to one hundred tons daily. The company do not propose to make any further additions to their sulphite or ground wood departments during 1917. The conditions of the world's markets regarding supplies, machinery, cost of installation, etc., practically preclude such being done even if the company felt disposed to undertake anything in this direction.

George M. McKee, general manager of the Donnacona Paper Co., Donnacona, Que., says that the prospects for the coming year are good for maintaining the present price of news print in asmuch as the entire production of all the mills in Canada and the United States is contracted for one year. "There will", adds Mr. McKee, "undoubtedly be a softening of pulp price in the early summer but it is very difficult to forecast what the end of the year will bring forth as I believe that conditions will depend a great deal on the outcome of the European war."

In regard to installations effected during 1916, the company started their second Fourdrinier machine in November last and it has been working perfectly ever since. The output of news print of the company is now one hundred tons daily. No additions to the paper mill are contemplated during 1917, but the company are installing six new grinders in their ground wood department. These will be in operation by the end of February, making a pulp grinding capacity of eighteen grinders. In their sulphite branch the company are erecting an additional digester which will be in operation in April. This will increase their sulphite output from thirty to fifty tons per day.

The Laurentide Co., George Chahoon, Jr., President, report that they do not contemplate making any changes to their plants during the coming year and the daily output is practically the same as last year. A new digester has been added which is turning out some thirty tons additional of sulphite pulp. The prospects for the coming year are regarded as exceptionally good.

Howard Smith of the Howard Smith Paper Mills, Limited, Montreal, observes. "Personally I believe that 1917 will be a period of great prosperity for Canada, notwithstanding that this country is at war, and that we will be able to look after the requirements of the trade in future.

Regarding the raw material question this is something which it is impossible to speak on definitely. There seems to be a shortage in bleached sulphite pulp and the price is high. There are a number of new mills coming on the market toward the end of 1917 which, we believe, will relieve the situation somewhat. Rags are scarce and the demand for high grade papers is good and we think that it will be maintained during 1917. We are making papers that have never been produced in Canada before such as stationery, wedding, wedding bristol, and index bristol. These lines have formerly been imported. Most of the mills are making improvements so that they can make in the Dominion a wide range of papers and take up lines that formerly came into Canada from other markets."

The Howard Smith Paper Mills took over the Crabtree plant at Crabtree Mills, Que., some months ago. The new proprietors will build a complete new beater room, three storeys high, and put in five, 1,500 pound beaters behind the paper machine. They also intend erecting a new finishing room of large enough capacity to handle the output but the dimensions of this are not definitely decided as yet. The Crabtree plant will run on sulphite bonds. The Howard Smith Co., had a fine business in Progress bonds, which was a sulphite bond made in their mills at Beauharnois, but owing to the pressure of business on better grade, they had to drop this one for the time being. They intend making this watermark in the Crabtree plant which, with its fine power and new beater room, will be a very well equipped mill.

The Canada Box Board Co., of Montreal, of which N. G. Czowski is secretary-treasurer, making all grades of paperboards, say that it is really impossible to give any idea regarding prices of raw materials and of their own product for the coming year. The market, at the present time for raw materials, is aboslutely beyond precedence and no opinion can be ventured as to prices. Raw materials are going up all the time, and for the past five or six months at each advance, they have had a feeling that it would be almost impossible for these to go any higher but still they continue to climb.

They add, "Regarding the price of our finished products we are only quoting deliveries three months ahead, and although the price asked is very stiff, our raw material and labor have advanced to such an extent of uncertainty and impossibility of covering, we have had to figure on a slightly larger margin of profit than in an ordinary season. All improvements made to the plant during the past year at Frankford and Montreal, have been done with a view to increasing production and consist in additional beating and refining engines and other minor undertakings. The plans of of the company are along the same lines for 1917 and while they do not intend to install any more machines, they hope, in a few months, to have the present machines up to the top notch of efficiency."

The Hinde and Dauch Paper Co., of Canada, Toronto, believe that all branches of the paper trade during the coming twelve months will be very prosperous. "At present the demand is greater than the supply. The same can be said of the materials used in the manufacture of paper and under present conditions prices will remain high." The company for some time have been sending out notices that, owing to the uncertain supply of raw materials, all quotations are for immediate acceptance only and all prices are subject

to change without notice. The company make corrugated boxes, fibre boxes, wall board, mill board and corrugated paper and box boards. O. H. Moore is the general manager of the Company.

"The prospects for business during 1917 are encouraging", declares George Carruthers, President of the Company, who says that they do not anticipate any material changes in prices although, of course, there is a possibility owing to a shortage of raw materials. Should this become a reality prices will undoubtedly advance. The company manufacture all kinds of toilet, crepe and plain tissue papers, and specialties, light wrappings, napkins, towells, etc., and report the best year in their history with the plant running to its utmost capacity. During 1916 a large three storey finishing room was erected of reinforced concrete, with brick curtain walls and in dimensions 148 x 72 feet.

Gummed Papers Limited, Brampton, Ont., during the past year doubled the capacity of their gumming plant and also installed machinery for the making of waxed paper and waterproof case linings, also cap peaks, and cloth lined papers. They erected an addition to their plant of 40 x 60 and also a new boiler house and installed a new boiler. They expect to make a further extension to their building during 1917 and contemplate installing machinery for the making of flat papers for the printing trade. E. R. Colbert is manager of the company which has closed the best year in its history and reports prospects exceptionally bright. The output is known as the Beaver Brand products.

The Dryden Timber and Power Co., Dryden, Ont., of which J. B. Beveridge is manager, believe that the outlook for the coming year is of the brightest and most promising character, and there is a good deal more business offering than they can take care of. In the course of the next four months they will probably increase the production of their kraft pulp a further ten tons a day. During the past year they extended their chemical recovery room and installed additional machinery with a view to increasing the production and efficiency of their plant. The chemical recovery room is of concrete, steel and brick construction, and 50 x 150 feet. The increased output is about fifteen tons of pulp daily. The Dryden Co. have also just completed a new finishing room and warehouse of steel and brick construction, 140 x 95 feet, and are at present building a new beater room, 90 x 60 feet of concrete brick and steel construction. This will take care of the beating equipment required for 110 inch Fourdrinier paper machine now being installed.

Alex McArthur and Co., Montreal, makers of wall, news, book and colored papers as well as wrappings, have just completed a new factory for the manufacturing of roofing and building paper of all kinds. The building is fire-proof throughout and equipped with a complete sprinkler system. The most modern machinery is being installed, and when completed the plant will be one of the largest and most up-to-date of any of its kind. The firm consider that the outlook for the trade during 1917 is good in every respect and prices are likely to be firmly maintained. Raw materials are likely to be in fair supply with prices subject to wide variation.

The Abitibi Power and Paper Co., whose plant is at Iroquois Falls, Ont., think conditions will be fully as good during the coming season as last, but do not care to express a delnite opinion. With regard to construction at Iroquois, the company report that the new sulphite mill is under cover, and that the foundations for the other mill buildings are all in and they should be under cover by July next. The water power development at Twin Falls will be completed by October next. The two large paper machines, which are each 232 inches wide, being the widest in the world, will be in operation in November next while the sulphite plant and additional ground wood equipment will be finished and producing by May 1st next.

The Ontario Paper Co., of Thorold, Ont., of which Warren Curtis, Jr., is manager expect to start their new sulphite plant this week. It will have a capacity of fifty tons a day and is built of steel, concrete and brick. There are two digesters, 15 x 49 feet. The company expect to have their third Fourdrinier in operation some time in February. The machine, which is 162 inches wide is now being set up. They have also installed a 104 inch cylinder wrapping machine during 1916 and report business as exceptionally promising for 1917.

* * *

Owing to the fact that many firms are taking inventory at this time there is little "doing" in pulp and paper this week. Ground wood is a little easier, if any change is to be reported. In another week there is likely to be a little more activity and with some buying we may expect changes in some lines.

Current quotations are:

Paper.

News (rolls) $3.00 up, at mill, in carload lots.
News (sheets), $3.75, at mill, in carload lots, smaller lots higher.

Book papers (carload), No. 3	$7.50
Book papers (ton lots), No. 3	$8.00 to $8.50
Book papers (carload), No. 2	$8.75 to $9.50
Book papers (ton lots), No. 2	$9.75 to $10.25
Book papers (carload), No. 1	$9.25 to $10.00
Book papers (ton lots), No. 1	$10.00 to $11.00
Sulphite bonds	13½c up
Writings	9½c up
Grey Browns	$4.50 to $5.50
Grey Browns	$4.25 to $5.00
Fibre	$7.25 to $8.50
Manila, No. 1	$7.25 to $8.50
Manila, B.	$5.00 to $6.50
Unglazed Kraft	$9.00 to $12.00
Glazed Kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	13c to 18c
Half Bleached Greaseproof	15c to 19c
Bleached greaseproof	17c to 21c
Genuine Vegetable Parchment	25c to 30c
Drug papers, whites and tints	10c to 13c
Paper bags, Manila	20% discount
Paper bags, kraft	35 discount
Confectionary bags	25 discount

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00

Sulphite, news grade.....$95.00 to $100.00
Sulphite (bleached).....$160.00 to $170.00
Sulphate.....$110.00 to $120.00

CANADIAN CHEMICAL MARKET.

The position of the market for Paper Makers' Chemicals is unchanged. Prices are firm and offerings are limited.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb. .....5½c@6c
Alum, potash, lb.....7½c@8c
Bleaching powder, lb.....5¼c@5¾c
Brimstone, f.o.b., New York, long ton $29.00
Caustic soda, 76%, lb. .....5¼c@5¾c
China clay, No. 1, white, ton.....$20.00
China clay, No. 2, white, ton.....$15.00
China clay, No. 3, white, ton.....$12.00
Lime, ton.....$7.25@$8.00
Sal soda, bags, 100-lbs.....$1.25@$1.30
Sal soda, bbls., 100-lbs. .....$1.35@$1.40
Salt cake, 100-lbs. .....75c@90c
Sulphate alumina, technical, lb. .....3½c@4c
Sulphate alumina, iron free, lb. .....5c@5½c

NEW YORK MARKETS

NEW YORK, N. Y., Jan. 13th.

According to reports circulating about the city this week, there has been a little weakening in ground wood. The weakening, of course, is in the spot prices. It is believed that a general tendency, caused perhaps by the "after holiday" conditions is responsible for the slight change. Pulp men hereabouts do not place much fear in the fact just mentioned, and believe that conditions will son readjust themselves to the former upward tendency. The argue that there is no doubt of the fact that there is a shortage of ground wood and that the production is still far behind the demand. Production is being hampered by trouble with the water power, in various sections. It is also said that the slight relaxation in the news print market has acted upon ground wood pulp to a little extent. However, with sulphite pulp "out of reach" and most likely to continue so for some time—and with most of the manufacturers of paper still running at capacity, pulp men have confidence that the market will soon regain anything that it has apparently lost. Attempts were made to bear the market when a rumor of a sale, said to be made between $37 to $40 a ton, was circulated. In the past weeks, the spot price ranged as high as $45, f.o.b. mill, according to local reports. There was considerable speculation regarding the sale at the "lower" figure and it has actually been admitted that the news has had some affect in influencing buyers to the belief that the market had changed its course. It is possible that the "weakness" may exist for a little time longer, but it is doubtful whether, even if it does, the grinders will be willing to dispose of whatever surplus—which is comparatively little—they have.

The situation in the foreign sulphite market remains, with but few exceptions, as it was reported last week. Prices are very firm and those dealers having stock, are not showing any anxiety to dispose of the same. It is true that a few shipments from Scandinavia were reported during the past week, but these were merely arrivals which had left port prior to the closing of the Baltic Sea, by freezing. It is possible that a few more straggling vessels may make their way to our ports, somewhat laden with pulp, but nothing more. Dealers look to have the foreign market closed until the end of May. What will happen at that time is, of course, interesting speculation. Ordinarily, the Scandinavians have been in the habit of storing during the winter season when it was impossible to ship their stock. This meant that toward the end of May, large quantities of chemical pulp were shipped to the United States, resulting in a decided weakening of the market. If reports from the other side are true, and there is no reason to doubt that they are, this condition will not be likely during the coming season. For, ordinarily, Europe has drawn on Germany and Austria for chemical pulp. Now, however, not only is Europe entirely dependent on Scandinavia for these supplies, but Germany herself is a heavy buyer in the Swedish market. So, under these conditions, it seems safe to surmise that there will not be an opportunity for the foreign pulp producers to gather any accumulations during the winter. In the meantime, unless the paper market takes on an unusually dull aspect, domestic sulphites will continue strong and probably advance. The greatest part of the production is pretty well taken. At the present time, the tendency is for the manufacturers to convert their own raw product, wherever practical. This naturally relieves the market of considerable tonnage. Especially true is this of kraft pulp, which is exceedingly scarce. The prediction is that kraft pulp will become even more acute than it is. Domestic manufacturers are frank in stating that they "pin" their hopes on the Canadians in this particular market.

While prices in the rag market have not changed materially, dealers report that interest in stock has been strengthened to a very encouraging degree. Inquiries are more common than they have been in some time and the movement of stock has taken on a greater volume. Prospects are said to be rather bright for all of the rag consumers are working at capacity and are in need of supplies. However, the mills learned their lesson during last February and March when they boosted the market against themselves by bidding wildly for stock. Now, the contrary is true and buying is being conducted in orderly fashion, so that despite what the demand may be, it is not considered likely that prices will reach a much higher level. And yet, this is also dependent on the situation in the roofing stocks. This is about the time of the year when the demand for the lower grades of rags—used for roofing—becomes strong. Last year, the demand became so great that it ate into the stocks of the better grades, such as thirds and blues and street solid whites, forcing these and other grades up. Should the demand again reach that stage, a repetition of last year's performance is not at all improbable. Reports are still in circulation that a number of the Western dealers are storing stock in the hope of a flurry. Good new white shirt cuttings are reported at about 10c; old white rags are quoted at about 6c; house soiled whites, at 4½c; street soiled whites, at 3¼c; thirds and blues, at 3c; black stockings, at 3c. Roofing stock is bringing in the neighborhood of 2c and a little higher.

Renewed life is noticed in bagging. The mills apparently have reached the point where their supplies are somewhat diminished and need rather urgent replenishing. Dealers who have been very much discouraged with bagging during the past five or six months, are beginning to see a brighter future for the market. England is holding firmly to her embargo and is not permitting any bagging or rope, for use in paper making, to be exported to the United States. Thus it is that there is an actual shortage of these

materials and, as time goes by, the effects of this shortage will be more keenly felt. Rope is in fairly good demand and cannot be had except at rather high prices.

Our previous comments regarding the favorable future for old waste papers have been somewhat confirmed during the past few weeks. True, there has been a little "let-up" in the demand, but this is due undoubtedly to the usual conditions at the first of the year when most of the mills are engaged in stock taking. The shortage of the various kinds of pulps will continue to have a direct effect on waste papers, for the manufacturers are more than ever resorting to the scheme of reclaiming raw materials from waste papers. This is the particular reason which has done so much to boost the price on soft white shavings which are now selling in the neighborhood of 5½c. Hard shavings are in good demand, and are being reclaimed for their rag stock. They are quoted at 6c to 7c; krafts are somewhat scarce and in good demand, being quoted at about 3¾c; magazine stock, 2¼c to 2½c; ledger stock, at 3½c to 3¾c; old manilas, at 1c to 1¾c. The economical measures of the newspaper publishers has resulted in a shortage of over-issue news, which is now quoted as high as 1¼c to 1½c. Mixed papers are recorded at about 80c.

The easing in various of the paper makes, noted earlier in the week seems to be more pronounced. Different reasons are being ascribed to the change. A mill agent in the city claims that it was to be expected because of the post-holiday season—and also because of the fact that the talk of peace had made buyers much more cautious than they had been. He further stated that he knew for a fact that several mills had decided to work on stock as soon as they found that the market was not in a buying condition. Despite the fact that the jobbers claim they are overloaded with goods and that they will try to get rid of some of their surplus at prices much lower than those being asked by the mills, the manufacturers maintain that the jobbers can only go a short time without reordering—and at the time of re-order, the price may be higher than it is today. News print was reported somewhat easier this week than it has been for some time. However, with newspaper advertising continuing as heavy as before, conditions are expected to regain their former strength within a few weeks. Comparatively little buying is being done in tissues—consumers are trying hard to bear the market. Fibres have shown an inclination to weaken. Manilas and krafts are continuing as strong as before. Boards are maintaining their high prices.

These prices are nominal—a fair average:

Foreign Bleached Sulphite, ex-dock, N. Y., 10c and higher.
Domestic Bleached Sulphite, f. o. b., mill, 8c and higher.
Foreign unbleached, ex-dock, N. Y., 5¾c.
Domestic unbleached, f. o. b., mill, 5¼c and higher.
Easy Bleaching, f. o. b., mill, 6c and higher.
Kraft, f. o. b., mill, high as 7c.
Bleached Soda Pulp, f. o. b., mill, 5½c to 6c.
Ground Wood Pulp, f. o. b., mill, about $40.00.

Paper.

News (rolls) at mill, in carload lots, $3.10 and up.
News (sheets) at mill, in carload lots, $4.25 and up.
News, from jobbers, as high as 5½c.
Book Papers (carloads) No. 3, 8c.
Book Papers (ton lots) No. 3, 9c.
Book Papers (carloads) No. 2, 9½c.
Book Papers (ton lots) No. 2, 10c and up.
Book Papers (carloads) No. 1, 10¼c and up.
Book Papers (ton lots) No. —, 11c and up.
Sulphite Bonds, 9c and up.
Writings, 11c and way up.
Ledgers, 12c and way up.
Fibres, $4.75 to $6.00.
Manilas No. 1, 7c and up.
Manilas, No. 2, 5c and up.
Kraft papers, 9c and higher.
News Board, $70 ton, f. o. b., N.Y.
Chip Board, $65 to $70 ton, f. o. b., N.Y.
Straw Board, $65 to $70 ton, f. o. b., N.Y.

NEW OFFICERS OF CANADIAN FORESTRY ASSOCIATION.

At the annual meeting of the Association, held at Ottawa on Monday, the following officers were elected for 1917:

President, Hon. Sidney Fisher.
Vice-President, Gordon C. Edwards.
Secretary, Robson Black.

New directors: Lieut.-Col. J. B. Millen, J. T. Horne, representing the Fort William Board of Trade.

The secretary read a very interesting and gratifying report of the work done in 1916 and outlined some plans for the future.

A vote of thanks was extended to the retiring President, Lieut.-Col. Miller, for his able and enthusiastic support.

The afternon session was occupied by papers on the White Pine Blister Rust and the Disposal of Slash. These papers and a review of their discussion will appear in an early issue of this magazine.

At the dinner given at the Laurentian Club there was a good attendance. The toast to the King was proposed by Lieut.-Col. Miller. Dr. W. J. Roche responded for the Dominion; Mr. W. B. Snowball of Chatham, N. B., for the boys at the front; Hon. Sidney Fisher for the Association and Mr. R. H. Campbell and Mr. Ellwood Wilson for the Forester. A very enjoyable musical program added to the pleasure of the evening.

AUTOMATIC WEIGHT REGULATORS.

The Canada Paper Company of Windsor Mills, Quebec, are about to equip three more of their Paper Making Machines with "Patent Automatic Weigh Regulators."

Eight months ago they were installed to one of these tachments on their No. 3 machine. They have found this patented device to be of great value in regulating their various weights run on this machine.

J. L. McNicol, of the Paper Making Department, Forest Products Laboratories, McGill University, is now manufacturing and placing this attachment before the Canadian Paper Trade.

PULPWOOD AVAILABLE.

The Editor has been advised of a supply of pulpwood up to 100,000 cords of rossed wood per year. This is available for export to the United States. The Pulp and Paper Magazine will be glad to put any mills interested in this matter in contact with the porper parties.

HOYT METAL COMPANY

Largest manufacturers of **Sheet Lead, and Antimonial Sheet Lead** in the World.

Lead Pipe and Waste Pipe made out of absolutely uniform chemical lead. Also **Antimonial Lead Pipe** in any percentages.

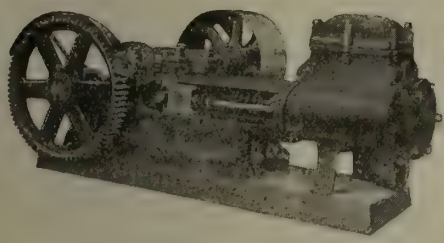
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This regulator gives you a higher and more uniform finished paper with less calendering.

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BUCKLAND CONN.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Regulation of the Beating Process.—The Paper Maker's Monthly Journal, Vol. LIV., Dec. 15, 1916. No. 12. —A patent has been taken out by S. W. Webb, of Winchester, Mass., dated October 17, in which the patentee claims that his device will measure the average viscosity of paper stocks during the beating process. The device consists of a plurality of movable drags placed across the path of the moving stream; no one of which presenting a large frictional area. All of them are connected to a suitable measuring device, so that the latter is operated by the conjoint action of all of the drags. The operator while being able to determine the viscosity of the stock, which varies with the strength of the fibre and its "slowness" is also able to determine the density and the speed of the stock in the beater. A uniform product may then be produced by adjusting the roll and varying the proportion of raw stock and water.

Co-operation in the Dye Industry.—Paper, January 10, 1917, Vol. XIX, No. 18. — A Paper by Dr. Thomas H. Norton, of the Bureau of Foreign and Domestic Commerce. The paper reviewed the progress made in the development of the dye industry in the United States. A plea was made for classification and standardization of materials.

Sediment Tester for Groundwood Pulp.—By V. E. Fishburn and O. L. E. Weber. Paper. Vol. XIX, No. 5. —The Watab Pulp and Paper Company have adopted the sedimentation test as a practical method for determining the quality of groundwood. Quality is thereby expressed numerically. The sediment tester consists of a graduated glass cylinder, graduated from 0 to 12, the 0 mark being 12 inches above a wire disk 3 in. x 3¼ in. in diameter, 14 in. long, with ground ends for a joint, a 3 3-16-in. disk cut out of a 70 mesh fourdrinier wire clamped between the cylinder, an iron cone and a pinch clamp placed on the end of the tube for releasing the water in the cyilnder. 200 grams are taken for a sample from the laps as they come from the wet machines. Moisture is determined on a portion of a sample by drying on a hot plate, a sufficient quantity being kept in an air jar for making the test. 5 grams (equivalent bone-dry weight) is throughly disintegrated with an egg beater. The sample is diluted to 500cc in a jar. Water is poured into the glass cylinder and run down the wire disk by manipulating the pinch clamp. The sample is agitated and poured into the cylinder, the pinch clamp being released as soon as possible after the stock is all in and the time in seconds noted until the pulp has drained to the 9½ mark. Duplicate samples are always run. The difference in time between duplicates is rarely over 2 per cent. In the production of pulp for news print it has been found advisable to keep as near 80 seconds as possible by continual resharpening of the stone if the pulp is too fine, or by slacking off the pressure or dulling the stones if the pulp is too coarse. The other grades of pulp are determined by sedimentation and the pulp ground as near these tests as possible.

The Pulp and Paper Industry in Canada.—By O. F. Bryant, Pulp and Paper Magazine. Vol XV. Jan. 4, 1917. No. 1.—A highly descriptive article, treating thoroughly the various processes by which wood is subjected to for the manufacture of paper.

Mill Efficiency.—By Robert B. Wolf. Pulp and Paper Magazine. Vol. XV., Jan. 4, 1917. No. 1.— A vivid idea of Mill Efficiency as practised at the Plant of the Burgess Sulphite Fibre Company, Berlin, N. H.

Waste Sulphite Liquor.—Method for precipitating organic matter in ———. (Papir-Journalem, 1916, No. 22, p. 260, and Svensk Papperstidning, 1916, No. 23, p. 25).

A new method for precipitating the organic substances is proposed by H. Landmark. The method is described and compared with Strehlenert's method. The principle of both methods is the same, namely, to decompose by means of sulphuric acid the lignosulfonic acids whereby the organic matter is precipitated and SO_2 made free. The H_2SO_4 may be added to the sulphite liquor or may be formed by oxidation of the SO_2 present. Strehlenert adds air or oxygen to the liquor and brings the pressure up to 20. atm. (200 deg. C.). The new method uses for oxidation ozone produced by means of electric sparks in the upper part of the autoclave. The necessary pressure is hereby reduced to 10-14 atm. and no addition of H_2SO_4 is required, whereby the operation should be considerably cheaper.

Landmark demonstrated his new method using a copper autoclave. The sparks were formed at 10,000 volts and at a pressure of 2-5 atm, as the formation of electric sparks at a higher pressure is difficult. After one hour's boiling at 11 atm. the process was finished and the black powder obtained proved to be 60 gr. per litre waste liquor. Instead of producing the ozone in the autoclave, this can be introduced into the autoclave at the required pressure and temperature.

A $5,000,000 COMPANY.

The Lake Winnipeg Paper Co., Limited, has been incorporated with a capitalization of $5,000,000, and headquarters at Ottawa. The Provincial directors include Duncan B. McDonnell, Winnipeg; Edward Seybold, manufacturer, and A. W. Fraser, barrister, of Ottawa. The company is to carry on a lumbering, pulp and paper business in all its branches.

High-Grade Paper Finishing Machinery

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Complete Rag Room equipments largely in Evidence in leading mills throughout the United States and Canada.

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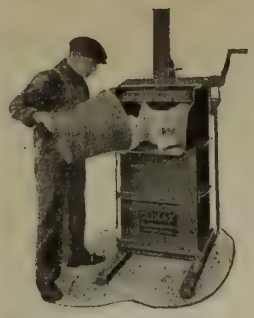
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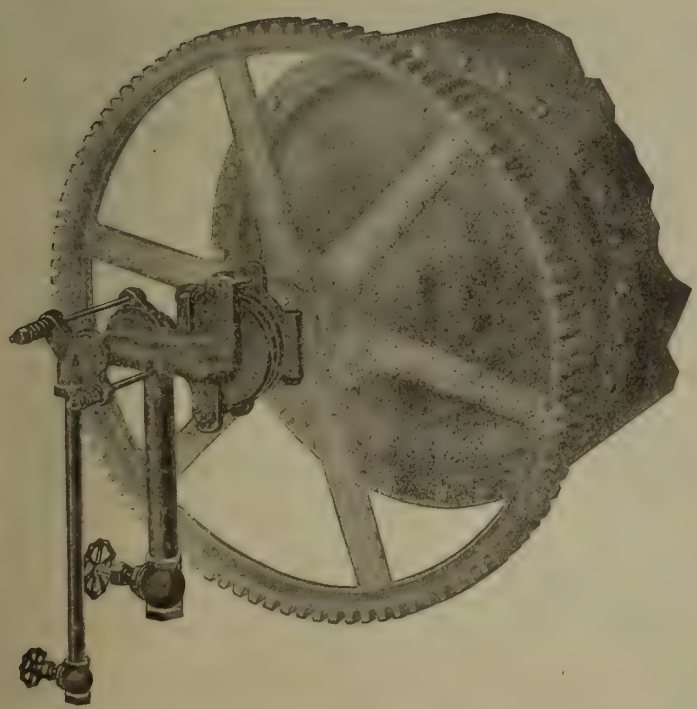
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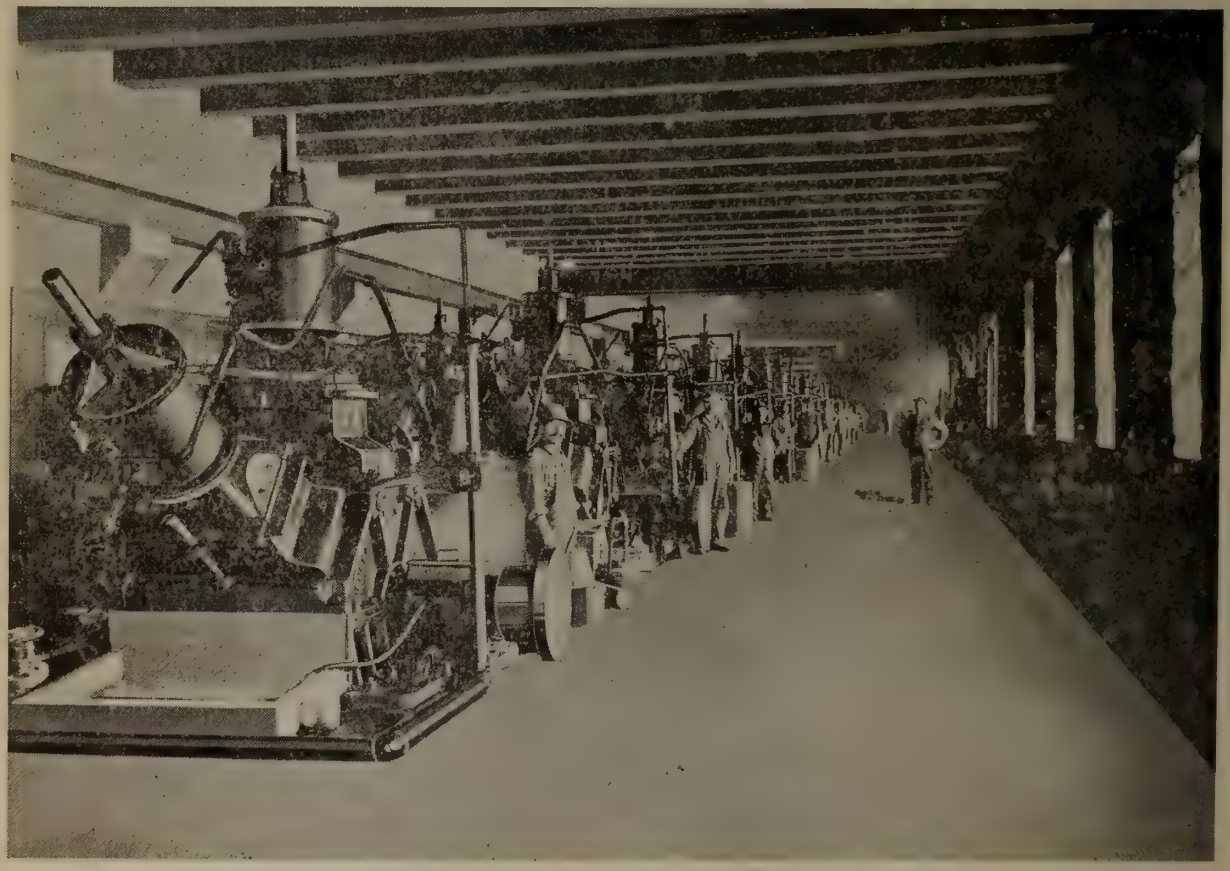
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The latest model "Jenckes" Pulpwood Grinder is of the three pocket hydraulic type arranged for stones 54in. diameter and built in two sizes for 24in. and 30in. wood.

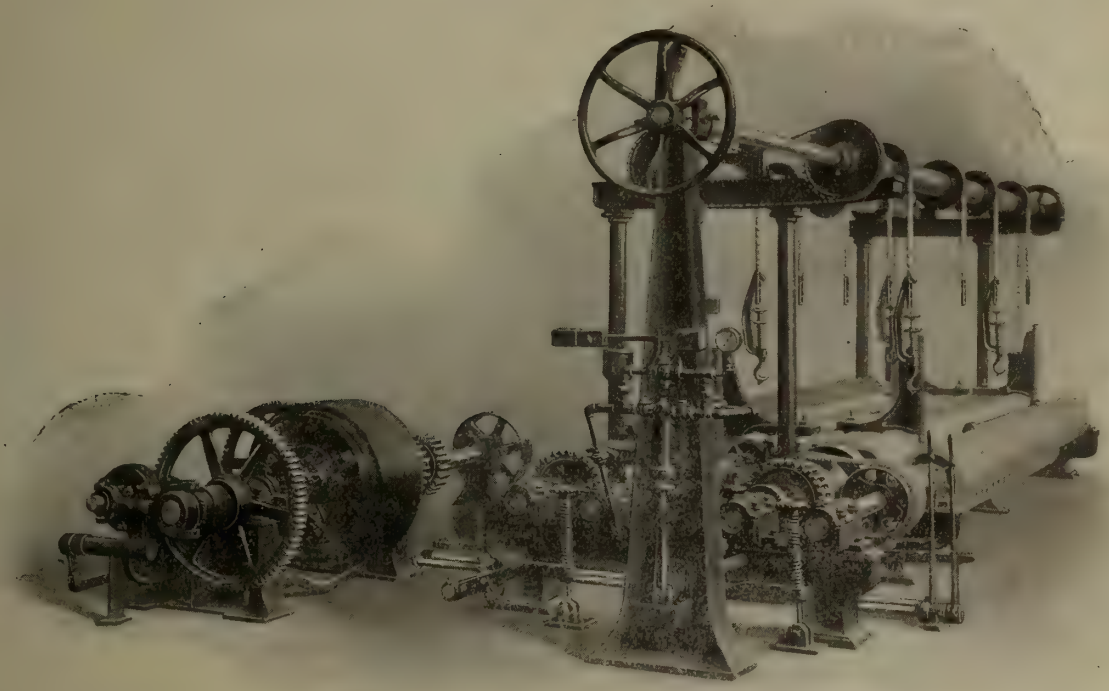
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"M. & W." FOUR DRUM WINDER (Heavy Type)

FOR WIDE PAPER MACHINES MAKING ALL GRADES OF PAPER.



Something in regard to Drum Winders of interest to makers and users of paper.

Drum Winders were designed to overcome the several serious disadvantages of the old style Shaft Winder and at the same time make a good HARD ROLL.

The gradual increase of output of mills has made it desirable to make rolls of large diameter. The large diameter rolls, of course, add greatly to the weight of same, which has become a serious trouble even when using a drum winder, on account of the rolls being wound too hard, causing ridges around the roll and damaging a large amount of paper.

We have found that it requires a very small amount of pressure on the drums to do the winding. When winding a roll 30'' diameter, 100'' wide, (either one roll or several rolls making this width), the weight of the paper would be about 1,750 pounds, and by lifting 1,500 pounds of the roll from the drums, leaving a pressure of 250 pounds on the drums, we have had the most satisfactory results, making perfect rolls without any marks or ridges of any kind.

We have designed an Automatic Lift that may be applied to any type of Drum Winder, being specially designed, however, for the "M. & W." Four-Drum Winder, which controls the pressure on the drums automatically, not allowing the pressure to increase as the roll becomes larger in diameter. In other words the pressure on the drums is the same after the roll becomes 16'' diameter until it is finished.

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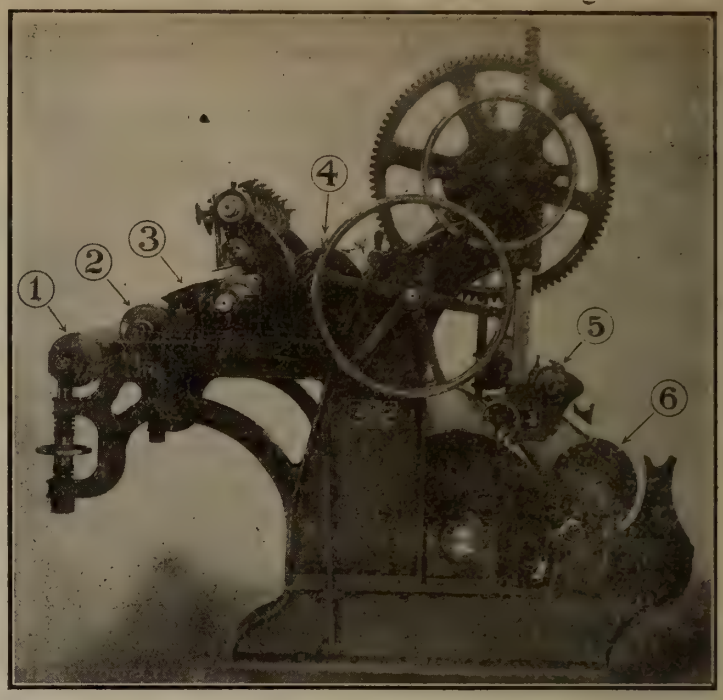
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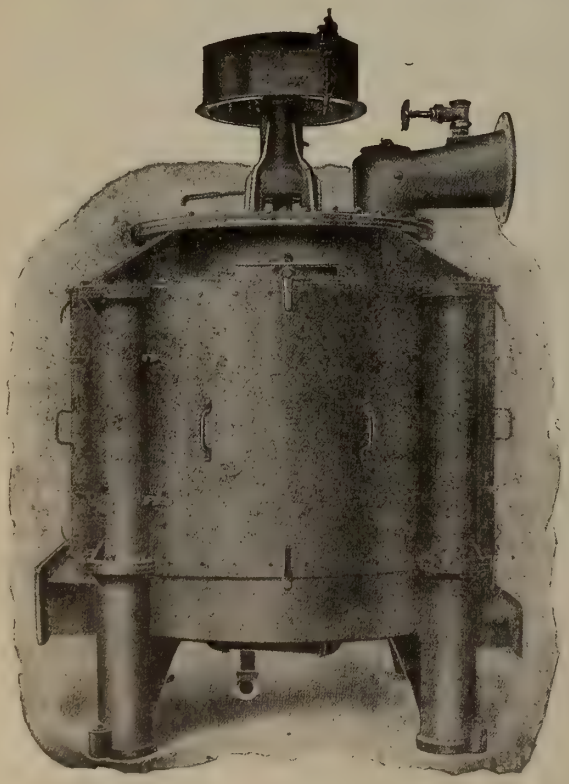
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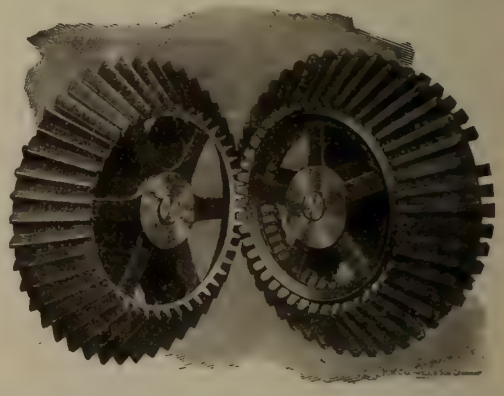
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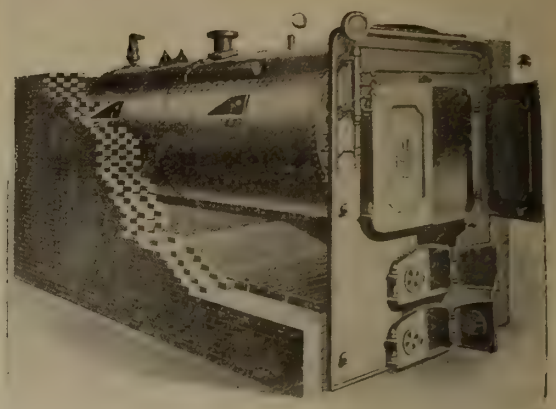
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EDITORIAL

CONCERNING CONVENTIONS.

This seems to be the season for conventions. Those of particular interest to the pulp and paper industry are the annual meeting of the Canadian Forestry Association, and the meeting of the Dominion Commission of Conservation, held last week in Ottawa, the annual meeting of all sections of the Canadian Pulp and Paper Association to be held next Tuesday and Wednesday and a special meeting on the Protection of Forests on Thursday and Friday next, both in Montreal. Besides these meetings there is the annual meeting and banquet of the American Pulp and Paper Association and allied associations in New York, February 6, 7 and 8, which many Canadians will attend.

There are two ways of considering the value of attendance at these meetings, first, what one gets and second, what one can give. It is the sum of the getting plus the giving that measures the gain. The easiest thing to do at a meeting is to sit still and listen to the programs that the secretary has taken the trouble to furnish and for which busy men have taken the time to prepare papers. The next easiest thing for one to do is to ask a few questions that will lead to a more complete explanation of particular points in the address.

Probably the most difficult thing for many men who attend the meetings of Pulp and Paper Associations is to give others the benefit of their own experience. This is partly due to a sort of reticence toward speaking in public and partly because many of these practical men think their experience is of no particular interest to any one else. We feel, however, that the principal reason, or rather excuse, for silence is the fear that they may give away some secret. That may be quite the case in some instances but it is usually true that much useful information can be given without divulging any secrets.

In most cases a superintendent or manager will find that his worst competitor is not a rival manufacturer, but himself and his own organization—or lack of it. Profits are not made by increasing the price of an article so much as by decreasing the cost or improving the quality. These factors are within the province of the man in the mill. Frequently a mere suggestion is all that is required to put an alert man on the track of saving a large waste, either of material or effort. A slight change in organization, a more scientific sequence of operations, a new machine or method may and often does mean a large total increase in profits.

And it is not alone the greater knowledge of familiar mill processes that comes from attending conventions, especially the technical meetings. One meets men in other branches of paper manufacture and in lines allied to this industry. One's eyes are opened to the wider field of labor and service, to which the machine room or office is only the gate way.

So we say, attend the meetings of the men connected with the Pulp and Paper Industry—and encourage your employees to attend—get the information and inspiration that will increase your **efficiency** and give you a **vision.**

WHAT WOULD YOU THINK?

What would you think of a person who left a rented house with boxes, barrels, paper and other inflammable rubbish in such a condition that the careless dropping of cigar ashes, a cigarette stub or glowing match would burn the whole block? Yet there are people who say it is not worth while to dispose properly of the slash after a lumbering operation.

The statements published in another column show that the disposal of slash is not only advisable but quite practicable. It does mean an additional expense in logging but it insures much greater safety from fire, both in reducing the fire risk and in making it easier to handle fires that do start. The decaying wood of slash left on the ground is a breeding place for bugs and insects that later will attack the young growth and surrounding forest. This danger is also eliminated by burning the slash.

It has been shown that slash may be and usually is, a great fire menace. On crown lands, at least, it would seem that allowing the cost of slash disposal in licensing them for pulp wood or lumber cutting would be cheap fire insurance on the forests.

NOBODY IS TO BLAME.

Acording to the Paper Mill, R. P. Andrews of the R. P. Andrews Paper Co. of Washington, D.C. makes a very plain case of the position of the paper jobber, in which line Mr. Andrews is well known. He says that his firm has not increased its percentage of profit and believes this to be true of other dealers.

"I commend the Federal Trade Commission in its work to reach the real source of high prices", he said, "but I must object to the published statements that the jobber is the real or contributing reason for the present condition in the paper market."

Mr. Andrews stated that the Federal Trade Commission was unsound in its unofficial dictum that the jobber should sell at a reasonable profit and disregard the market price.

"If I buy at five cents a pound", he said, "and my supply is on hand when the market price drops to two cents a pound, I must sell at a loss. I cannot expect the retailer or purchaser to pay me a reasonable profit on a wholesale figure based at five cents a pound when the open market affords him the fullest opportunity to buy at current prices. Therefore, I maintain since I must pocket a loss in this instance and this has occurred in my business within the last five years, I should be given the opportunity of taking advantage of the present market prices if I have a stock on hand bought below current wholesale prices."

The statement is also made that sheet news for country weeklies is quoted at more than double the prices said to be charged newspapers under contract. Mr. Andrews does not say so, but there is good reason for this. Anyone who has worked in a paper mill knows the great difference in trouble on the machines between running on a contract order and running on a jobbing order. Several more operations are reuired to get out an order of sheet news than to ship news in rolls. Over head expense is also higher and these charges must be added to the price.

Mr. Andrews does not say that news print furnished the country weeklies is the ordinary grade, although we assume that to be the case. Most country papers that we are acquainted with use a better grade of paper than the city daily. This of course costs more for material. It may not, and probably does not, actually cost twice as much to supply ordinary news in sheets as it does in rolls, but the matter of small orders and odd sizes and upset routine must be taken into consideration.

So it begins to look as if nobody is to blame for the present high price of newsprint.—At least, if we believe what is said by maker, dealer and user.

WHEN CROWN LANDS ARE NOT CROWN LANDS.

On the announcement of the law preventing the export of pulp wood from Crown Lands it was expected that some American firms who held licenses to cut such wood would find themselves in an awkward position. Among these license holders is the International Paper Company. President Dodge has already announced the intention of the International to build a paper mill in Canada. This of course would enable them to comply with the law in regard to the pulp wood they have the license to cut.

The following item from a story in the "Montreal Daily Mail of January 16th puts the matter in a different light:

"First, The International Paper Company has under license from the Quebec Government a large acreage of crown lands, the wood from which it is impossible to export. This is useless for the purposes of the International Paper Company, who have nothing other than rossing mills in Canada.

Second, the Canadian Northern Quebec Railway is entitled to 385,000 acres of selected Quebec crown lands, as subsidy for their railway. All choice crown lands along river routes and waterfalls are already under license, therefore, the C. N. Q. Ry. have only remote and obscure and inaccessible lands left for their selection, as in the Hudson Bay District.

From the above it is seen that nobody is satisfied, hence, pending negotiations between the different characters, whereby the C. N. Q. Ry. will select their 385,000 acres from lands under license to the International Paper Company with the obvious intention of selling these lands to the International Paper Company outright, and incidentally permitting the export of the timber cut from these lands."

There have been few laws that have not been evaded by some one. Frequently, these evasions are accompanied by charges of dishonesty on the part of Government officials, either legislative, administrative or judicial. We trust there is no foundation in this case for such a charge.

It may be that a real estate transaction, such as described in the story, is not a case of dishonesty. At least, it might not be dishonest as such transactions are usually considered, if the paid intervention of Government officials were not involved. The scheme as set forth looks to be feasable as far as the International Paper Co. and the Canadian Northern Quebec Ry. are concerned. Whether the Government will allow the International to relinquish its license to cut from crown lands, and then give these 385,000 acres to the C. N. Q. Ry. is yet to be learned.

STILL ON THE ANXIOUS SEAT.

Canadian paper makers would like to have something more definite in regard to the attitude and intention of the Government on the newsprint situation than the hearsay reports and guesses that have recently been published. It has been intimated that Sir Thomas White plans to set a maximum price of 2½ cents to Canadian publishers and limit the export of all newsprint mills in Canada to 80 per cent. of their output. It is stated authoritatively in Ottawa that no such order has been issued. It is said that negotiations between the publishers and paper makers have not been concluded. It is also stated that 2½ cents is not acceptable to either of these parties. In any event, the sooner the matter is settled, the better for all concerned.

OUR NEXT ISSUE.

The next issue of the "Pulp and Paper Magazine" will contain the reports of Committees and papers presented at the annual meeting of the Canadian Pulp and Paper Association and the Technical Section. The programs, which appear on another page hold much of interest to those in the pulp and paper industry.

Concerning Paper--Some Problems and Solutions

By THOMAS R. BUTLER.

[The primary cause of most disputes is without doubt a misunderstanding, frequently a lack of appreciation by one party of the position and problems of the other. Between the paper maker and the printer should work in the closest harmony. The following article is printed because it gives the paper maker an insight into the print shop and discloses, through the words of a practical printer, some of his difficulties.—Editor].

After all that has been said on this subject, and all the excellent suggestions that have been made in our various trade journals from time to time, there is still a lack of knowledge among printers generally concerning paper. It is of primary importance that pressmen in particular should possess some slight knowledge of the various processes paper undergoes in its manufacture, and should know something of the material with which they have to work.

The writer is fully aware that the subject under consideration is one to which a volume could be devoted, but the following article is just a brief survey of the various "hair-raising" problems, etc., which more or less confront pressmen in their every-day work. He trusts, however, that the following will in some measure supply a need which he himself had felt at the commencement of his career as a pressman.

Stretching and Shrinking, etc.

A knowledge of the various processes of manufacture forces one to the conclusion that there is no cure for such evils as stretching, shrinking, cockling, peeling, etc., and that paper will always be peculiarly susceptible to moisture and the varying changes of temperature, until some genius invents some method of making paper without the aid of water or its kindred elements.

This desideratum being in the dim and distant future, what we are chiefly concerned with is some sound advice which can be followed in working and handling paper. It will be generally conceded that the ordinary run of printed matter presents no insurmountable difficulties, but when dealing with register and colorwork, particularly on coated papers, the difficulties enumerated above present themselves persistently for solution. Some pressmen attribute the mischief as arising in the manufacture. Possibly in some instances, but I think the whole crux of the matter lies in the period of its dispatch from the mill to the time of its use. For instance, the atmosphere of the stockroom at the mill will in all probability be hot and dry; then, after dispatch, comes the delay during transit, and perhaps by the time its destination is reached, several atmospheric changes have been experienced, causing expansion and contraction. Even when it has reached its destination it is almost bound to undergo another change, that of being removed from the stockroom to the pressroom. It is obvious that with paper that stretches and shrinks according to the varying temperature and moisture of the surrounding atmosphere—and all papers do so more or less—accurate register on large sheets of "multi-color" work is practically unobtainable.

And now, how to remedy this is the question.

The chief precaution to take is to see that the paper is to hand some time before the job goes to press, and have it placed at once in the pressroom. On arrival it should be taken from the wrappers and, if posible, hung from the roof in small quantities by clips specially made for this purpose. The temperature of the pressroom should at all times be kept between 65 and 70 degrees Fahrenheit. After it has had time to expand or contract, and has become permeated with the particular atmospheric conditions prevailing, it may be taken down and stacked, and afterward should be kept in stacks during the progress of the work, if the particular job will allow it without incurring other evils, such as sticking, offset, etc. Where clips are unavailable, keep stock in stacks right through the job. Another good plan is to put stock right away into slip sheets. The effect of these precautions is to get paper, especially that which comes in over-loaded with moisture, dry before any printing is done, or if it arrives too dry, to allow it to become charged with moisture equivalent to that prevailing in the pressroom, with the result that no shrinking takes place if no great change takes place in the weather in the meanwhile.

During the progress of a job too much care can not be exercised in keeping stock well covered. When paper is once seasoned, the closer it is packed together the less danger there is of changes taking place.

Cockling and creasing are also troubles due to atmospheric conditions. In this case, however, the first precautions rest with the paper-maker, and secondly with the dealers. The origin of the trouble is in the manufacture and rests with the men who made it. It occurs between the suction box on the paper-making machine and the first set of drying-cylinders. Should the machineman have the cylinders too hot or too cold, more often than not there is trouble for the printer. The knitting together of the fibers largely depends upon these drying-cylinders, and the temperature is the deciding factor whether they will "knit" together properly or otherwise. It is of importance that these cylinders should be running at a uniform temperature to obtain the best results. A drop in temperature is often brought about by the changing of staffs. For instance, it is possible for the day staff to have the drying-cylinders running at a correct temperature and when the men on the night shift take up their duties they lose the running, or it may be vice versa.

We now go to the dealers. Some do not yet realize the necessity for treating paper for fine printing with fine handling. Covering of ordinary wrapping-paper is not sufficient, and one is disposed to think that this used in a damp state, judging by the condition of the edges of some papers when received. I have seen paper so swollen at the edges that when placed on a flat table the ream had the appearance of a saucer. When paper is received in this condition, showing hills and hollows like the surface of the sea, all attempts to make it lie flat are useless, as, indeed, are

all attempts to secure accurate register, or to print a form with rule borders free from "slurs." The remedy, obviously, is to pack the paper so that the edges are afforded equal protection with the center of the sheets, and the only way to secure that is by packing paper intended for fine work in suitable boxes, air-tight if possible.

In printing stock of this description I have found by experience that the following answers admirably and eliminates creasing to a great extent; Lay sheet to gages, and drop first and last stop so that, should the paper be out of square, it will allow the sheet to rest better in the guides. Also have the first and last grippers holding the sheet tightly. Should the paper still crease, the edges will need to be broken down in the following manner: Break from the right edge to the center, then from the left edge to the center, for the gripper edge. For back edge, break from center to edges, as shown in diagram 1. This method has proved a success with all kinds of papers of different sizes.

It is of vital importance that paper should be handled properly. Where possible, adopt the permeation

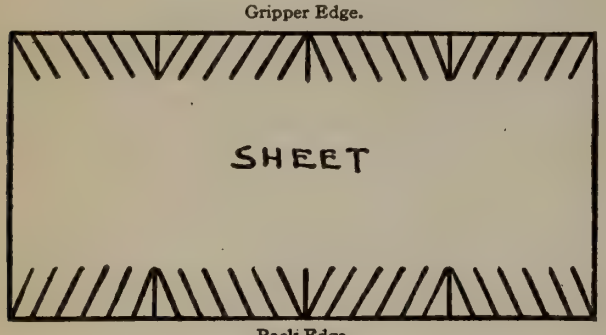


Diagram 1.

plan of spreading paper by means of clips, trays, lines, etc., to season it to the prevailing climatic and atmospheric conditions. This is the surest safeguard against paper troubles. Special precautions as to handling, wrapping, packing and stacking, should be taken. Finally, for a complete solution we must look to the paper-maker, and it should not be such a difficult problem at the present stage of chemical research to discover a method of finishing paper which would make it impervious to dryness and moisture, and to heat or cold. Until a remedy is found along these lines we can at least insist that paper-makers and paper-dealers shall deliver paper in such a condition that we can call it "good," being flat, uncracked, no cockle on the edges, and in boxes, so that when the delivery man hoists it across his shoulder and bangs it down on the stockroom floor, it will not have its otherwise flat or smooth surface ruined by innumerable cracks and chinks, its edges jagged and puckered, or its corners turned up.

This being carried out, the rest is up to those in charge of the stock-room. Deliver the paper to the pressman in good condition and we can trust that patient, long-suffering martyr, who has grown gray or bald, as the case might be, in devising ways and means to surmount the troubles and difficulties arising almost continually during his efforts to produce a really artistic production. Give him the stock, I say, in "good" condition, and, other things being equal, he will "arrive." The other things are up-to-date machinery and materials, knowledge and training, sufficient trays to handle paper in the flat, clips for seasoning the stock, plenty of space for handling it with care, a pressroom of even temperature, sufficient time to achieve results; then if the pressman can not turn out a fine piece of printing, of which he and his employer can be proud, it is time to make a change in the personnel of the staff.

Static Electricity in Paper.

Another item which sometimes causes trouble for the pressman when using smooth calendered stock is the astonishing readiness with which it picks up electrical charges. The slightest friction, bending or pressure, will often develop a pressure of thousands of volts, which will display itself in any one of a variety of contradictory ways, as trifling circumstances may determine, thus making it appear to most pressmen as a freaky and uncertain element. At one time it will cause one sheet to stick to the next below it in the pile so firmly that they are torn in the effort to separate them; at another time the sheet is pushed away from the sheet below it—it "flies" and will not settle down on the pile, or will do so only in spots, and at these spots it will suck itself down firmly while pushing up in other spots, and so the sheet becomes wrinkled and even folds back on itself, absolutely refusing to lie down smoothly on the pile as is natural for it to do when there is no charge in it. At other times, while giving no outward sign of pushing or sucking, of attraction or repulsion, it will unexpectedly give the feeder a slight shock as he forms a circuti with his hands from one surface to the other of a pile of paper. These apparently inconsistent and freaky actions are, however, easily understood and explainable by the simple fundamental law that positive and negative charges are always trying to come together and produce neutrality, and this very effort causes like kinds to repel and unlike kinds to attract each other, and they communicate their force to the paper to which they are attached.

Two surfaces electrified alike will always push apart, and two surfaces electrified oppositely will always suck together; but if the charge is not uniformly distributed over the surface of a sheet, or if it is in one spot negative and another spot positive on the same sheet, then it becomes a question of the relative voltage of the different charges as to what will happen—and right here is where the complication of trouble arises on printing-presses. Paper almost invariably acquires a charge of negative electricity in passing the impression cylinder, and this charge is fairly uniform over the whole surface; but before reaching the delivery end of the press the uniformity is broken up, so that, while some spots retain their initial negative charge, other spots may actually be reversed and be strongly positive. The change is effected by action and reaction on induction between the initial negative charge on the paper and pieces of metal near which the paper has passed, modified by the presence of insulating bodies like wooden fly-sticks and cotton tapes, covering only a portion of its surface.

An old method of remedying this evil was to attach a damp cloth to the press so that the paper passes just beneath it. This can not be resorted to on all classes of machines. It is therefore plain that the only effectual remedy is an active force capable

of dealing with both kinds, positive and negative, applied from the outside, to bring these wavering forces into stability, so that there will be neither attraction nor repulsion. Practical experience during the past few years with the alternating current as applied to this problem has proved conclusively that this is the only natural and adequate method of dealing with these forces and conditions. There are now upon the market various electrical contrivances, which when adjusted on the printing-press will completely and effectively bring about a stable and neutral condition. The alternating current, as its name implies, has in it both kinds, positive and negative, and in the presence of such a current the charges in the paper become their own destroyers under the law of life and unlike as above stated. Under this law the charges in the paper, whether positive or negative, whether in patches on uniform over the whole sheet, become self-selective and draw out of the alternating current the kind and quantity exactly to neutralize them. The air, being an insulator, would, under ordinary conditions, prevent any interchange between the paper and a conductor carrying the alternating current, so that it is necessary to provide a medium for the conveyance of these charges across the intervening space. This medium is easily supplied by means of ironized air, produced by the action of points, attached either directly to the alternating conductor or to pieces of metal in its vicinity. When the hand is placed before a point so located, a breeze is distinctly felt, which represents a stream of electrified air particles, or irons as they are called which act as carriers and convey charges across space a rapid speed, so that it is by no means necessary to have any material object touching the paper to effect its complete neutralization; as a matter of fact, the inductor-bars, as they are called in this system, are usually located so that the paper will pass by them at a distance of two inches, and it is cutomary to have only one of these inductor-bars on a printing-press, and have it located as near the delivery end as possible so that the paper does not have an opportunity to pick up any more charges by friction or by bending or pressure before being laid upon the pile, where it will then lie perfectly smooth and free from the sheet below it.

Useful Information Concerning Paper Generally.

Another point of interest to the pressman is the finish of the paper, especially when doing illustrated work. Broadly speaking, there are three classes of surface, namely coated, imitation coated, and uncoated. The first consists of a body paper coated with a species of clay and glue. The material forming the body paper is very important, with regard to ease in working. The best coated papers are made from esparto fibers which give a mellow paper. For the best qualities, the coating consists of barium sulphate and glue, while China clay and kaolin are used in the cheaper papers, which also contain a large percentage of mechanical wood-pulp in the body paper. This may be roughly detected by the tear, which is exceedingly brittle. An absolute and conclusive proof of the presence of mechanical wood-pulp in a paper is the crimson stain produced by pouring a drop of the following solution on the paper: Phloroglucinol, 2 gm.; absolute alcohol 25 c.c.; concentrated H.Cl., 5 c.c.

Another reagent to prove mechanical wood-pulp in paper is a solution of anilin sulphate, which produces a yellow stain. There is really no very reliable practical test of the quality of coated papers, except to actually print upon them. Apart from this, the best method is to judge the smoothness of the surface by holding the sheet level with the eyes, facing a good light. There should also be a complete freedom from dirt spots and gray specks in a good paper. The color should also be noted carefully, for this is in proportion to the quality of the clay used.

The degree of fixation is also another important point with reference to the surface and may be determined by three tests:

1.—Moisten the ball of the thumb and press it against the paper. If the clay adheres to the thumb, then the coating is poor.

2.—Cut a piece from the paper and rub it against itself by means of the thumb and forefinger. From the loosening effect of the clay, the degree of fixation may be determined by comparison.

3.—Glue a strip of ordinary writing-paper with pure glue and stick it on to the coated paper to be tested. Allow it to dry, and then remove the strip. The extent to which the coating is lifted indicates the quality. If only partially torn away, the degree of fixation is low. If the fibers are actually torn away, the surface coating may be adjudged a good one.

FIRES ON ST. MAURICE.

In the territory of the St. Maurice Forest Protective Association in 1916, 200 fires for the season were caused as follows:

Settlers	00	
Railways	77	38½%
Laborers	28	14 %
Lightning	17	8½%
Fishermen	12	6 %
Unknown	51	25½%
Berrypickers	8	4 %
Jobbers	2	1 %
Portagers	1	½%
Explorers	2	1 %
Trappers	1	½%
Smudge	1	¼%

200 FIRES

The cost of extinguishing fires in 1914 was $13,004.32; in 1915, $7,329.47 and in 1916 $2,759.71, thereby showing progress made in patrol efficiency.

In the 12,000 square miles of Quebec, patrolled by rangers of the St. Maurice Forest Protective Association, 1213 settlers living in timbered districts where carelessness with fire is a direct bid for a catastrophe took out 'burning permits' during the summer of 1916 in accordance with the Quebec law.

They took out the permits for more reasons than fear of a legal penalty. The written permit to burn the slash in their clearings was equal to an insurance policy on their lives, their homes, and the valuable timber of the neighborhood. By means of the 'permit' a skilled ranger supervised their dangerous slash fires. He made the job a safe one. The settler got a thorough 'burn' to clean up his land, but he made sure of preventing another 'Claybelt Horror'. No red tape. Nothing unreasonable. Today, the Quebec settler in that district holds up both hands for the 'burning permit.'

1213 settlers' fires in 1916 in the St. Maurice area! And **not one fire got away.** Every fire a safe fire! Only one settler refused to co-operate in playing safe; he was prosecuted and fined.

The Future of Sulphate and Kraft Pulp

By HANS LAGERLOF, President Scandinavian-American Trading Co.

Written specially for the Pulp and Paper Magazine.

What is the future of these commodities? In considering the revolutionizing accidental discovery of the paper made from this pulp and the way it has taken on so far, I would predict that this pulp is not only here to stay, but is going to gain for itself an even broader field than it has today. It was peculiar that the real value of this pulp should be found bya mere chance. A Superintendent in one of the oldest paper mills in Sweden let a digester cook too long and when the digester was blown, it was found to contain an awful mess ; our friend did not feel like throwing away this faulty brew, however, but put it over one of the paper machines in the mill and there was kraft paper and we all know that it has had marvelous success and even today it bears the Swedish name of Kraft, which means power or strength.

The advantage in the making of kraft pulp is that one can use any kind of coniferous wood in its manufacture. When it comes to Sulphite, the wood has to be rossed, it must be free from knots and has to be seasoned carefully if a special quality is desired. We all know that for Sulphite the spruce has got to be peeled and quite some work is connected with this preparation. In making kraft, one only needs to take the logs as they come, chop them up, using the bark and everything else, and really the more knotty the wood, the stronger the pulp, which in kraft, of course, is the great advantage.

We know how the big saw mills in Sweden, Finland, etc., formerly burned most of their refuse or it was shipped for building piers at the water fronts, it was often considered a nuisance and a hardship to have to cart away the waste and it is wonderful to think that now all this is being used for kraft if not going into turpentine. The irony of it. Kraft pulp is now about 20 per cent higher in price than sulphite, although sulphite is so much more expensive to make and requires so much more handling and care, but that remains a fact.

It is the world war that has made kraft and sulphate in general so expensive and conditions are so utterly changed since the war that we must anticipate a re-adjustment and gradually lower prices when the war is over. This re-adjustment will refer to prices not only for kraft, but for all other pulps and probably to everything we use except food stuffs.

However, conditions as they have shaped themselves as the war kept on are such that we may anticipate that the re-adjustment in the paper line will not be so precipitate as one would believe because, esespecially in Europe, wood it going to stay high; so much wood has been used for fuel and such heavy quantities have actually been consumed by the pulp and paper mills on account of the feverish haste in producing; then we must consider that many pulp and paper milsl have been erected or have come into the market since the war, creating new competition for the wood to be obtained. We know how tonnage is getting scarcer all the time, and ocean freights are not coming down at once, even after the close of the war, but are going to come down only gradually and this because we have to consider the depletion of stocks of every description in both the warring and neutral countries, not only in Europe but all over the world and this is going to keep bottoms busy and freight rates up and steady for quite a while.

Suitable labor for lumber operations in the affected districts, both in the States and Canada is very scarce and especially in Canada the ranks of the lumber jacks have been steadily depleted by so many voluntarily leaving to fight for Great Britain in the present war. A comparison can be drawn with Sweden and the other pulp producing countries in Europe; in Sweden especially the mobiliation of vast contingents of men formerly working undisturbed in the woods, but now called to the colors, has caused a serious curtailment in the output of wood for use in the chemical pulp plants and letters coming in from the other side repeat this state of affairs more frequently and insistently.

Necessity is the mother in invention and this has been fully proven in the present war. The raise in prices for krafts and sulphates has been caused mostly by the extra demand for these commodities from the Central Powers and especially Germany. Below will be told how the demand in Germany has made kraft scarce and high and for what purposes the kraft is principally going.

Much of the information given is taken from a recent article in the Swedish trade paper, "Affarsvarlden," but it is of vital interest to every man in the paper line.

Nobody thought until the world war came on that paper would and could be applied to such extensive uses, outdoing King cotton, jute, etc., for twine and textiles although in America, in Massachusetts, we had before the war a mill erected for the purpose of making twine out of paper as a substitute for cotton and jute. I refer to the Textilose Co., of Newburyport, Mass.

As is well-known, Germany has for quite some time been the main customer for the kraft and sulphite cellulose made in Sweden and the reason has been that in that country the sulphate cellulose made in Sweden and the reason has been that in that country the sulphate cellulose is used as the principal substitute for jute and other textile raw materials.

The Swedish Sulphate industry enjoyed a considerable period of expansion a few years prior to the war. Quite a number of new sulphate and kraft mills were erected and principally at the big saw mills in order to economically use their waste and the fear was rather pronounced at the time the war started that Sweden was facing a dangerous over-production. However, things turned out entirely different because of the war and since quite some time the entire production of sulphate cellulose in Sweden is being absorbed at steadily increasing prices and the demand at present is much larger than the production. Nearly all the pulp goes to Germany although the United

States also buys a little right along. Prices have of course been favorably influenced by this demand. Kraft and sulphate have generally been valued and considered worth less than sulphite, but at present conditions are reversed and sulphate which formerly mostly was used for coarse paper is now yielding a better price than sulphite. Before the war the normal price for sulphate or kraft was Kr. 115. to Kr.. (equal to $28. to $29. per short ton) f.o.b. Baltic sea-port, but now the average price is about Kr. 440 to Kr. 450. (equal to $106. to $108. per long ton) f.o.b. Baltic sea-port and as high a price as Kr. 500. (equal to $120) has been paid in certain cases.

Already before the big European war, Germany as well as Austria came to the front with new systems for making paper-twine and called this product Textilose or Textilit, but the introduction of these new commodities met with quite some resistance from the jute industry already established which did not see any use or economical saving in rearranging their manufacture because of this new raw material. However, through the blockade the Central Powers came into an entirely different position in regard to most goods formerly imported. The new methods have been quickly perfected and have been adapted according to need of the time and since a year or so there is a sensational powerful expansion in Germany, especially in the line of manufacture of paper-twine and by-products as a substitute for jute, linen, hemp, and even for cotton. Quite a number of new mills have been erected, partly in connection with textile mills already in existence, but in addition large new plants have been built.

It is of course the question of a war industry, and how long the same is going to prosper cannot be predicted and the Germans seem to think that quite some time, even after peace has been concluded, is going to elapse before they can consider the importance of goods for which they have a substitute in home products just as suitable.

Germany is now the biggest buyer of Swedish sulphate, but the output of this commodity is of quite a tonage and when we must remember that if the Germans get time to prepare there will be no obstacles for materially increasing the German production of sulphate so that this increased production can, to a certain extent, cover the major portion of the needs of the country.

Germany is always figuring on the possibility that India, which controls the world's production of jute, may boycott Germany as, already before the war, there were talks to that effect. Therefore, the Germans consider that paper is going to maintain its position at least as a substitute for jute, that is to say, for making twine, etc., even after peace is concluded.

Because of the high price for sulphate the Germans have of late begun to mix in some sulphite in making paper-twine and experiments are now going on in the works of Deutsche Papiergarn G.m.b.H. in Berlin to make an impregnated twine wholly out of sulphite and it is expected that this new twine is going to prove more suitable as a substitute for linen. The leading concern in this new big industry is the Textile-Union G.m.b.H. in Berlin and the managers are Wilh. Hartmann and Josef Blumenstein. This firm with its different establishments seems to have been the first to make a reliable merchandise and this concern has been used prominently as counsel when it came to erecting new mills in this line. The firm is a big importer of sulphate and also manufactures this commodity at a mill recently bought in Grafl. Krappitz and have their own mills both for the manufacture of paper-twine and paper cloth. In addition they have a mill for making paper sacks.

Another very important group is Textilose G.m.b.H. in Berlin and the manager of this is one of the richest men in Germany, Geheimrath von Friedlander-Fuld.

Most of the mills have been erected in connection with textile mills already in existence and there have often been cases of old established companies in the textile industry having erected new mills. The sale of the goods, no matter whether raw material, paper twine or cloth, is in the hands of certain groups with quite a number of members. Central offices for the buying of raw materials as well for the sale of manufactured products is very popular and an every day matter now during the war with the Central Powers.

The manufacture of twine is about as follows: The pulp is made into paper and cut into slices by special cutting machines which are expressly manufactured in two machine shops in Darmstadt and Düsseldorff and this seems to be the most popular machine at present. The slices are then impregnated and several processes used to increase the tenacity. The slices are thereafter spun on a specially constructed spinning machine. This spinning has also been done successfully on old spinning machines which formerly were used for jute twine. It has been found that machines for linen and cotton have not been so suitable although of late the German cotton idustry has taken a lively interest in the new industry and are trying to make suitable rearrangements in their working.

In the beginning the new goods were mostly manufactured by a mixture of paper and spinning raw materials ordinarily used before the war, but as the ordinary textile raw materials were by and by commandeered for use in the war, the output nowadays is made almost totally of paper.

Prices for paper-twine have been increasing in Germany of late but there is no wholesale price in Germany. People do not consider it opportune to give any price on commodities that are not subjected to a maximum price. According to a statement in the Frankforter Zeitung the price for paper-twine of the most common kind and containing about 15% atmospheric moisture is M. 2.40 per kilo or 30c per Lb. normal exchange, which cannot be considered high considering the steadily increasing cost of sulphate being 7¾c to 8½ delivered in Germany at this time.

A GIANT CUTTING MACHINE.

A circular from the Oswego Machine Works, Oswego, N. Y., contains the information that the company has recently constructed a 92-inch cutting machine, which is the largest cutter ever built at the Oswego Works and one of the largest machines of its speed and accuracy ever constructed in the United States.

An unusual illustration in the circular shows the 92-inch knife-bar of the big cutter towering above a man of average size.

Problems for the Forester

The attention of the Canadian Forestry Association, in session at Ottawa last week, was centered mostly on two problems, the Disposal of Slash and the White Pine Blister Rust. A general description of the latter was printed in this Magazine for January 11th. In the following pages, Dr. Gussow gives a further discussion of this subject and offers definite suggestions as to the control of the disease.

In regard to the disposal of slash, Mr. Welsh was unable to be present to give his paper on how this matter is handled in Minnesota. Informal statements on the subject were made by R. H. Campbell of the Forestry Branch and R. D. Prettie, Superintendent of Forestry for the Canadian Pacific Railway. A resumé of the discussion of this subject is given here, as it especially concerns pulp mills operating their own limits.

CONTROL OF THE WHITE PINE BLISTER RUST.

By H. T. GÜSSOW, Dominion Botanist.

The following article is an extract from the address of Dr. Güssow at the annual meeting of the Canadian Forestry Association, held recently in Ottawa. This paper was intended to open up the question for discussion that might be helpful in checking the spread of this disease.

Dr. Güssow said in part:

"What the future may have in store in Canada will largely depend on the efforts undertaken at this juncture. Whether the disease will become as destructive here as in Europe nobody can say: but it would be folly to leave undone what can and should be done now, because of the uncertainty of the future.

Everybody interested in the white pine should learn to recognise this fungous disease, and, on locating its presence, should report to a responsible official.

When a pine has become infected with the rust, it may not show any decisive symptoms for a year or two; but the first generally observed symptoms are a swelling or thickening of the bark on any part of the stem or branches at the place of infection. There may be from one or two up to fifty or a hundred infections on an individual tree, and on wood up to twenty-five years of age.

This swelling is, of course, far more easily noticed by persons familiar with the normal appearance of the pine branches; but, on comparing suspected limbs with normal ones, even the layman can easily notice the difference. The swollen portions are generally soft and spongy to the touch.

Following the swelling, generally between April 15th and June 15th, but by no means necessarily just at these exact dates, there will appear, breaking through the bark, yellowish patches of irregular form, and varying in size from a pin head to the section of a lead pencil. These yellow masses consist of a fine powder, and are composed of numerous minute spores. These spores disperse within the period stated, and a roughish, scaly, and somewhat swollen bark remains.

From that time till the same period in the following year the rust fungus lives in the tissues of the bark, growing slowly up and down the affected part, or all around it, its progress indicated by the increase of the swollen areas. Then, again between April and June in the next year, a new crop of spores is produced, followed ultimately by the death of the limb that has been girdled. The infection may also occur on the main stem; and, if this be girdled the pine will die. The attack is generally accompanied by a copious production of resin; this clogs the vessels of the tree, and often causes death before girdling takes place.

On older trees these infections may live for many years; and, while some smaller limbs may be killed every year, the tree itself may not die at all from such an attack. But the acts all the time as a producer of new crops of spores, and as a propagator of the disease.

Let us pause here and note certain important features. Firstly, it is easy to recognise the disease when the spore masses have developed, but difficult, before they have reached this stage.

Next, between the original infection and the production of spores, from one to two years may elapse. Hence, during this period, it is very difficult to say if the pine is diseased. This point needs to be taken into consideration, especially in connection with re-afforestation with young pine seedlings raised in danger areas. The pines may appear quite sound, they may be prolonged still more owing to the disturbance due to transplanting, and the disease may not appear till some years later. Is it wise to incur such risk?

Another point to be noted is that the danger to young pines is greater than that to older trees. Yet re-afforestation, whether natural or artificial, depends upon the young pines.

Furthermore, old trees that become infested are rarely killed, but survive, serving for years as harbourers of disease.

As far as blister rust is concerned, it is no question, in the present state of our knowledge, of treatment of infected pines, but of eradication of diseased trees. We are of the opinion that the distribution of which pines from nurseries within danger zones should be promptly prohibited, since incipient attacks, as already stated, may escape notice during inspection, and, moreover, during the incubation period no reliable signs are exhibited by infected pines. Such incipient infections, as represented by these stages, distributed by seedling pines, would only result in a wider spread of the disease, and render the problem of protection from diseases a very doubtful, or at any rate, very difficult matter even to the trained official.

I believe, from frequent discussions of the subject of control of Blister Rust in Canada, that we are agreed that extermination of suspected plantations, if faithfully carried out, and if coupled with replacement of the same by healthy trees, will do more towards stamping out the disease than periodical and difficult—and, at that, inefficient—inspections.

Periodical inspections of nurseries has been often recommended. But, from actual experience, it has been learned that the closest inspection possible will not reveal all infected trees, and new infections will be found year after year. In the United States, where the

disease is widely prevalent, it has been found that, in many cases, the cost of continued inspection will more than replace the diseased plantations with healthy trees, and that this latter policy would be more economical than the continuation of periodical inspection.

One of the first phases of research up in connection with the blister rust in Canada was to ascertain whether or not the rust is transmissible by currant bushes. From the careful observations of my assistant Mr. McCubbin, in charge of the Dominion Plant Pathological Laboratory at St. Catharines, Ontario, it would appear that there exists now certainly as much evidence in favour of the belief that the rust does spread or overwinter on the currant, as there is in support of the view that it does not overwinter. In a few seasons this point will be definitely settled.

Another question of importance yet to settle is whether the spores of current rust may be carried on fruit containers from infected areas, and thus be conveyed to areas formerly uninfected.

From a consideration of the role of these factors we can draw the following conclusions as regards control of the disease:

(1) Exclusion of all foreign white and other leaved pines, (which has already been done).

(2) Exclusion of all foreign species of the genus **Ribes** according to Gray's Manual, if known to be carriers of the rust, (which has already been done by the United States of America).

(3) Examination in plantations, hedges, shelter belts, etc., of all white pines originating from any foreign sources.

(4) Destruction in any such h plantation, hedge, shelter belt, etc.; of each and every tree found infected even in the smallest degree.

(5) Examination of, and destruction, if possible, of **Ribes,** wild or cultivated, in the neighborhood, where infected pines may be found; if disease be found; if disease be found, the area should be proclaimed as a danger area.

(6) Systematic look-out, during April, May, and June, for blister rust on native pines; and from June to October, for currant rust, followed by immediate report and proclamation as danger areas, wherever disease be found.

(7) Strict quarantine against the export of white pine or other five-leaved pines from any danger area.

(8) Strict quarantine against the export of currant or gooseberry stock from nurseries in any danger area, until a license has been granted by an authorized government official that neither stage of the rust has occurred on the premises of the licensee, whilst, at the same time, all pines have been destroyed throughout the danger zone.

(9) Destruction of all wild species of **Ribes** acting as carriers in the neighbourhood of valuable standing white pine timber.

(10) Planting of deciduous tree shelter belts surrounding new pine plantations.

(11) Mixed re-afforestation.

(12) Raising of pine seedlings, outside of danger areas, for future supplies from home grown seed.

The last three suggestions are made as additional and rational precautions. Shelter belts would protect against the attack of pines by disease; next, mixed planting would reduce losses in case new plantations may be invaded by disease in future; and my last suggestion is to encourage re-afforestation with young seedlings **grown in this country.**

Before concluding these remarks, I wish to state that, in order to achieve the best results from these prophylactic measures, the work should be divided. The part assignable to the Dominion authorities would be to give the required legislative support, to carry on, by means of their experts, researches into many uncertain phases of this important disease, some of which have been briefly referred to, and to act generally as scientific advisers and referees to the provinces. Arrangements could also be made for the training of provincial inspectors, if such be found necessary. The Field Plant Pathological Laboratories of the Dominion, under my direction, would affort great assistance in this respect.

To the provinces would fall the maintenance of systematic scouting inspection, the supervision of the eradication of pines, or currants as the case may be, the replacing of diseased plantations by young stock, and generally the responsibility for the carrying out of the practical work in their provinces, and the soliciting of close co-operation from all interested parties.

At the conclusion of this paper, G. C. Piche, chief of the forest service, of Quebec, told of the efforts made in that province to stamp out the disease. It had only so far as he was aware occurred in insolated instances and those in small areas at Oka, and Ste. Anne De Bellevue.

E. J. Zavitz, provincial forester, for Ontario, spoke briefly on the efforts made in Ontario to preserve the stands of white pine from this nefarious pest.

Valuable work in studying the character and control of the disease has been done on the Niagara peninsula, where the raising of currants and gooseberries is an important and extensive industry.

Clyde Leavitt spoke of the $500,000 appropriation asked of the congress of the United States to supplement the expenditures of the individual states and mentioned some of the efforts that are being made across the line.

It was recommended that the Dominion Government be urged to make an immediate appropriation of $50,000 for the investigation, location and eradication of the white pine blister disease in Canada.

It was unanimously resolved "that the Dominion Government should take action wherever necessary, and in whatever manner deemed desirable, to prevent the spread of the pine blister disease in Canada."

* * *

THE DISPOSAL OF SLASH

By R. H. CAMPBELL and R. D. PRETTIE.

In the absence of Mr. T. J. Welsh of Bermidji, Minnesota, Mr. R. H. Campbell was called on for a few remarks. From his statement it appears that on some small operations the disposal of slash has been required and has proved very satisfactory. Two methods were tried out, hauling tops and branches to central piles and burning after logging, and also clearing and burning as the trees were cut. The latter seemed more satisfactory. In fact the destruction of the slash made it much cheaper and easier to get around with the teams for taking out the logs.

The disposal of slash by burning is undoubtedly successful on winter logging operations. With summer

logging the situation is much different and more difficult.

* * *

Mr. Prettie stated the questions that would come to the mind of any of one reading a description of a slash disposal operation, as follows:—

1. Are our conditions the same as the writer's?
2. Where is he logging?
3. What is the extent of the operation?
4. What is the nature of the country?
5. Is that country subject to great fire risk?
6. What about the rain fall?
7. What are species of trees?
8. Is the amount of slash excessive?
9. Is there need of burning after logging?
10. What burning has been done to date?
11. What is the cost and against what account is it charged?
12. How does burning compare with contract lopping?
13. Is broadcast burning recommended?
14. Is a universal law practicable?

The C.P.R. logging operations are on the Bull River in British Columbia, the country is rough and the logging is expensive. The fire risk in the Crows' Nest and Boundary country is probably as high as any where on the continent. The rain fall is very light, most of the precipitation being in the form of snow. There are periods of hot, dry winds that blow continuously for days at a time.

Fir, spruce, jack-pine, tamarack and bull-pine occur in about the order given.

The amount of sash is not excessive, except in spruce bottoms and along draws on some benches, yet there is enough slash to cause grave concern in case of a fire. The only burning done to date is along toti roads, around the camp and in one bad pocket at the forks of a stream. It was at this spot that a fire was recently stopped.

Specific cost data cannot be given, but will be from $4 to $8 per acre, depending on topography, relation of roads to waterways and stand per acre. If this is charged against logging it may make the cost of this operation excessive, especially where the stand is poor and logging difficult.

Some lopping of tops has been done and on some contracts, props were taken from the tops. This was not done for profit, but to eliminate waste.

Broadcast burning is feasable and desirable on land suited to agriculture, otherwise it usually is not to be recommended. This method can be employed in small pockets scattered over an operation and if these pockets are selected according to the fire risk and the second growth, a great menace will be removed.

A universal law requiring the disposal of all slash is not practicable now.

A forest fire pump and engine which has been brought out recently will prove a great protection.

* * *

The discussion, which was entered into by Ellwood Wilson of Grand Mère, W. B. Snowball of Chatham, N.B. and others brought out three distinct benefits to be derived from slash disposal. These are first, reduction of fire risk, second, destructive insects are discouraged, third growth has a better chance.

* * *

W. B. Campbell, assistant superintendent of the Forest Products Laboratories at McGill University told about some of the investigations that are under way or planned. Of special interest to pulp and paper men are, the measurement of the length of fibers from Canadian trees, the practicability of marketing pulp wood in the form of chips, the staining of wood fibers, a study of the beating operation, etc.

Digest of the World's Paper, Chemical and Mechanical Pulp Markets

By Newsprint Manufacturers Association.

New York, January 13, 1917.

There was little change in the paper and pulp markets of the world during December. The Swedish embargo on shipments of chemical pulp to England has not been lifted, although the two countries are still negotiating. The demand for raw materials has not decreased and there is strong evidence that production of both paper and pulp will shortly be curtailed because of a lack of labor, coal, pulp wood, and other materials.

JAPAN

Paper trade journals, as well as other periodicals occasionally dealing with subjects pertaining to the paper trade, have failed to mention conditions in France, Japan, and Spain, and we assure that conditions are about the same as we have recently reported them.

RUSSIA.

The Russian correspondent of "**The Paper Maker & British Paper Trade Journal**" states:

"The paper shortage has been severely felt throughout Russia, the domestic production and imports from Finland having fallen far short of the demand. In their extremity publishers and printers have for the first time been compelled to turn to Norway for supplies, with most successful results. Large quantities of paper of all kinds are now being sent by Norwegian firms, not only to European Russia, but also to Siberia. The prices are stated to be but a fraction higher than in Finland.

"Russia export trade in timber in the first half of this year showed a considerable increase in quantity and value compared wit hthe corresponding period of last year. Wood for matches, paper pulp, etc. was exported to the extent of 5,868 short tons against 1,318 short tons."

ENGLAND

In regard to the pulp and paper situation and the limiting of import licenses by one-half instead of one-third of the amount used in 1914, the "**Paper Maker & British Paper Trade Journal**" states as follows:

"Another important influence on this all-important question is the latest order issued by the President of the Board of Trade to the effect that the Government have decided that the imports of paper materials must, from January 1st, next, be placed on the same footing as the imports of paper, and that in order to give effect to this decision the licenses issued by the Commission for importation in respect to the supply already allowed for the two months January and February, 1917, will be reduced proportionately. We have endeavored to realize with as much fortitude as is humanly possible that these things are essential to the successful carrying on of the war, but this latest order

in this particular form will certainly bring about further confusion and considerable hardship. The paper-makers have already endeavored to impress upon the President of the Board of Trade how the restrictions have adversely and unfairly affected them hitherto, particularly by a real preference being given to foreign paper-makers, and considerable anxiety will be created in the minds of those who are already pledged to contracts passed the licensing proportion as in existence today. The immediate effect of the new order, to come into operation on January 1st, would, of course, point to the tendency of dearer paper."

"**The World's Paper Trade Review**" for December 8, 1916, commented as follows on the same phase of the situation:

"The effect of the decision to further curtail imports of paper-making materials has not yet made itself felt very severely. The fact of the matter seems to be that very little buying is taking place, and both users and makers hold fairly adequate stocks of paper for present necessities. The end of year always brings a slackening in buying, while it is equally true that the commencement of the New Year witnesses a revival. At present, prices are fairly easy, compared against a few months ago, and it is even possible for buyers to squeeze slight reductions which until just recently were unthinkable."

"**The World's Paper Trade Review**" of the following week stated that the past week had witnessed a stiffening in paper prices and that while there is little possibility of a panic such as existed last February and March, it was fairly obvious what will happen with the revival of buying in the New Year.

According to "**Affarsvarlden,**" Stockholm, Sweden, spruce, which has been in great demand in England, has of late risen in price by pounds by standard, but holders of spruce stocks are maintaining a very firm attitude, and look for further advances in price in the early months of this year.

The usual slackness during the holiday season, together with the hope of a settlement of the embargo controversy between Sweden and England, rather offset the briskness caused by the endeavor on the part of the buyers to increase wood pulp stocks while it was possible.

Mechanical pulp at the end of the month was practically unchanged, but chemical pulp prices experienced a slight easing off. Prices quoted by the "**World's Paper Trade Review**" of December 29, 1916 were as follows:

Sulphite, Bleached good quality.	$208.56	$217.25
	Per Short Ton.	
Sulphite Easy Bleaching 1st quality	165.11	—
Sulphite, "News" or Strong quality	147.73	—
Soda, Unbleached 1st quality	154.25	156.43
Soda, Unbleached Kraft or Strong	132.52	139.04

England seems to be discounting the decline of Norwegian chemical pulp prices because of the further limitation of import licenses.

In dealing with this phase of the situation, the December issue of the "**Anglo-Norwegian Trade Journal**" London, England quotes in regard to the wood pulp market:

"Since the last report strong and bleaching sulphite pulps have become easier,owing to the rumored removal of the Swedish embargo on chemical wood pulp. In spite of the presence here of a Swedish Commission to try and settle this and similar matters, nothing definite has been officially announced, but by adopting "waiting" tactics, buyers have succeeded in forcing prices down, with the result that bleaching and strong sulphites are obtainable now at about $130.35 per short ton and $26.01 per short ton F.O.B. plus difference in exchange, a drop of about $17.38 per short ton to $21.-72 per short ton on prices in force a month ago. Soda pulps are in less demand at present, as sulphites are offered at a lower price than the previous level for soda, and buyers are averse to buying the latter, when the former is available at an equal price. Mechanical pulp is much firmer owing to the abnormal increase in the price of timber and whereas a month ago it was obtainable at $30.42 per short ton to $32.59 per short ton F.O.B. plus difference in exchange, according to quality, present quotations are from $35.85 per short ton to $38.24 per short ton F.O.B. Quotations for 1917 delivery are $0.24 to $0.49 per short ton higher. Taking the wood pulp market as a whole, there are very few buyers inclined to purchase ahead. The outlook is most disquieting from a paper manufacturer's point of view, and we foresee a quiet period, unless conditions should much improve in paper."

The same authority states that the paper market is experiencing much the same condition, and is expected to remain inactive for some months. Open market prices however, are expected to increase as time goes on, especially as the increases in costs make it evident that some Norwegian and Swedish mills will be compelled to close down.

SWEDEN

The mechanical pulp market, according to "**Affarsvarlden**", Stockholm, Sweden, experienced an increase in prices during December, due principally to the demand from the United States. Early in December the market held firm with dry mechanical pulp at $47.41 per short ton F.O.B. Gothenburg and wet mechanical pulp at $22.31 to $24.31 F.O.B. Gulf of Bothnia. A brisk demand followed, especially for shipments from west coast harbors, and toward the end of the month dry mechanical pulp was quoted at $48.62 per short ton F.O.B. Gothenburg and wet mechanical pulp at $26.47 per short ton F.O.B. Gulf of Bothnia, on a rising market. Freight quotations by the Norwegian shipping firms to United States are comparatively low, and there is every prospect of a brisk trade between the two countries. "**Affarsverlden**" states that the chemical pulp market is firm and prices are about at last month's level, sulphite pulp selling at $91.17 to $97.25 per short ton F. O. B. Gothenburg and $85.09 to $91.17 per short ton F. O. B. Baltic port. Although the Northern Baltic ports were open during December, the ship owners were not inclined to send their vessels to the more distant loading ports for cargoes.

Sulphate wood pulp was still in great demand in Germany and Austria-Hungary, due to the great development and perfection of the spinning paper industry in these countries, and the market showed a tendency to rise.

NORWAY

According to "**Tidskrift for Papirindustri**" Christiania, Norway, December 15, 1916, the market for all kinds of chemical pulp continued exceedingly quiet, the American mills only buying spot lots and the British buyers holding back pending the result of Swedish-English negotiations on the Swedish Embargo. The

effect of the British restrictions of imports for 1917 is also being felt. Both this authority and **"Papir Journalen"**, Christiana, Norway, omit prices. The **"World's Paper Trade Review"** London, England states:

"Chemical pulps are weaker as the Norwegian mills are trying to dispose of some of their pulp before the Swedish embargo is lifted, and are believed to be willing to give way in price in order to do so."

"Tidsskrift for Papirindustri" states that mechanical pulp is quiet and firm at last month's levels, viz., $46.19 per short ton F. O. B. for dry and $36.47 to $38.90 per short ton for wet.

The news-print paper market experienced some activity lately, but the tonnage permitted to English buyers under their licenses was so small that prices did not advance.

The general pulp and paper markets seem to have found a level from which they will fluctuate very little, unless a strong new influence is brought into the situation.

Pulp and Paper Association Promises Fine Meeting

Arrangements are practically complete for the Fourth Annual Meeting of the Canadian Pulp and Paper Association to be held at the Ritz-Carlton Hotel, Montreal, **January 30th and 31st.** The committees have been working hard and the meeting promises to be a great success. It is expected that the attendance will run will over one hundred. **Patriotism** will be the key note of the convention.

The program of the Technical Section will take up the greater part of the two days, January 30th and 31st, as follows:

Tuesday, January 30th.

10 A.M.—Annual Business Meeting.

12 to 1 P.M.—Trip to Metals Coating Co. of Canada, with demonstration of Metal Spraying.

1.30 P.M.—Lunch at Ritz-Carlton Hotel.

3.00 P.M.—Talk by Hermann Guettler on "Barking Drums." It is urged upon those who attend to bring figures on drum and other barkers, so that the greatest benefit may be derived from the discussion.

7.30 P.M.—(Probably). Dinner at Ritz-Carlton.

Wednesday, January 31st.

Members of the Canadian Pulp and Paper Association are expected to be in attendance. The program is:

Dr. Bjarne Johnsen on "Wood as Raw Material for Paper Making."

Dr. John S. Bates. "An Informal Review of the Year's Topics." This is intended to provoke a lively and general discussion of papers that have been presented at previous meetings of the Technical Section.

It is possible that J. M. Alison of England will arrive in time to give his illustrated paper on "Power Transmission by Cotton Ropes."

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The program of the Canadian Pulp and Paper Association Meeting, which will also be held in the Ritz-Carlton Hotel, Wednesday, January 31st, is as follows, unless unavoidable changes must later be made:

10.30 a.m. sharp.—Business Meeting. Vice Regal Suite, (Second Floor).

Presidential Address—Captain J. H. A. Acer.

Business Reports for the Past Year.

Reports of Sections:
- News Section—Mr. A. G. Campion
- Chemical Pulp Section—Mr. Carl Riordon
- Mechanical Pulp Section—Mr. J. A. Bothwell
- Book and Writing Section—Mr. I. H. Weldon
- Board Section—Mr. J. F. Taylor
- Coated Section—Mr. F. H. Gage
- Felt Section—Mr. E. R. Pepin

Other Reports: The Secretary's
- Technical Section—Dr. J. S. Bates
- Forestry and Protection—Mr. Ellwood Wilson
- Freight Matters—Mr. A. D. Huff
- Tariff Matters—Mr. C. H. Smith

Constitutional Changes.

New Business.

Election of Officers.

10.30 p.m.—Meeting of Sections.

1.30 p.m.—Luncheon. In the Ballroom.

Speaker: Right Hon. Sir George E. Foster, Minister of Trade and Commerce.

Subject: "Trade Conditions after the War."

3.30 to 7.40 p.m.—Recess. With optional meetings of Sections.

7.40 p.m.—Reception by the Officers.

8.00 p.m.—Banquet. In the Ballroom.

Toast List.

"The King"

"Our Country." Proposed by the President; responded to by Right Hon. Sir Robert Laird Borden, Premier of Canada. (If Parliamentary duties permit).

"The Boys at the Front." Proposed by Mr. Carl Riordon; responded to by Lieut.-Col. C. H. L. Jones and Captain J. H. A. Acer.

"Our Allies." Proposed by Mr. H. Biermans; responded Z. Zunini, Italian Consul; M. C. I. DeSola, Belgian Consul; and Serge de Likatscheff, Imperial Russian Consul General.

"Our Guests." Proposed by Mr. G. H. Mead, responded to by Mr. Frank L. Moore, Vice-president of the American Paper and Pulp Association.

"The Pulp and Paper Industry." Proposed by Hon. Jules Allard, Minister of Lands, Forests and Mines, Province of Quebec; responded to by Mr. George Chahoon, Jr., and Mr. F. H. Gage.

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The price of the Banquet Tickets has been fixed at $10. Members are asked to make reservation as soon as possible through the Secretary. The tables seat six or eight guests. Those making application for tables for parties will be given first choice of place. The price of Banquet Tickets inculdes the Luncheon. Extra tickets for Luncheon $2.00.

A recess during a great part of the afternoon has been purposely provided for, in order to allow members to attend to any of their business in Montreal or to see friends. The recess will also provide an excellent opportunity for informal discussion on matters of common interest. In view of this, members are earnestly requested not to make any business or social appointments for the morning or evening, but to lend their whole support to the meetings of the Association.

An orchestra, singers and other special music will add to the enjoyment of the banquet. The souvenirs will be the climax of the idea of patriotism that will pervade the meeting. At each plate will be an Honor Roll, in five colors, bearing the names of some twelve hundred men who have enlisted in the British army from the pulp and paper industry in Canada.

Review of Recent Articles of Interest to the Pulp and Paper Industry

New Project at Watertown, N. Y., for Saving Pulp Waste.—Paper Trade Journal, Vol. LXIV, No. 1, Jan. 9, 1917.—The Cornell Reduction Co., will develop a recent invention of W. N. Cornell for the refiring of groundwood and sulphite screenings. The machine consists of several paper mill stones bolted together to form a cylindrical stone six feet in length and forty-four inches in diameter. The cylinder of sand stone is arranged to revolve horizontally against another stone plate six feet long with a sixteen foot face. The surface of the plate is concave thereby producing a close contact with a large surface of the cylinder. The plate is arranged to tip at regular intervals following the principle of the ordinary mail box cover. This operation causes the opening at the upper end of the plate sufficient to allow the wood to enter and at the same time closes the lower end. Adjourning the first plate is another six feet long with an eight inch face, this rubs back and forth across the cylinder. The surface of the stone is covered with points similar to that on a meat hammer. The stock is fed down on a apron into a feed box in the top of the machine. The capacity of the machine in use is four tons of goundwood screenings and six of sulphite every 24 hours. The horse power is rated at 35.

Method for Precepitating Organic Matters in Waste Sulphite Liquor.—Answer to the above articles, by R. W. S. Trehlenert. Paper—Journalen 1916, No. 23, p. 269. (See this Magazine, No. 3, p. 88).

Strehlenert claims that the oxidation of SO_2 in his process takes place at a temperature a little higher than 100Deg. C. and very little above atmospheric pressure. The addition of sulphuric acid is only required when autoclaves of other material than copper are used and even then only if the SO_2 content of the liquor is very low or when the liquor had previously been neutralised. Strehlenert has, however, also worked out a method by which even in such cases the small amount of H_2SO_4 (0.1 — 0.5%), used for starting the reaction, is made unnecessary. The oxidation from SO_2 to SO_3 with ozone has been closely studied by Strehlenert, the method will always only be of theoretical value. Even if the organization were practically possible, the operation would hardly be cheaper than pressing some air into the autoclave and oxidising at 4-5 atm.

With Landmark's process 60 grams precipitate weer obtained per litre of liquor, but the ash content was not given. This must be about 22% if the liquor had not been previously treated. By decomposition of the same kind of liquor Strehlenert has obtained between 87 and 98 gr. per litre and with an ash content up to 7%, when using his own method.—B. J.

Half Cellulose.—Manufacture of Half-Cellulose according to Norwegian patent No. 23510 and Swedish patent No. 40894. By E. Kittelsen and T. Kittelsen. (Papir-Journalen 1916 No. 22 p. 254).

A thorough description of their method for manufacture of half-cellulose paper used for wrapping paper, paper bags, insolation paper, etc. The wood is steamed, treated with weak black liquor, afterwards with stronger alkaline liquor and ground cold. The loss of wood substance in the process is 22%. Power consumption in the grinding process is low. The treatment in the paper mill is nearly the same asin the manufacture of kraft and half-kraft paper. The beating process is of special importance. Table shows that this new paper is considerably stronger than half-kraft paper. Photomicrographs show the fibres as compared with other fibres.

The preparation of the cooking liquor is described and the electrolytic method recommended. The liquor is not recovered because preparation of fresh liquor, especially electrolytically, is more advantageous.

Calculations prove that the cost of production is kr. 147.40 (about $41) per ton of paper weighing 50 grains per square meter.—B. J.

Half-Cellulose.—P. Ebinghaus (Papir-Journalen 1916 No. 23 p. 268).

In favour of the new method for manufacturing half-cellulose (Kittelsen's Method) are excellent results obtained in German and Austrian mills, when the wood blocks were cooked with waste liquors before grinding. In using waste sulphate liquor more than one-third more could be ground. White sulphor liquor the result was not quite so good. The fibres are excellent andthe strength of paper much higher than obtainable with the usual grinding methods.

Half-Cellulose.—A. Nilsson (Papir-Journalen 1916 No. 23, p. 269).

The new method was tried out about eleven years ago in Sweden. Nillson tried to neutralize with ammonia the acids which are formed when wood is boiled with water before grinding (for brown pulp), as these are injurious to the fibres. The results were good but the use of ammonia too expensive. Later on black liquor was used with the result that stronger fibres were obtained, the wood was softer and the pulp browner than with the same cooking time without liquor.

Method for Determining Strength of Paper When Wet. E. O. Reed, Jour. of Indust'l Chemistry, vol. 8, p. 1003 (1916). The wet strength of paper is indicated by determining the tensile strength of wet strips in both machine and cross direction ofter immersion for 20 minutes in water at 70 deg.F. It is essential that the conditions of immersion be standard, since variations in time and temperature of immersion have a marked effect on the wet strength. —Chemical Abstracts.

DISTRIBUTES PAPER EQUIVALENTOR

The Odell Manufacturing Company is distributing a Landenberg Paper Equivalentor to the trade. This device has been designed to solve the problem of equivalent weights or equivalent prices of paper. By its use any possible size, registered in quarter inches, with its equivalent weight, can be determined when the weight and size per ream is known. The instrument is fairly simple in operation and will undoubtedly prove of great value to those receiving it.

PULP AND PAPER NEWS

Toronto, Ont., January 23rd.

J. G. G. Kerry, of Toronto, President of the Northumberland Paper and Electric Company, whose new board mill at Campbellford, Ont., started operations this week replacing the old one which was burned down a year ago, is spending a few weeks in the western provinces on a business trip.

Duncan Chisholm, President of the Mattagami Pulp and Paper Co., Toronto, who has been confined to his home for some days with illness, is able to be around again.

F. A. Ritchie of Ritchie and Ramsay, coated paper manufacturers, Toronto, is spending a few weeks cruising among the West Indies. He is accompanied by Mrs. Ritchie. In a few weeks the firm will observe their twenty fifth anniversary in business, they being the first in Canada to enter upon the manufacture of coated papers, starting in a small way at New Toronto. Their present large plant is running to its utmost capacity while the outlook for the coming year is regarded as most encouraging.

David F. Robertson, General Manager of the Northumberland Paper and Electric Co., Campbellford, Ont., withdrew temporarily from municipal affairs this month owing to pressure of work entailed in getting the new mill erected. For six years he was a member of the Campbellford town council, during four of which he ably occupied the post of Reeve. Mr. Robertson has always taken a deep interest in municipal matters and has not decided to retire permanently.

It is understood that the newly organized Lake Winnipeg Paper Co., which was recently incorporated with a capital stock of five million dollars, will erect their new plant at Grand Rapids, which is at the mouth of the Saskatchewan river where it enters Lake Winnipeg, about one hundred and fifty miles north from Winnipeg city. The mill will produce two hundred tons daily of news print and will have four machines, each 158 inches wide. John B. McCrea, of Ottawa, will be the engineer in charge and it is expected that the plant will be completed and in operation by June, 1918. There is said to be 70,000 horse power available at Grand Rapids, which will be developed and a large ground wood mill will also be constructed. The company have large pulp wood limits and are backed by ample capital.

The mill, which will be erected in Winnipeg, by J. D. McArthur, will be a sixty ton board mill in which will be installed a 136 inch cylinder machine. Chip board and all other kinds made from waste papers will be produced. It is expected that construction on the plant will soon start and that it will be in operation before the summer is over.

A. G. Pounsford, general manager of the Port Arthur Pulp and Paper Company, Port Arthur, has returned from spending a few days on the ground, making ready for starting excavation early in March for the new sulphite plant. The first unit of fifty tons will be completed this year. It is understood that the men behind the new enterprise are those identified with the Provincial Paper Mills Co., which is the largest concern of its kind in Canada, having mills at Mille Roches, Thorold and Georgetown, with a daily output of some sixty-five tons of book, writing and bond papers. I. H. Weldon is President of the Provincial Paper Mills Co., T. A. Weldon, vice-president, and S. F. Duncan, secretary-treasurer. They will all be on the board of the new Port Arthur enterprise. For some months the Provincial Paper Mills Co., have been considering the erection of a sulphite plant, and the selection of Port Arthur is regarded as an admirable one. The industry there will eventually be a hundred and fifty-one ton. At a later date it is understood that the Port Arthur Pulp and Paper Co. have in contemplation the erection of a book and writing plant at Port Arthur of about fifty tons capacity, and the installation of two machines each of 148 inches width. This project will, however, not be undertaken until the new pulp mill is well in operation. Port Arthur is to be congratulated on landing such an important proposition and the men behind it are among the most experienced and progressive in the trade, who have made a signal success of every undertaking, and today occupy a commanding position in the Canadian paper making arena. The chief engineer of the company is Thomas Murphy, who states that the mill will embrace the last word in sulphite pulp mill construction and will be built of brick and reinforced concrete. The Port Arthur papers speak most enthusiastically of the big undertaking at Bare Point.

The new sulphite plant of the Ontario Paper Co., at Thorold, Ont., was started up this week. The capacity is fifty tons a day and there are two digesters each 15 x 49 feet, which were built by the Chicago Bridge and Iron Works at their plant at Bridgeburg, Ont. The sulphite mill is of steel, concrete and brick construction. It is erected east of the paper mill on the north end of it, between the mill and the Grand Trunk railway. It has two acid towers, each 116 feet in height.

The new paper machine room is 100 feet wide by 273 long and the third Fourdrinier, which is now being set up, will be in operation some time in March. It is 162 inches wide and was supplied by the Pusey and Jones Co.

The Ontario Paper Company are also installing a 104 inch cylinder wrapping machine built by J. H. Horne & Sons Co., and during the past year, completed a timber crib dock down the St. Lawrence for the loading of pulp wood. The dock is 400 feet long and allows loading of vessels drawing 14 to 18 feet of water in low tide.

W. J. Gage, President of W. J. Gage and Co., manufacturing stationers, Toronto and of the Kinleith Paper Mills, Catharines, Ont., who, as stated last week, had donated a fund of one hundred thousand dollars toward the erection of a large apartment house in Toronto, capable of accommodating fifty families, (which apartments will be leased at a nominal rental to the widows and children and other dependents of

Canadian soldiers who have given up their lives for King and Country), is one of the leading philanthopists of Canada. He is regarded as the pioneer and founder of the sanitarium movement for consumptives and has given over a quarter of a million dollars to this cause alone Mr. Gage has been interested in and out of season in combating the ravages of "the white plague." He is a former President of the Toronto Board of Trade and has held other high positions. In 1874, upon the death of Adam Miller, he became a member of the firm of Adam Miller and Co., and in 1880 sole proprietor. The firm name was then changed to W. J. Gage and Co. and its subsequent successful history is well known.

The Ontario Paper Co., Thorold, Ont., has placed an order for an additional paper machine for delivery in 1918, says the Bulletin of the A. N. P. A. This now makes this a four-machine mill. A third machine has just been delivered and will be in operation the first of the year, with an additional 50-ton capacity.

A news dispatch from Sandusky, Ohio, states that the Hinde & Dauch Paper Co., of that city, has purchased a controlling interest in the Southern Fibre Company of Portsmouth, Va., in order to insure itself a supply of raw material.

Provincial Paper Mills Company, Toronto, which has mills at Mille Roches, Thorold and Georgetown, Ont., has plans under way for the erection of a new 50-ton paper mill at Mille Roches. It is said the company plans the installation of two 148-inch book paper machines.

John J. Ross, who for several years has been superintendent of the Fort Frances Pulp and Paper Mill Co, at Fort Frances, Ont. and the International Falls Mill at International Falls, and recently resigned, is now doing some expert work at the plant of the Abitibi Power and Paper Co. at Iroquois Falls, Ont. John Divine, who was formerly assistant to Mr. Ross, has been promoted to the position of superintendent of the Fort Frances and International Falls mills and has entered upon his new duties.

The annual meeting of the Ratcliff Paper Co, Toronto was held last week when reports showed that the past year had been the most successful in the history of the business. F. L. Ratcliff was re-elected President of the company, T. E. Gain, Vice-President, and N. J. Ratcliff, Secretary. The company have recently installed in their warehouse on York street, Toronto, a 62 inch slitter and rewinder for cutting and rewinding rolls of any desired width.

Many friends in the pulp and paper have learned with deep regret of the death of Alex. Barnet of Renfrew, the millionaire lumberman, who passed away last week, aged seventy seven years. For nineteen years he was inpartnership with the late Hon. Peter White in the lumber trade and delivered annually upwards of five hundred thousand cubic feet at Quebec for the export trade. Mr. Barnet had large financial interests throughout Canada particularly in British Columbia and also in California. He leaves a wife, four daughters and two sons.

S. R. Armstrong, general manager of the Mattagami Pulp and Paper Co., who are erecting a hundred and fifty ton sulphite plant at Smooth Rock Falls, Ont. has returned to Toronto after spending several days at the mill. He reports that good progress is being made on construction although the recent cold snap. when the thermometer touched fifty degrees below, has temporarily stopped the pouring of concrete for the walls and foundations of the buildings.

Thorold, Ont., Jan. 23rd.

"**The Country needs more men**", says Mr. T. A. Weldon, which is one of the many congratulations which are pouring in upon Charles E. Redmond on the arrival of a seven and a quarter pound master mechanic.

Mr. I. H. Weldon, President and S. F. Duncan, secretary-treasurer of the Provincial Paper Mills Company, Limited, spent a day in Thorold this week, visiting at the Montrose Division and also at other mills in course of construction throughout the town.

Contractor W. J. Trimble who is constructing the new mill at the Ontario Paper Co's. plant, was obliged to lay off temporarily a number of the men engaged on this work.

HOW FORESTS ARE PROTECTED.

A meeting somewhat unique, will open in Montreal on the 1st and 2nd of February, when a score of experts in forest fire protection will gather in conference to discuss Canadian forest guarding problems. Officials from Oregon, Minnesota, Michgan, and other States will join with the fire inspectors and managers of the Quebec mutual protective associations and there will also be present Federal and Provincial officials, lumbermen, pulp and paper men, and all of the general public who care to be present.

Forest protection has been developed in recent years to a point where the old haphaard methods have given place to a most accurate science. The use of telephones, lookout towers, pumping outfits, aeroplanes, motor cars, and other mechanical aids in fire detection and fire fighting will form features of the discussion.

Meetings will be held in the Board of Trade rooms, beginning at 10 a.m. and 2 P.M.—There will be no admission fee.

UNION BAG EXTENDING ITS FIELD.

The Union Bag & Paper Corporation purchased the entire capital stock of the Badger Bag & Paper Co. of Wausau, Wisconsin. The Badger Co. manufactures paper bags and has a capacity of 3,000,000 daily. This is the second acquisition by the Union Bag & Paper Corporation since its incorporation last fall. The other acquired was The Cheboygan Paper Co. of Michigan. There will be no change for the present in the management our output ofthe Badger Company.

The St. Maurice Paper Mill in Canada, one of the larger subsidiaries of the Union Bag & Paper Corporation, is expected to commence operations the first of February.

NEW PAPER DRINKING CUP.

The Paper Mills Specialty Company, Inc., of Chicago, originator of the well known "Pamisco" brands of wax paper, toilet and tissue paper, paper towels and napkins, lunch rolls and wax baker rolls, announces that within the next ten days it will place upon the market the "Pamisco" drinking cup in all sizes. This paper cup will be furnished for soda fountains as well as inthe smaller glass sizes. It is claimed to be only self-standing, non-paraffine one-piece cup on the market. In these days of sanitary drinking cups this little "Pamisco" product will be assured a cordial welcome by all branches of the trade and should prove a ready seller.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The Northern Paper Mills, Green Bay, Wis., which has gradually enlarged its plant in the last several years, began erecting a sulphite plant last summer. A group of six buildings was erected, and machinery is now being installed. The sulphite plant will be in operation late this month, it is believed. The plant will have a capacity of twenty-five tons of bleached and unbleached sulphite. Two digesters will be installed. The Jennsen acid system will be used in the new plan.

James M. Geraghty, superintendent of the Linden division of the American Writing Paper Company, has resigned to accept a position with the Carew Manufacturing Company, of South Hadley Falls, Mass., where he will have charge of the manufacturing and will assist Leon M. Yoerg, who becomes general superintendent.

Two more mills have been added to the list of those which have adopted the three-tour system. The latest are the Franklin Board & Paper Co., of Franklin, Ohio, and the Oxford Paper Co., of Rumford, Maine, which, since the first of the year, have been operating under that plan.

Officers of the Esleeck Manufacturing Company, Turner's Falls, Mass., were elected on January 6th, for the ensuing year, as follows: President, A. W. Esleeck; treasurer, H. McC. Knickerbocker; vice-president, Irving N. Esleeck; secretary, William P. Perry.

What is believed to be the largest life insurance policy ever written in Maine is that just announced by the Oxford Paper Company and the Maine Coated Paper Company, of Rumford, Maine. The total insurance is about $1,000,000 and is on the lives of 1,500 or more employees of the two companies.

The men after six months' service will be insured to the amount of $500, and the insurance will be increased $50 or $100 per year, according to the grade, until the maximum of $2,000 is reached, and thereafter the policy on their lives will be continued at that sum. There are also total disability clauses whereby the injured will receive his insurance in stipulated sums at stated intervals until the face of the policy has been paid. This comes as a New Year's gift to the men, who will reap the benefit of life insurance without any expense to themselves.

The new wrapping paper machine of the Spanish River Pulp & Paper Mills at Sault Ste. Marie, Ont., will soon be put in operation. It is 98 inches wide and will produce about forty tons of paper daily. On this machine wrapping paper for all the plants of the company will be made and in addition they will make building, lightweight wrapping and fibres. This will release one machine at Sturgeon Falls, which will be turned on to newsprint. A new digester has been installed at Sault Ste. Marie which will increase the sulphite pulp capacity to 105 tons per day, while the output at Sturgeon Falls will be raised to 70 tons daily. This will give the Spanish River Company an output of 175 tons daily, a large proportion of which will be on the market.

Mr. Kenneth McR. Clark, timber cruiser, of the James M. Sewall office, Old Town, Maine, writes from the lower Penobscot region of that state, that were it not for the scarcity of labour, and the fact that the swamps are not well frozen, logging conditions would be most favorable as there is enough snow for two sledding, and not so much but that yarding of logs can still continue.

A paper mill will shortly be built in the large timber tracts near Big Fork, Mont., by the Glacier Pulp & Paper Company a new company organized by Minneapolis and St. Paul financiers. E. S. Warner of the McGill Warner Company of St. Paul, G. M. and L. S. Gillette of the Minneapolis Steel and Foundry Company, J. F. Jordan of the Wyman-Partridge Company of Minneapolis, and U. P. Snow of Big Fork, Mont., are the principal members of the new company. The company is incorporated under the laws of Minnesota, with a capitalization of $100,000.

The Tonawanda Board and Paper Company, Tonawanda, N. Y., is expecting a consignment of 200 tons of baled sulphite this week from Sweden. On account of the European war and shipping conditions, it is doubtful whether any more of the material can be received until the close of the war. The tenth annual meeting of the Beaver Board salesmen and jobbers closed in Buffalo, N. Y., last Wednesday night. About 350 were present. Talks on advertising and sales productions were given by Leon A. Selman, C. E. Horton and R. E. Eastman. An illustrated lecture was given by J. F. Haggerty, Harry D. Smith gave a brief talk on the tenth anniversary. U. F. MacGlushen, president and founder of the company, presided at the closing banquet at the Statler Hotel. The visitors paid a visit to the company's Fiber plant at Thorold, Ontario.

It is understood that the General Roofing Company of St. Louis, Mo., will take over the Falls plant of the Lockport Paper Company on February 1st. Henry M. Nichols, who has been general manager of the Falls plant, has been appointed general manager of the Lockport Paper Company plant to succeed Wallace I. Keep, retired.

The New York City Paper bag jobbers will have a big get-to-gether dinner in the Green Room at the Hotel McAlpin in March. An attendance of at least 150 is expected which will include partically all the bag jobbers in the district. The committee in charge of the affair consists of A. E. Foster, Jr., of A. E. McAdam, chairman; W. E. Shuttlenvith, William Spreen, S. H. Heberlein, A. Wolf, and J. M. Berger. The date for the affair has not yet been announced.

The Hinde & Dauch Paper Company of Sandusky, has purchased the controlling interest in the Southern-Fibre Company, of Portsmouth, Va., a company that manufactures yellow pine pulp. In looking over this territory for pulp supplies, the Hinde & Dauch Company decided the Portsmouth plant met all requirements and arrangements were made for acquiring a controlling interest. The output will be distributed among the Hinde & Dauch mills.

It is reported that certain interests in Green Bay, Wis., are contemplating the erection of a big pulp mill in that city. The plan is to build a 60-ton ground wood pulp mill, which would be larger than any plant now operating in that section.

Senator Chilton of West Virginia, Chairman of the Senate Committee on Printing has introduced a bill to amend and revise the laws relating to printing and binding and the distribution of publications for Congress. The propose of this bill is to save about $500,000 the main portion of which will be on the paper. The bill has been favorably reported to the Senate and there is every indication that it will come up for action during the present season of Congress.

The King Paper Company of Kalamazoo, Mich., has installed the Sturtevant System of drying in its Coating plant. It is a great improvement in every way especially from the standpoint of the health and convenience of workers in the department. The temperature is lowered from an average of 120 degrees to from 95 to 100 degrees. The Sturtevant system was given a trial under five machines and was so satisfactory that it has been ordered for the other four coaters.

According to figures which have just been compiled by the Department of Labor there was an increase in the payroll of the paper mills of the country of 35.6 per cent during the month of November, 1916, over that of November, 1915. Inquiries were sent, the tables show, by the experts, to 72 mills during the two years, of this number of mills reporting for the two years number 44. The results show that of this number there were on payrolls of these mills in November, 1915, 14,505 persons which increased in 1916 to 17,406 an increase of 20 per cent. The payroll, the experts found for the week to average $191,456 in November, 1915, and increasing to $259,539 in the same month in 1916.

J. Howard Friend, former president of the Trend Paper Company has purchased the interests of William A. Stuart in the Hinckley Fibre Company of Hinckley, N. Y. Through this purchase Mr. Friend becomes the majority stockholder. He had also been president of the Company, but he did not care to assume this office again and Attorney Warren James of Dayton was elected president.

According to a circular letter recently sent to stockholders of the American Strawboard Company, there will undoubtedly be a contest, at the next annual stockholders' meeting proposes to be used in opposition to the present controlling interest represented, by President, O. C. Barber is signed by a stockholder's committee made up of Herman Grossman, R. A. Burnett and Frank W. Sinden. The chief grievance against the present officers, the letter cites are, that President Barber has at several times during the past few months endeavored to buy in shares, although the few shares which have changed hands of late in the stock market have brought about $55.

MR. R. B. WOLF GOES WEST.

Mr. George H. Mead, president of the Spanish River Pulp & Paper Mills, Ltd., announces the appointment of Mr. R. B. Wolf as general manager of operations of this compayn, with headquarters at Sault Ste. Marie. Mr. Wolf was formerly manager of operations of the Burgess Sulphite Fibre Company at Berlin, N.H.

In this connection the new board machine now under construction at Sault Ste. Marie, will be in operation within the next month. This machine will make mill wrapper and other grades that may be decided upon, using for that purpose our production of screenings and No. 2 stock. This machine is a 110" Black and Clawson.

There is no doubt but that Mr. Wolf will continue to be successful. His many friends wish him happiness as well.

THAT NEWS PRINT REPORT.

Is there any connection between the announced retirement of Chairman Hurley of the Federal Trade Commission and the lassitude that has suddenly overtaken news print activities at trade commission headquarters?

This is a question that is being asked by publishers and others who are keeping close tab on news print developments at Washington. It is a natural question, too, because there is no mistaking the slump that has occurred since this "live wire" business man on the trade body has announced that he is through.

The news print report to Congress is, at this writing, more than a week overdue, and during all this time the officials at the trade commission have been simply "easing along" anxious inquirers with "not today—maybe tomorrow" sort of answers as to when the report will appear.

If newspaper interests are to be dependent to any extent upon the Federal Trade Commission in future it is possible that somebody will start a campaign to fill the two vacancies now existing on the board with energetic executives of practical business experience.—Fourth Estate.

CORRESPONDENCE.

Montreal, Que, Jan. 22nd.

Editor, Pulp and Paper Magazine:

"We have noticed the article appearing in your journal, page 49, of the issue of January 11th, with reference to the new method for removing scale from evaporating devices which are used for the recovery of sulphate pulp spent liquors. Probably the device is a good one for the removal of scale from tubes but we take the liberty to indicate, however, that in properly designed vacuum evaporating plants, using vertical tubes for handling these liquors—such as for instance our 'SCOTT' evaporators—there is no formation of scale, and consequently, the tube cleaner is quite unnecessary. Inasmuch as 'prevention is better than cure', we desire to bring this to the attention of your readers. The device indicated in the above mentioned article might be useful for cleaning steam boilers where the scale is brittle in character and not fusible.

Yours truly,

Ernest Scott & Company."

MORE PROOF.

Over 1000 settlers' permits were issued, in 1916, in another 12,000 square miles of Quebec, patrolled by the Lower Ottawa Forest Protective Association. How many of them escaped from the clearings? One. And it did practically no damage before it was extinguished. Why this remarkable change from the old days when forest holocausts (produced frequently from runaway fires in settlers' land-clearing operations) ravaged whole townships and destroyed lives and property? First: a law requiring the settler to take out a "permit" before burning his slash; second: a vigilant, thorough system of forest patrol by qualified rangers.

The Markets

REVIEW AND PREVIEW OF CANADIAN PAPER CONDITIONS.

(Concluded from last week).

In regard to the prospects of the pulp and paper industry in Canada for the coming year, the improvements that have been carried out by several plants and their plans for 1917, the "**Pulp and Paper Magazine**", in this issue, concludes its comprehensive survey of the field, the first installment of which appeared in the last edition and was read with great interest by the trade. It shows that the prevalent feeling is one of optimism with regard to the continuance of the present active state of operation and output and the strong, steady demand in all lines. The development of the industry has been rapid and the next few months will see greater strides than ever in most branches. Conditions are such that any new and available supplies will be readily taken up.

Price Bros. and Co., Limited, of Quebec, say: "We look forward to the present price of pulp and paper keeping up for another year, at least. At the same time, there will be a considerable increase in the cost of production owing to the advance in prices all round, wages being considerably higher logging operations more expensive, also materials, coal, etc." In regard to extensions during the past year none were completed but the company now have in course of erection a fourth unit in the shape, of a new paper machine. This Fourdrinier will be the same as the one already installed being Walmsley machines, all machines trimming 146 inches. The company are also adding a new digester making four in all. These additions, they expect to be completed by the summer.

Carl Riordon, Managing director of the Riordon Pulp and Paper Co., Montreal, declares: "Practically since the war began we have given up considering the future in such large chunks as a year at a time and have found that we were doing a lot of guessing even when considering three months ahead. At present business is excellent and there is nothing now apparent to show that it will not continue so for sometime. We have carried out many improvements during the past year."

The output at Merritton was changed from easy bleaching to bleached sulphite. A new boiler house was erected, a new boiler plant installed consisting of three water tube boilers, which give fifty per cent more steam capacity than the old return tubular boilers, which were taken out. One of the old ground wood mills was equipped as a power plant to supply power to the mill. A new water system was put in and a new plant to produce bleach liquor, while a bleachery was installed in the late wet machine room building to bleach about thirty tons a day. A new wet machine building and shipping room were erected at Merritton. At the Hawkesbury plant a new water system was installed and the steam plant increased as well as a number of other minor improvements carried out. The Foster saw mill at Haileybury was purchased in 1916, where custom sawing is done and a new rossing plant put in to supply wood to the Merritton mill. The reconstructions carried out at Hawkesbury, in the last two years has enabled the company to bring production up there from ninety to one hundred and eighty tons a day. The company have not yet decided upon their programme for 1917, but it is not likely to be large in view of the extensive alterations and installations during 1916. One of the undertakings in contemplation is a new wood handling plant at Merritton.

The Beaver Board Companies report that their plant at Thorold as a result of the enlargement of the equipment is now producing 130,000 pounds of fibre whereas, at the beginning of the past year, the output was only 100,000. Plans, which are being made for further increases in 1917, include the installation of additional grinders and other equipment is intended to augment the capacity of the ground wood mill. The officers of the Beaver Board Companies look forward to a successful year in 1917 and believe that raw materials will be affected chiefly by the labor question so far as the Beaver Board Companies are concerned. In their opinion the market for finished material will hold firm for some time to come irrespective of war conditions. To assure a continuous supply of wood fibre at the Thorold mill, the Beaver Board Companies organized a new subidiary during 1916, known as the Beaver Board Timber Co., Limited. This concern was formed to take over the timber limits of the Smith Fassett Co., at Charlton, Ont. The new company are operating their own camps and in addition to the equipment now in the mills, plans are being made for the construction of a new rossing plant at Charlton, Ont.

The Fort Frances Pulp and Paper Co., Fort Frances, Ont., of which E. W. Backus, is President, believe that news print prices will rule firm and high during 1917 and that the demand will exceed the supply, at least, until very late in the year. No additions or improvements were made to the Canadian plants during 1916. The output of news at the mills at Fort Frances, Ont., and International Falls, Minn., is now 350 tons daily, 120 of sulphite pulp and 300 of ground wood. John J. Ross, who has been superintendent for some years, is no longer connected with the organization, but is doing some expert work for the Abitibi Power and Paper Co., of Iroquois Falls, Ont. John Divine, who was formerly assistant to Mr. Ross, has been promoted to the superintendency.

The Spanish River Pulp and Paper Co., who have three plants at Sault Ste. Marie, Espanola, and Sturgeon Falls, Ont., have had a very busy year and are now turning out about four hundred and fifty tons of news print daily. The new 110 inch Black and Clawson cylinder wrapping machine, which has been installed at the Soo, will be in operation about the end of February and will produce from 35 to 40 tons daily. Fifteen of this will be used for wrapping rolls at the plants of the companies, while it is likely that building, fibre and wrapping papers will be manufactured to some extent. A third digester is being installed at the Soo, 17 x 54 feet, which will increase the capacity

by thirty-five tons making one hundred and five tons daily.

At Espanola, it has been decided to put in a fifth news print machine, which will be 166 inches wide, the same as the first two that were erected when the news print mill started. Later two others were added each of 110 inches width. The fifth machine will augment the capacity of the plant by fifty tons daily, increasing the output from 180 tons of news to 230. An extension will be erected to house the new Fourdrinier, which will be running this fall. Four new grinders were put in commission at Espanola during the last half of 1916, making twenty-eight in all, the present output being about one hundred and seventy tons daily in ground wood pulp. A new drum barker room was built at Espanola and it is of the most modern type.

Six new grinders will be installed at Sturgeon Falls, day in all. Three new boilers were placed in position increasing the output by thirty tons, making ninety a at Sturgeon Falls, while a new concrete wood room was built equipped with drum barkers, and having a capacity of two hundred cords of wood a day. Drum barkers were also added at the Soo. It is estimated that the new type of barkers saves twelve per cent of the wood as compared with disc barkers and all wood is handled automatically.

By fall, with the fifth Fourdrinier operating at Espanola, the daily production of print paper at the three plants of the company will be five hundred tons. This will make the Spanish River Co. the third largest producers of this commodity in America, the second largest being the Great Northern Paper Co., with a daily production of 550 tons, while the International Paper Co. with a daily tonnage of 1,400 tons stands first.

Robert Wolf, for several years with the Berlin Mills Co., Berlin, N. H., and an expert in both sulphite and paper production, has been appointed to an important position with the Spanish River Co. and will be stationed at the Soo. It is understood that he will have general supervision of manufacturing at all the plants of the organization and the appointment is regarded as one of the strongest and most efficient that could be made.

The Don Valley Paper Co., Toronto have practically doubled their output at the plant during the past year under the able superintendency of C. Nelson Gain, who has been in charge of manufacturing during the past two years. They are rushed with orders and report the outlook of the most promising character in spite of the high cost for raw materials and other deterring circumstances which have faced the trade. A number of new and exclusive ranges were placed on the market during 1916 which included higher grades in covers and bristols, linen finish and special designs. A filtering system, with a capacity of one million gallons in 24 hours, was installed as well as a plater, motor driven, for turning out crash and linen finish cover papers. The company have made a great name for their well known brands of bristols and cover papers. The programme of extension for 1917 has not yet been definitely agreed upon.

The Northumberland and Electric Co., of which David F. Robertson is General Manager, this week started their new board mill at Campbellford, Ont. They hope to make considerably greater tonnage than they did in the old mill, which was burned down last February, and also a product of better quality. No expense has been spared in either the buildings or equipment. The new mill was built on a new location and erected of solid masonry. The machine room is 330 feet long by 50 wide, and the new, six cylinder board machine supplied by the Downington Mfg. Co., of East Downington, Pa., is sixty-six inches wide, with three presses, and will turn out twenty-five tons of board daily. The new beater room is 125 feet long by 45 feet wide and contains four, 1,500 pound beaters made by the Emerson Mfg. Co., Lawrence, Mass., and also three Jordan refining engines. The digester room is 50 by 28 feet, two storeys high, and has three digesters, each of fourteen feet diameter. The company have installed a new steam engine for the machine drive, of the variable speed type, made by the Brownell Co., of Dayton, Ohio. Four boilers have been put in with Jones Underfed Stokers, and everything in connection with the plant is installed according to the most up-to-date practice with every conceivable improvement. The company have received sufficient orders to keep them running for some time and will make all classes of board from plain chip board to folding board.

The Strathcona Paper Co., Strathcona, Ont., report that they have not yet fully decided what they will do in regard to installing a second machine during the coming year, but they have added to their plant two, 1,000 pound beaters and two, 50 horse power, electric motors, so that they can increase their output on the present machine which they are now running completely on sheathing papers. They report business as exceptionally good and the outlook most promising for the coming year. W. J. Findlay is manager of the Strathcona Paper Co.

There are no changes to report in markets again this week. This is to be expected with the uncertainty as to what the Governments will do about the news print situation and with the look of any unusual buying activity in other lines.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as 5½c.
News (rolls) $3.00 up, at mill, in carload lots.
News (sheets), $3.75, at mill, in carload lots, smaller lots higher.

Book papers (carload), No. 3	$7.50
Book papers (ton lots), No. 3	$8.00 to $8.50
Book papers (carload), No. 2	$8.75 to $9.50
Book papers (ton lots), No. 2	$9.75 to $10.25
Book papers (carload), No. 1	$9.25 to $10.00
Book papers (ton lots), No. 1	$10.00 to $11.00

Ledgers, 12c and way up.

Sulphite bonds	14c up
Writings	9½c up
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50—$10.00
Unglazed Kraft	$9.00 to $12.00
Glazed Kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap.	80c to $1.15
Natural, greaseproof	13c to 18c
Half Bleached Greaseproof	15c to 19c
Bleached greaseproof	17c to 21c

Genuine Vegetable Parchment	26c to 35c.
Drug papers, whites and tints	11c to 14c.
Paper bags, Manila	20% discount
Paper bags, kraft	35 discount
Confectionary bags	25 discount

News Board, $70 ton, f. o. b., N.Y.
Chip Board, $65 to $70 ton, f. o. b., N.Y.
Straw Board, $65 to $70 ton, f. o. b., N.Y.

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$95.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.50
No. 1 soft white shavings	4.50
No. 1 mixed shavings	1.05
White blanks	1.85
Heavy ledger stock	3.00
Soft ledger and writings	1.60
No. 1 magazine	2.05
No. 1 book stock	1.95
No. 1 manila envelope cuttings	2.60
No. 1 print manila	1,25
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.75
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.75
Tailor rags	2.00

There has been a slight rise in the price of wrapping paper and the following changes have gone into effect:

For straight car load shipments, one ton lots or up, and less than one ton lots. Grey or rag brown or news white, $4.75, $5.25, $5.50. "B" manilla, $5.25, $6.00, $6.25. No. 1 manilla, $7.35, $8.25, $8.75. Fibre, $7.35, $8.25, $8.75. Fibrekraft, all brands, $7.00, $8.00, $8.50.

The following conditions prevail—all terms are net, thirty days. The car load price applies to jobbers in any quantity. Grey brown or rag brown and "B" Manilla shall be sold by the pound, not counted or folded. Grey brown or rag brown shall not be made lighter than 24 x 36, 40,400 sehets. Fibre shall not be made lighter than 24 x 36, 40,480 sheets. This automatically cancels the clause providing for five per cent. extra for lighter than the above weight in fibre.

CANADIAN CHEMICAL MARKET.

MONTREAL, Jan. 23rd.

No radical change has occured in the market for Paper Makers' Chemicals during the past week. Prices are firm and the general tone of the chemical market is steady.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb.	5½c@6c
Alum, potash, lb.	7½c@8c
Blanc fixe, paste, lb.	4½@5c
Blanc fixe, powder, lb.	5½c@6c
Bleaching powder, lb.	5¼c@5¾c
Brimstone, f.o.b., New York, long ton	$30.00
Casein, lb.	25c@30c
Caustic soda, 76%, lb.	5¼c@5¾c
China clay, No. 1, white, ton	$20.00
China clay, No. 2, white, ton	$15.00
China clay, No. 3, white, ton	$12.00
Lime, ton	$7.25@$8.00
Sal soda, bags, 100-lbs.	$1.25@$1.30
Sal soda, bbls., 100-lbs.	$1.35@$1.40
Salt cake, 100-lbs.	75c@90c
Soda ash, lb.	3@3¼c
Starch, lb.	4½c@5½c
Sulphate alumina, technical, lb.	3c@3½c
Sulphate alumina, iron free, lb.	4½c@5c
Talc, American, ton	$15.00@$20.00

NEW YORK MARKETS.

New York, N. Y., January 22nd.

It is evident that the cold weather, by freezing a number of the rivers and streams and thus affecting the water power used for operating the grinding machines, is having a material influence on teh action of ground wood pulp. During the past week, spot prices took on a little strength—the fact is that quotations now are about $40 per ton, at the grinding plant. It is now believed that any further weakening is practically impossible during the rest of the winter months. The ice troubles which have just started, will become somewhat worse, especially when the thawing period commences and the ice breaks away and finds its way into the water wheels, compelling the shutdown of a number of machines in a single plant. So, according to the reports from the grinders, despite all attempts on the part of the producers to get full production, it is not likely that they will be able to achieve their ambitions. It is argued, also, that regardless of what takes place in the paper market, the demand for ground wood will continue for some time and, through this continuance, will be able to maintain a demand for a high price. This is logical because, as long as the sulphite pulp situation is acute, the burden of it will be felt by ground wood, for the tendency must be to use ground wood to as great an extent as is practical. It will be interesting to learn of the way in which the grinders have regarded the slight weakening in the market during the past few weeks. They feel that the paper manufacturers, not finding orders coming in as heavily as they did before the holidays, have decided to "let up" a little and to go slowly about buying pulp. Such a course is invariable at the time of the year, but it is not expected to last any length of time. In fact, it has been stated in some quarters that, as soon as the jobbers have completed with their inventories, realized how little stock they have on hand (my informant is positive they cannot have very much) orders for paper will commence pouring in again. It will be very interesting to note that some ground wood has been coming over from Norway, as ballast. On Wednesday of last week, about 10,000 bales was reported at Newport News, Va. This seems to indicate that the pressure for this commodity has been easing abroad. Or it may be that the price of $40 is very attractive to the Norwegian grinders. The ordinary value of this stock in Norway is about $10 or $11. To this, however, must be added a very high freight rate. Nevertheless, there must be a good margin in it or this stock would not have come over.

It is not known whether or not such shipments will continue to be received. Thus far, it is said that the Norwegian pulp has had no material affect on the market—so great is the shortage.

Prospects for sulphites are stronger than ever—of this, the domestic manufacturers are firmly convinced. In fact, it is being freely predicted that February and March will see quotations much higher than they are now—as one man expressed, it they will "soar to heights yet unknown." From unofficial communications said to have been received, it is thought that there is very much likelihood that the differences between England and Sweden will be settled. This would bode ill for the status of the domestic pulp market. For in that event, a great deal of the stock which is scheduled to be sent to the United States may find its way to Great Britain. This, of course, is merely surmising—but it is far from the impossible. In the meantime, conditions in sulphite pulp continue very strong. An estimate has been made that, among the domestic manufacturers, it is doubtful whether there is, all-told, a surplus of a thousand tons. If this is true—and we are inclined to give credence to our authority—it is not difficult for one to realize the exact status of the sulphite market, now for him to see what there is in store for it. It must also be understood that the pulp manufacturers are operating their plants at capacity, getting every pound of production that it is possible for them to get. Imports have been of practically no account, nor is it likely that their volume will be enhanced, because of the fact that the Baltic Sea will be closed to navigation until the end of May, during which time, there will not be any shipments from the mills located on the upper shores of the Sea. The figures given for foreign bleached sulphite are 10c—and higher. Domestic bleached sulphite is being held for more than 8¼c, at the mill. A good demand is current for easy bleaching, because of the situation in bleached sulphite. However, even at 6c and a little higher, there is not much easy bleaching to be had. Foreign unbleached is quoted at about 5½c and higher; domestic unbleached, at 5¼c and higher. Kraft pulp maintains its firmness under an unusual scarcity and a good demand. This, it is believed, must continue for some time. It is now nominally quoted at 6½c and higher.

The rag market, it appears, is gaining considerably in strength and is showing a strong inclination to move upward. Dealers credit this, in part, to the fact that many of the mills have completed their inventory work and are now beginning to take in stock once more. It is important to notice that the demand for roofing stock is reported to be rather brisk. This is regarded as the key to the situation by the New York dealers—this stock has been sold as high as 2¼c. The tendency seems to be for the dealers to be a bit more reticent than they have been during the past few months. New shirt cuttings, white, are quoted as high as 10½c; old whites, as high as 6c; house soiled whites, at 4½c; street soiled whites, at 3¼c; thirds and blues, at 3c; black stockings at 3c to 3¼c.

The demand for bagging of practically all kinds has been increasing in volume steadily and the prospects for the market are now considered as being very favorable. The mills which have been holding off for sometime, are now manifesting interest in stocks and inquiries are reported to be fairly numerous. No doubt, the scarcity of bagging is materially influencing the course of the market. Gunny is quoted at 3¼c; bright bagging, at 3c to 3¼c; sound bagging, at 2¾c; mixed bagging, at 2½c. Manila rope has been holding to good advantage and, during the past week, further advances in price were noted. Dealers are very hopeful for this article. Today's quotations are about 5¾c to 6c.

On the whole, old waste papers are moving along in fine shape. It is true, that in a few grades, a little conservatism is being practiced, which is responsible for what might ordinarily be called a weakening. But dealers do not consider it such. Inquiries are still coming in from various sources and there is every reason to believe that the market will continue to improve—for the dealer. The minimum price for good hard white shavings is said to be up to 6¾c. Soft white shavings have reached 5½c; a sligth decline was noted in ledger stocks, due to a drop in the demand. This stock is now quoted at about 3½c; old magazines are now at about 2¼c and a little higher; old manilas are at 1c up to over 1½c; old krafts are holding strong as high as 3¾c; over issue news, at 1¼c and higher; mixed newspapers, at 90c to 95c per hundred pounds.

Nothing new has developed in the paper market. Things seems to be in a balance. The manufacturers have assumed a very formidable attitude to keep the market up, while the jobbers have sort of stopped buying and are thought to be doing their utmost to bear conditions. A number of concerns—you might call them middle hands—have considerable odd lots of paper to sell, and they are at a loss as to what to do. As long as the peace talk continues, they fear that the jobbers will not pay the high prices—if they can possibly help it—and they are going to do everything in their power to make sure they can help it. Still, on the other hand, reports still come in from the mills advising their agents to be firm and not to concede to the bear movement of the jobbers. The truth of the situation must come out within a few weeks that is the general belief. In the meantime, the slight easing in news print seems to continue. A good demand is apparently present, but the willingness of the publishers to submit to some of the exactions that had been practised by a few jobbers has disappeared. No further strengthening is reported in tissues. The mills are holding firm, but it is possible to get large quantities from "second hands" at better figures. The demand for fibres is not very strong. All other kinds of wrappings continue in good demand and strong in price.

New York Quotations.

(These are a nominal range of prices).

Ground Wood, f.o.b. Mill	$40.00
Foreign bleached sulphite, ex-dock, New York	10c and higher
Foreign easy bleaching sulphite, ex-dock, New York	6c and higher
Domestic bleached sulphite, f.o.b. pulp mill	8¼c and higher
Foreign unbleached sulphite, ex-dock, New York	5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic bleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Easy bleaching, f.o.b. pulp mill	6c and higher
Kraft pulp, f.o.b. pulp mill	6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New New	6¼c to 6¾c

Bleached soda pulp, f.o.b. pulp mill...5½c and higher
Foreign unbleached soda pulp, ex-dock, New York.....6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York.....6½c to 7c
Bond papers, sulphite,.....12c and way up
Ledgers papers.....13c and way up
News, contracts, f.o.b. mill.....$3.10
News, spot lots.....5c to 6c
Book, super,.....9c and higher
Book, coated,.....8c and higher
Tissues, good sulphite, bleached, per ream.....$1.30
Tissues, ground wood, manila, per ream.....$1.30
Kraft.....9c and higher
Manila.....7c and higher
News board, per ton, f.o.b. New York.....$75.00
Straw board, per ton, f.o.b. New York.....$65.00
Chip board, per ton, f.o.b. New York.....$70.00

R. W. JOLLY.

PAPER PRICES AND FOREST FIRES.

Independent of other causes operating to increase the price of paper to Canadian publishers, the constant destruction of spruce and balsam forests by preventible fires has played a serious rôle. Without question, there is abundance of woods, to meet all demands of paper mills, but abundance and accessibility are frequently two different things. Transportation distance between the woods and the mills is a factor of first importance, as not a few successful Canadian and American paper mills have been forced to realize. Every additional mile a paper mill is obliged to travel for logs, the costs of the paper product will reflect an advance.

Replying to a specific question on this point, Mr. Backus wrote the Canadian Forestry Association as follows: "It is true that I have recently stated that year by year the inaccessibility of the pulpwood supply is increasing. The mills have been cutting their most accessible timber first. Forest fires are continually making large inroads on pulpwood. This situation is a most natural one, and will bring higher pulpwood costs as time goes on."

Unlike small saw mills, the permanently located pulp mill cannot pack up its equipment and follow the retreating forest. Some Canadian corporations have come to see, however, that with care in operating limits, thorough protection against fire, coupled with planting on cut-over lands, pulpwood forests can be perpetuated indefinitely; accessibility of supplies need be lessened but little.

Up to the present stage in Canada the lack of modern fire protection, for which the Governments, as trustees of the timber resources, are chiefly responsible, ahs reduced the near-at-hand bodies of pulpwood more than the actual cut of logs. The fires of last summer in Ontario and Quebec are an illustration of this fact. The forst fire record in Ontario and Quebec during the past twenty years accounts for vastly more of the accessible forest wealth than has passed into lumber and pulp.

Without question, causes other than unheeded fires are at the root of the paper price advance in war time, but it remains true that since the first paper factory in Canada began to operate, the fire fiend has been laying his tax on the paper consumer.—Canadian Forestry Journal.

Question Drawer

The object of this department is to supply information of a practical nature to meet the needs of men in the mills. This object will be attained only by the co-operation of mill men, so that the experience of workers in different branches of pulp and paper manufacture may be at the disposal of others having similar problems. Not only will questions and answers be welcome, but a frank discussion and criticism is cordially invited.

(This department is conducted with the co-operation of the Technical Section of the Canadian Pulp and Paper Association).

Question 4.—What do you consider a perfect day's run for a paper machine? In other words, how much time should we allow for necessary wash-ups and unavoidable breaks? We are making newsprint and assume that 40 minutes a day should be allowed for the machine to be down. A run of 23 hours and 20 minutes would then be 100% efficiency in running. Is that too high?

PAPER STOCKS.

The year 1916 closed the most remarkable and profitable year in the history of the paper trade, and prospects are that it will be exceeded in this respect by 1917.

Trade interests are of opinion that even a cessation of hostilities would have no immediate effect on the market.

In the newsprint industry, it may safely be said that the larger percentages of 1917 output have been contracted for. Reports from Canada states that 80% of that country's 1917 output has been placed under contract at prices 50% to 100% higher than current rates. International Paper Co., whose output is 60% newsprint, is understood to have practically sold its possible production of this material for next year. Other companies are in the same condition and spot material in 1917 will be scarce and obtainable only at prices above the prevailing contract price of $3.10 net.

The markets in wrapping and other papers and paper products are not protected by contract to the same extent as news, but prices have shown a larger percentage of increase. These products will be more subject to price fluctuations during the coming year. There is an acute shortage of all lines and present trend of prices is upward, with not even the remotest signs of a recession in either demand or price. Consumers are buying only to extent of current requirements, and there are no signs of stocking up in any quarters. This is considered a favorable sign for continued high prices.—Wall Street Journal.

UNION BAG BUYS BADGER BAG & PAPER CO.

The purchase of the Badger Bag and Paper Company by the Union Bag and Paper Company is announced by E. B. Murray, vice-president of the latter concern.

Union Bag and Paper Corporation has purchased the entire capital stock of Badger Bag and Paper Company Wausau, Wis.

The business will be continued as heretofore under the sales management of A. Pareira.

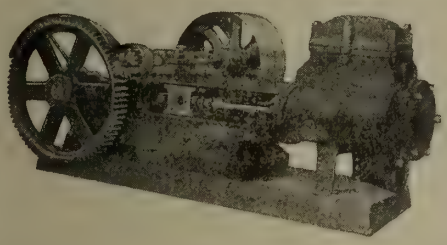
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BUCKLAND CONN.

AN INTERPRETATION OF THE LAW OF CONTRACTS IN THE U. S. A.

C. F. Moore, secretary of the Bureau of Statistics of Book Paper Manufacturers, sent out the following interesting letter under date of November 20:

Dear Sir:—The following, taken from the New York Journal of Commerce of November 18th, is in our opinion a correct interpretation of the law of contracts, and at this time may be interesting and important to paper manufacturers:

"Louisville, Ky., Nov. 14, 1916.—Please advise as to the legal status of the following notation which appears on many letter-heads: 'All agreements subject to strike, fires, accidents or causes beyond our control.'" In a case where the mill has sold for future delivery and later, on an advanced market, is totally destroyed by fire, does such destruction of the mill constitute a cancellation of all contracts?—M. C.

"Reply:—A stipulation such as this, appearing merely upon the letter-head of the selling firm, does not form part of any contract which the firm may make. Even if the stipulation appears upon the same paper upon which the contract is written it is not necessarily part of such contract. In order to become part of the contract, the stipulation must either be incorporated in the contract itself, or it must at least be referred to in that document as forming part of the agreement.

"This may be done by some such clause as 'subject to the stipulations printed upon the margin thereof,' etc. In the absence of such stipulation the parties are bound only by such conditions as appears within the body of the contract itself, and any other matter that may appear upon the same paper, outside these limits, is not part of the agreement.

"As to the destruction of the mill, the contract survives, in spite of such destruction, unless the agreement provides for manufacture of the goods in such mill. If this is a condition of the contract, it becomes, of course, impossible of fulfilment by the destruction of the mill, and both parties are released. If the contract contains no mention of the mill the seller may tender such goods as the contract calls for, wherever they may have been made, and the buyer is bound to accept the tender.

"Respectfully yours,
"C. F. Moore, Secretary."

BROMPTON PULP & PAPER CO.

The Brompton Pulp and Paper Company has joined the rapidly growing list of dividend paying paper companies.

At a meeting of the directors of the Brompton Pulp and Paper Co., Limited, held a few days ago, a dividend of one per cent was declared on the common stock of the company for the quarter ending January 31st, 1917, payable on February 7th, 1917, to shareholders of the record at the close of business upon January 31st, 1917.

The directors authorized the following financial statement of the company, as at January 15th, 1917:

Accounts and bills payable including war tax ..... $ 220,346
Cash on hand and accounts receivable.. 1,044,000

The earnings for the two and a half months ending January 15th, 1917, over and above fixed charges and preferred stock dividend are approximately $335,367.88.

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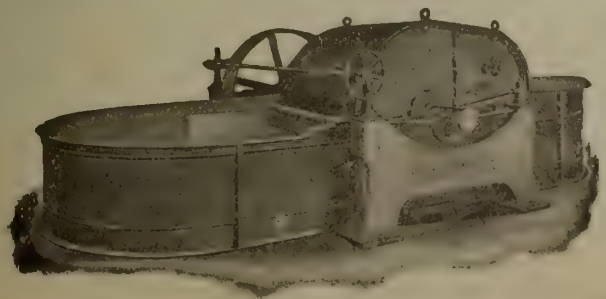
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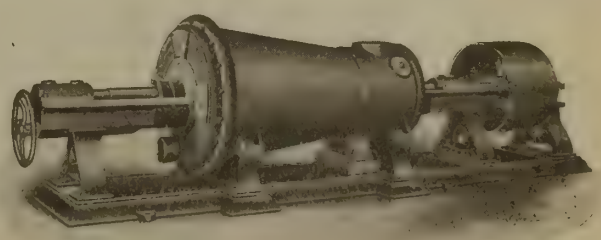
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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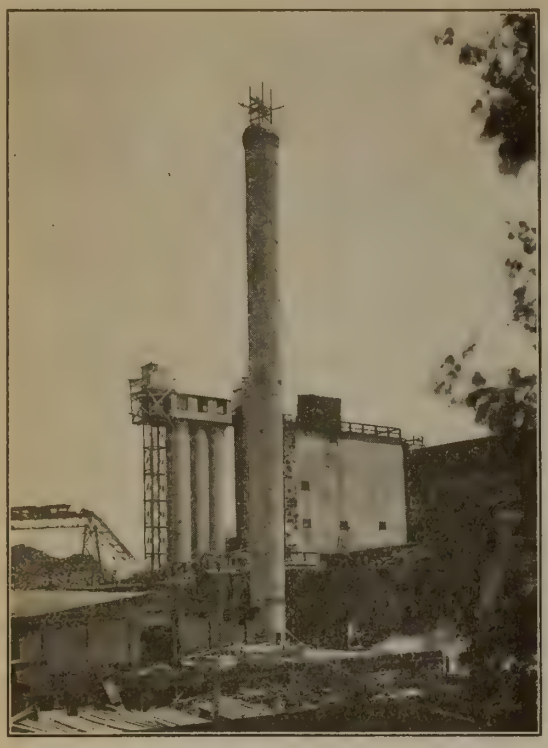
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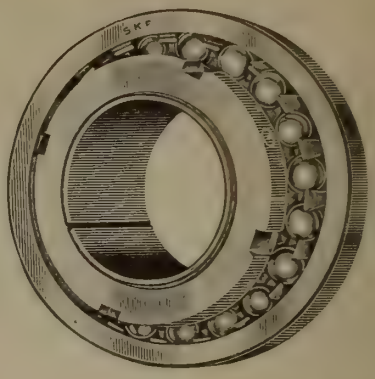
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EDITORIAL

THE SHOE IS ON THE OTHER FOOT.

It makes a lot of difference whose foot is wearing the tight shoe. Any efforts on the part of Congress or Congressional Committees to legislate in favor of publishers is heartily approved by them, even though it infringe the rights and work hardship on others. But when there is a suggestion to regulate the newspaper there is a howl, such as this, which the Fourth Estate quotes from Lafayette Young, Jr., business manager of the Des Moines (Iowa) Capital:

"I believe newspapers should protest most vigorously against regulation such as proposed in the Owen bill, which would have a tendency to put the newspaper in the light of a public utility or a common carrier. There would appear to be **no more constitutional authority in Congress for fixing the rate of political advertising than there is that it should fix the prices on all advertising.**

"Congressmen as a class are exceedingly willing to legislate for anything that makes it less expensive for them to secure office. As a matter of fact I do not believe that newspapers should charge any more for political advertising than for any other class of advertising. But this is a matter of policy to be fought out in newspaper forums, and not a matter for Congressional action.

There may be good grounds for such a protest as this. But if there is no congressional authority for regulating the price of an advertisement in a newspaper, where is the authority for dictating the price at which newsprint shall be sold? And this agitation against the newsprint manufacturer, which is so warmly supported by the newspapers, is really directed at a condition that has developed through the operation of a well known law of economics. Mr. Young says that newspapers have a right to charge what they please for an advertisement, which is the principal ware they have to sell. But the daily press is quite unanimous in the opinion that the paper maker has no right to make what he knows to be a fair price for his only product if this interferes with the profits of the newspaper.

A short time ago such an extreme measure as an embargo on newsprint was advocated. No opposing voice was heard from the press, yet such a measure would have meant the death or at least a serious relapse of an export trade in paper which even now is only in its infancy and which in time may have to contribute largely to support many of the newsprint mills of the United States. Would these papers have remained silent to a proposal to limit the circulation of each to a certain district or ward? We think they would not. Did the press generally adopt the suggestion that issues be made smaller in number and size? The spokesman for the Newsprint Publishers' Association says many of them have decreased their consumption 20 to 30 per cent. A good share of that could come from the over-issues that are, or were, returned or scrapped. Besides the waste in over issues there is the matter of the big Sunday issues, which the public at large persists in regarding as largely made up of useless material. Even a newspaper man will occasionally protest against the Sunday edition. Such a one recently opined that a certain 132-page paper in Minnesota was at least one-third useless.

So it goes with suggestions that do not favor the publishers. They want to settle among themselves the matter of charging for their wares, but they would have the Government prevent the newsprint manufacturer from doing the same thing.

We certainly agree with Mr. Young's statement that Congressmen (and other politicians) are exceedingly willing to legislate for anything that makes it less expensive for them to secure office. We did not notice any such sarcastic remarks when the legislation would make it less expensive for the publishers to secure paper. It seems ungrateful of a publisher to disparage the tendency of legislators to legislate. We do believe that a lot of the legislation is foolish and some is distinctly unfair. Perhaps the press will in time come to take an impartial view of the matter and put the emphasis where it belongs.

If a fraction of the effort and expense that has been laid out on useless investigations such as the newsprint investigation were devoted by both editors and legislators to matters that are really of public concern, such as cutting out waste and inefficiency in the administration of public affairs and the conservation and more efficient use of food and other supplies, the people would be much better pleased.

PASSING OF PAPER COLLARS.

The paper collar, a product of the war of 1870, and for many years monopolized by journalists, threatens to become extinct. The great war of 1914-17 is undoing what the struggle of nearly half a century ago created.

The present day editor is so concerned with securing a supply of white paper for his publication that he finds it cheaper and better to wear linen collars, or even to do without such appendages. At any rate, no editor in his wildest dreams of extravagance would think of donning a paper collar under present day conditions.

Thus another institution of our boyhood days goes by the board! As school boys we all remember the box of paper collars and the utter abandonment with which we threw away the old ones and hauled out a new, clean, fresh strip of cardboard. We sympathize with the editor who has to give up his paper collar. But cheer up! Perhaps a paternal government will so interfere with the output of newsprint that a special law will be passed compelling the news print manufacturers to turn a part of their machines onto the making of paper collars, and so supply editors with their favorite form of neckwear.

OTHER FACTORS IN INCREASED PRICES.

An editorial in Paper last week calls attention to the tendency for putting the burden for the increase in price of a commodity on a single factor. It is quite true that one factor may predominate in causing a rise in the price of an article, but other contributing causes might at least be mentioned. In the instance cited, a publisher raised the price of a book from $1.10 to $1.60 "because of the high price of paper." The maximum increase from this cause was shown to be only five cents as a maximum.

The following table will show the increases in other factors affecting the cost of producing hooks, magazines and newspapers.

Article.	Per Cent. Increase.
Paper	50 to 500
Inks	100 to 500
Rollers	40 to 50
Type Metal	50
Engravings	25 to 100
Electrotypes	20 to 50
Binders' wire	100
Binder board	50 to 100
Tympan paper	10 to 50
Binding leathers	20 to 50
Glue	100
Twine	50
Wages	5 to 10

Besides the above all machinery increased in price because of the foreign demand for steel and other metals for war ammunition.

It would be difficult to distribute all of these influences. According to the New York Times a newspaper uses about a pound and a half of ink to print about 100 lbs. of paper, but with the higher price of the ink it makes up about one-eighth the cost of the raw material the reader receives. Increases in the other items of the table go a long way toward making up the total increase in the cost of production. In fact, it would not be surprising to find that less than half the increase in cost is due to the rise in paper prices.

ROY CAMPBELL JOINS RIORDON COMPANY.

Mr. Roy Campbell, for the past two years secretary of the Montreal branch of the Canadian Manufacturers' Association, and previous to that time editor of the Pulp and Magazine, is joining the Riordon Pulp and Paper Company as secretary to Mr. Carl Riordon.

Mr. Campbell was born in Ottawa, educated in that city and at the University of Toronto, where he graduated in Arts and Forestry. Shortly after graduation he came to Montreal where he was made editor of the Pulp and Paper Magazine, a position he occupied for the next few years, leaving to join the Manufacturers'



MR. ROY L. CAMPBELL,

Association. After a short time with the Canadian Manufacturers' Association he returned to his first love, forestry. He is particularly well informed in regard to all matters relating to the pulp and paper industry, forestry matters and all kindred interests, and should add to the strength of the Riordon staff, which already numbers among its members some of the brightest and best informed men in the industry. Mr. Campbell takes up his new duties about the middle of February. He will give up his present position as secretary of the Technical Section of the Canadian Pulp and Paper Association and the secretaryship of the Canadian Pulp and Paper Association.

The Classification of the Crown Lands of New Brunswick

By P. Z. CAVERHILL of the New Brunswick Forest Service.

The classification of Crown Lands of News Brunswick is the outcome of a movement that has been growing for a number of years.

The Crown Lands of the Province, consisting of 7¾ million acres, of which 6½ million are under license, is the chief source of provincial revenue, and the value of the lumber industry is second only to agriculture, having at the present time a value in excess of $15,000,000.

Many changes have taken place with the development of this lumber industry. White pine, which during the first half of the 19th century was our important timber tree, the export of this species alone in 1825 being over 400,000 tons of squared timber, has been for years nearly depleted. Hemlock, a few years ago valued only for its bark, is hard to get at $12.00 to $14.00 per M. for the round log. On spruce it was found necessary to reduce the length and diameter limit from 18' by 10'' to 16' by 9''. Thousands of acres of good timber land has been taken up under the pretense of agricultural development, only to be abandoned after desultory attempts at clearing and cultivating, and after the occupant had burned, possibly, thousands of acres of good timber; these signs of the gradual depletion of forest land led to a movement for definite knowledge of the condition of the public domain, and a classification of the land as to whether it was chiefly suitable for farm or timber.

The first concrete step taken towards the classification was in 1906 when the Public Domains Act was passed, authorizing a survey of the Crown Lands, estimating the timber thereon, the annual growth, and cost of logging, also, delineating the land suitable for agricultural development. The Act also provided for the calling of a convention in the interest of Forest Protection. This Convention met in February of the followning year. It seems, however, that funds were not available to carry out the survey, and the net result of this step was the establishment of the Forest School in connection with the University of New Brunswick.

The Act of 1913 renewing the timber licenses made provision for the classification at present being undertaken; but, for a time only desultory attempts were made to carry out the provisions for classification and it was not until last spring that field work was actually started.

Objects of Survey: As defined by the Act, the objects of the survey are:

1st—To report with as much detail as possible upon the character and quantity of the lumber, estimating the quantity of timber and the reproductive capabilities of the forest area.

2nd—To estimate as accurately as possible the annual growth of timber upon each area or tract.

3rd—To report upon the accessibility of the timber on each section, estimating the cost of logging on the different areas, an the cost of stream driving to point of manufacture.

4th—To report the location of lands deemed suitable for agricultural purposes, distinguishing them from other lands that might be regarded as especially suitable for the growth and reproduction of timber.

In order to obtain these objects, it was decided that a four per cent survey was the most desirable; this consists of running strips through the timber at one hundred rod intervals, measuring the timber two rods on both sides along each strip, tallying the trees by diameter classes and species. In order to obtain data of the soils, holes were dug at each one hundred rods along these strips, and notes on the character and quality of the soil taken.

The making of a contour map was considered, but as a large portion of our Crown Lands is either gently rolling or level, a low contour interval would be necessary in order to show any detail. In dense spruce stands, of which our New Brunswick woods are largely composed, it is impossible for the topographer to trace and plot the contour for any great distance on either side of the line, and it becomes necessary to either run strips at much closer intervals than we are doing, or offset from the line frequently, either of which would add materially to the cost of the survey.

Very few points other than on the railroads have definitely determined elevations, and the obtaining vertical control would require extensive traverses from points of known elevation, also adding to the cost.

A topographic map of sufficient accuracy to permit of the laying down of roads and the planning of an operation from the information contained thereon would probably cost 15 c. per acre under our conditions, varying from the figure to 25 or 30 cents per acre in the west, where the country is more difficult.

Topography in New Brunswick does not bear the same relation to the logging operation as it does in the west, where it is frequently the determining factor in the method of logging, and upon the topography depends whether or not we can use horses, donkey engines, with fore and aft roads, or have to resort to the more complicated. overhead or sky line methods of taking out the timber. On almost any of our sites horses can be used, and topography affects only the haul, and to some extent the stream driving. A topographic map, therefore, would be of little service to the Department in shaping its future timber policy or in the valuation of the Crown Land, and we decided we were not justified in making the additional expenditure necessary to prepare one.

The main ground plan is made by running primary control lines and traverses of drivable streams, portage roads, etc., these controls being about 2½ miles apart, and tied together every 5 to 10 miles. Where straight base lines are used we follow old timber block lines. This divides the area into rough blocks or divisions, irregular in shape and area, but sometimes in rectangular blocks. The interior of each block is mapped from notes taken along the strip. All control work is checked so that the maximum error of closure is less than two per cent and this is distributed throughout the traverse. Strip lines are tied to the base lines with an error not greater than four per cent.

The timber estimate is made by tallying all merchantable trees for a width of four rods along each strip, the tally sheets being so arranged that the timber is shown separately by species and diameter classes on each eight rods of the strip. This permits the showing in detail of the character of the stand and the type. From this tally the estimate is made from local volume tables, changed according to locality,

and constantly checked by measurement of all available down trees.

At the same time notes are taken on condition of the stand, cost of logging, and condition of the stream for driving.

Growth: The determining of the annual growth is possibly our hardest problem. We need to know as closely as possible what the actual growth per year is, as it will tell us what the results of our present system of management will be, and by a comparison with the potential growth of that site, or with the growth of similar sites under different systems of management, we can determine what steps are necessary in order that we may derive the greatest financial benefit from our timber lands.

Our forest land is largely covered with a stand of many aged mixed species; trees growing under all sorts of conditions, and these conditions constantly changing; as for example when logging is conducted on an area, the light and soil moisture conditions, under which the remaining stand exists, may be entirely changed.

A white spruce measured seven years after logging showed an increase of 125% in the increment. But, while individual trees show this rapid increase, much of the forest capital is removed with the logging, and the net result in any but our overstocked second growth stand will be a falling off in the yearly increment.

Method of Study: From our field sheets we were able to construct, by averaging a large number of acre strips, an average or model acre showing average conditions for any particular type; this gave the average number of trees by diameter class per acre of the different species, average height, and contents, by species and diameter.

The growth per cent was obtained by boring into a large number of trees with an increment borer, and ascertaining the diameter growth for five-year periods for the past twenty years. The trees were taken at random, and recorded by types and diameter classes. Later all trees of a diameter class on any particular site and type were averaged together, it being assumed that if sufficient trees were studied an average could be obtained, which would represent the average of that diameter class throughout the site. The growth per cent was then obtained for this average tree, and the per cent applied to the model acre.

This year we made only a beginning on growth studies, making boring in spruce, fir, pine and cedar, in all some 2500 trees were used, and the results showed a growth per cent of from 6-10 of one per cent for cedar over 12 inches in diameter, to 3.6 per cent for white pine of 8 inches in diameter, or from 30-75 board feet per acre per year.

Next year it is my intention to supplement these figures by much more detailed studies, and it is hoped that we will arrive at a very close approximation of the actual growth.

Agriculture: Perhaps one of the most important features of the survey is the classification and delineation of the agricultural lands, the objects being to direct future settlement to localities where there is the greatest opportunity for successful farming, and to prevent the denuding of purely timber land under the guise of clearing for agricultural purposes.

The success or failure of any agricultural community depends on four factors:

1st, Climate; 2nd, Soil; 3rd, Personal; 4th, Social. We shall consider the first and second in more detail:

..Climate—The climate in New Brunswick is generally favorable to aggricultural pursuits; the winters, though long and severe, are followed by warm, pleasant summers with plenty of rainfall; vegetation showing a remarkably fast development, although late spring and early fall frost limits the range of field crops to those developing and maturing in a little over three months.

Soil—The soil is the factor with which this survey is chiefly concerned, and is, next to climate, the most important in limiting agricultural development. In the classification of soils on an agricultural basis two primary things have to be considered.

1st, Topographical Character.

Soil on gentle slopes or up to a sustained slope of eight to ten per cent is tillable; slopes to fifteen or twenty per cent are suitable for grazing. Steeper slopes, soils broken by ledges or boulders are unsuitable for any agricultural development.

2nd, Physical Character of the Soil.

The physical character of the soil determines its moisture and fertility holding capacity, as well as to a large extent the cost of bringing area under crop, and it is more important than soil fertility, because fertility may be increased or destroyed by the manner in which the clearing and cropping is done, but the texture of the soil cannot be changed.

We have divided our soil into five types on this physical basis. They are: clays, clay loams, sandy loams, sand soils and swamp soils.

Roughly speaking, therefore (referring to our soil maps), clay loam, clay soils and sandy loams can be classified as agricultural land, unless there are excessive quantities of surface or sub-surface tone (shown by hatching), or the cost of drainage is excessive.

Just a word as to the use the information gathered will be to the department in the future management of the Crown Lands.

1st, It gives definite information of the quantity, quality and value of the timber on any area, from which a very close appraisal of the stumpage can be ascertained: will show whether the Department is receiving full value for the lumber cut or not, and they can adjust their stumpage rates accordingly.

It will show the quantity and quality of species now of little importance because of lack of market demand, and it is hoped that we will be able either to show that these species can be marketed profitably, or to induce industries utilizing these inferior species, where the quantity justifies it, to locate within the province, thus profitably utilizing material which is at present going to waste.

2nd. The estimation of growth will determine whether or not the annual cut can be increased, or whether restrictions should be placed on certain species to regulate the cut, in order to perpetuate the industry.

3rd, The base map, showing as it does the roads, creeks, swamps, and main topographical features, as well as the types, will be a great aid in planning and carrying out any scheme of protection.

4th, The information on soils will permit of directing settlement to localities where there is the greatest prospect of success, thus protecti ngboth the future settler and the licensee, the latter at the present time having no assurance that portion of his license will not be taken from him under the Labor Act.

In conclusion. I would point out that with the completion of the survey we have not reached our ultimate aim. The soil conditions and topography are fixed and permanent. Not so with the timber conditions, which are constantly changing, as, new areas are culled new fires occur, or burned areas come again into maturity, and it will be necessary to revise our maps from year to year. This calls for a permanent outside organization to inspect and report on all logl ging operations, to submit detailed reports on all fire and bug killed areas, and in general to keep the office in touch with the actual changes in field conditions. It is hoped in the course of the next year or two to weld our fire rangers and scalers into one permanent organization, which will give us sufficient force to carry out this work. We will then have ready on file information showing the actual conditions and value of any area of our Public Domain at any time, and be ready to deal with any question of policy that may arise.

NEW PLANT FOR REFINING KAOLIN.

The Southern Clay Company has practically completed a modern plant for the mining and refining of kaolins. The mines and plant are located at James Crossing, Richland County, South Carolina, on the Atlantic Coast Line Railway. The principal office of this company is at Sumter, South Carolina, A. C. Phelps is president and treasurer, and H. J. Harby, of Sumter, is vice-president. J. T. Nash, engineer, is manager of the mines and plant and Maynard & Simmons, geological mining ceramic engineers, of Atlanta, have been retained as consulting engineers.

The property consists, in part, of the old Palmetto Kaolin Company, which company operated and shipped crude kaolin for several years, and of an additional tract of land, making a total of 103 acres.

The investigation and report on this property was made by Maynard and Simmons, and after all of the factors, which relate to the commercial development of the property, namely, the tonnage of clay present, the amount and character of the different types of clay, the amount and character of the overburden, together with a thorough investigation of the most efficient methods for the mining and refining of the kaolin, were taken into consideration, a plant was constructed which is essentially different from any other plant now refining kaolin in the South. It was realized that in order to supply the pottery plants and the paper trade with clay particularly adapted for their uses, it would be necessary to have a complete technical control of the product, and to prepare the different clays in a way best adapted for their respective uses.—Paper Trade Journal.

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The development of American kaolin deposits has been quite extensive since the shortage of bottoms has made a sufficient supply of china clay from England difficult to obtain.

The demand for English clay for paper making is largely because of the care taken in refining.

WIRELESS TELEPHONE IN FORESTS.

The first extensive wireless telephone system in the world is now being put into use in southern California on the large reserves of the Forest Department of the United States, where the inventor, Dr. H. Barringer Cox, will be at work on the perfection of the system during the winter.

The Staining of Wood Fibers for Permanent Microscopic Mounts

By H. N. LEE, Forest Products Laboratories of Canada.

In the preparation of wood fibers for permanent microscope mounts there is some difficulty in fixing a deep enough color, especially in the vessels of the hardwoods, when simple solutions of aniline dyes, such as safranin, are used; and the method of using such a reagent as Haidenhain's haematoxylin involves much time and loss of some elements due to washing. To avoid these difficulties a saturated solution of nigrosin in picric acid may be employed.

To macerate the fibers the original green or dry wood is soaked in a mixture of 5 per cent nitric and 5 per cent chromic acids in equal parts, with heating to about 70deg. C. if there is little time. A somewhat stronger solution may be used cold, and in practice has resulted in sufficient maceration in the course of one or more days, depending largely upon the kind of wood being treated. It is not necessary to macerate the complete piece of wood, as radial slices may be removed and the fibers carefully separated out with needles long before complete maceration is accomplished. After washing once in distilled water, the fibers are immediately put into the stain. To preparate the stain, saturate distilled water with picric acid and then saturate the solution of picric acid with nigrosin, and in applying to the fibers use a 25 per cent solution of the stain in distilled water. Fibers prepared according to this method are sufficiently stained, almost immediately, to a very fine light blue, which becomes darker untila deep blue-black is reached as they remain longer in the stain. In case the fibers do not take up the color, which seldom happens in the case of wood fibres, but is often the case in certain textile fibers, a stronger solution may be used. Fibers like cotton will stain satisfactorily if they are first allowed to soak about 15 minutes in the chromic-nitric acid mixture.

After staining, the material may be dehydrated and mounted in balsam in the usual manner. Benzol balsam is the kind we have employed, although there appears to be no reason why xylol should not be used. used. [Xylol balsam is now used.—Editor.]

The color will not hold in glycerin jely mounts. In case a precipitate appears it may be removed by adding a drop of concentrated hydrochloric acid to the distilled water in which the fibers are washed just after staining.

To secure permanent mounts showing a differentiation between groundwood and sulphite pulp as ordinarily found in newsprint, the following modification is of value. Leave the newsprint, which has been reduced to pulp, in a moderately strong solution of fuchsin for some hours, dehydrate with absolute alcohol and transfer to benzol, transfer back to a moderate solution of nigrosin in absolute alcohol, and after a few minutes transfer again to benzol. Superfluous stain may be washed out with either fresh absolute alcohol or with benzol. Mount in balsam. The groundwood shows red while the sulphite is blue. Bordered pits in some of the tracheids of the sulphite show a red torus and the pit openings are often reddish.

Further studies are being carried on to determine the qualities of this method for staining other types of material.—Botanical Gazette Editor's.

What Conservation is Doing for the Future Pulpwood and Timber Supply in Canada

FROM THE REPORT OF THE COMMISSION OF CONSERVATION FOR 1916.

The most striking feature in connection with the forestry situation in Canada today is the extreme shortage of trained men available for the technical features of forest administration and research. The forestry profession, no less than others, has answered the call for overseas service, and a very high percentage of the graduate foresters of the country are now engaged in Europe in the defense of the Empire. A number have already made the supreme sacrifice.

Developments in New Brunswick.

In New Brunswick, a thorough-going forest survey of Crown lands has been started. This is described in another column.



SIR CLIFFORD SIFTON,
Chairman Conservation Commission.

The work includes not only the mapping and cruising of Crown timber lands, and studies of rate of growth, but also a soil survey, calculated to facilitate the opening to settlement of lands chiefly valuable for that purpose, as well as the segregation for permanent forest production of lands not chiefly valuable for agriculture. A total of approximately 375,000 acres has been covered during the season of 1916, out of a total of 7,750,000 acres of Crown lands. This project has cost approximately 4¼ cents per acre for field work, office work and supervision, or a total of approximately $16,000 for the season. The commission has maintained close touch with this project and has cooperated to some extent particularly in the preparation of plans for the field work.

The collection of this vast amount of detailed information will enable the provincial government to formulate an intelligent and far-sighted policy for the scientific handling of its Crown timber lands, which now yield to the provincial treasury an annual revenue of more than $500,000. The demand upon New Brunswick forests is heavy, and the fear has been expressed that the annual cut is more than the annual growth. The investigation now under way should answer this question definitely and indicate, as well, what measures are necessary in order to provide for the satisfactory reproduction of cut-over and burned-over areas and to bring the annual growth of timber up to a reasonable maximum.

The adoption of any such plan would logically be preceded by the consolidation, under one organization, with adequate technical staff, of all the different lines of forestry and fire-control work, now more or less scattered. As in all other provinces, the most urgent immediate problem is better fire protection, and to this the attention of the authorities is being given.

The Situation in Ontario.

Notable progress is to be reported in connection with the fire-protection situation in Ontario. Partly as a result of the great fire disaster of last summer in the clay belt, a complete reorganization of the fire-ranging service has been announced. This work has been combined with the Forestry Branch, under E. J. Zavitz, Provincial Forester.

In reply to a deputation organized by the Canadian Forestry Association, the Minister of Lands, Forests and Mines gave assurance in November last, that the situation would be fully met by the meausres proposed to be adopted by the Government. These include adequate provision for overhead supervision and inspection of the fire-ranging staff, the adoption of the permit system for regulating settlers' clearing fires, and the construction of improvements such as trails, telephone lines, lookout towers, etc. Plans for handling the work on these lines are now in course of preparation.

Quebec.

During the past year, the situation in Quebec has been very materially improved through several amendments to the forest fires act. Of these, the most important provides for lengthening the season during which permits are necessary for setting out clearing fires.

Taking the province as a whole, decidedly the best results have been secured in the territory of the St. Maurice and Lower Ottawa Forest Protective Associations, though excellent results have also been accomplished by some of the individual limit holders outside of this territory.

Under the auspices of the Department of Lands and Forests, an attempt is to be made also to secure the

organization of still other associations elsewhere in Quebec, and it is to be hoped that these efforts will, with the assured encouragement of the Provincial Government, prove entirely successful.

Forest protection has received the hearty sympathy of the provincial authorities. It is believed, however, that the importance of this work fully justifies, and in fact urgently requires, a greater degree of financial support from the provincial treasury than it has thus far received. Under the present system, the attention paid to the protection of unlicensed lands is inadequate. The situation urgently demands the assignment of a much larger force of inspectors for licensed lands, the employment of an adequate staff for the protection of large areas of unlicensed lands, in order that they may remain or become productive, and provision for a sufficient head-office staff to maintain proper control over the entire organization.

Nova Scotia.

It is suggested that eventually, the province should embark upo na policy of reacquiring cut-over and burned-over non-agricultural timber lands, to supplement small areas of Crown lands. In this way, and at relatively small expense, the province can gradually re-establish the basis for a comprehensive policy of forestry practice on Crown lands. The necessary legislation already exists; only the required appropriations are lacking.

British Columbia.

The need for men trained in the theory and practice of forestry has become so urgent in the west that the University of British Columbia has decided to establish a forest school at Vancouver. This action is to be commended, and it is to be hoped that it may be made effective at an early date.

The Forest Branch has, through its own organization, made a remarkable showing in the development of new markets, both foreign and domestic, for British Columbia timber.

Dominion Lands.

Progress has been made in the matter of brush disposal in connection with timber sales in forest reserves. This policy is becoming well established and the beneficial results are apparent in the form of decreased fire hazard.

On the other hand, there is no progress to report in connection with the enforcement of the technical forestry regulations on licensed timber berths, these not being under the jurisdiction of the Forestry Branch. A large percentage of the merchantable timber on Dominion Crown Lands is included within these licensed timber berths, and the fact that there is no provision for a technical administration of cutting regulations on these lands is a complete anomaly. Under the present plan of administration, the forestry experts of the Dominion Government are completely cut-off from any direct administrative contact with cutting operations on lands which contain the great bulk of merchantable timber on Dominion Crown Lands.

The Department of Indian Affairs has made a notable advance by adopting the policy of requiring the disposal of logging slash in connection with timber sales on Indian reserves. This is no hardship from the point of view of the operator, since the cost of the work is taken into consideration in making the tenders for the timber.

The Parks Branch makes no sales of green timber in Dominion Parks, but it has made considerable progress in the disposal of debris from old slashings on timber berths. Material progress has also been made in better methods of fire prevention and control, particularly through the use of mechanical equipment, including a new design of pumping apparatus. It has also been active in propaganda work along the lines of advocating better methods of forest fire prevention.

The Settlers' Permit System.

The permit system of regulating settlers' clearing fires has proved an unqualified success wherever it has been given a fair trial, with a competent and adequate staff for its enforcement. It is now in effect in British Columbia, Quebec, Nova Scotia, part of New Brunswick, and in Dominion forest reserves in the west. Is seems assured also for a large area in Northern Ontario.

A movement is also on foot to make it effective as to forested lands outside the forest reserves. in the province of Alberta, Sakatchewan and Manitoba. The Minister of the Interior has approved of action which will make the permit system of regulating clearing fires applicable to forested lands upon which homestead entries may be made hereafter. It is, however, apparently necessary that provincial legislation be secured in order to cover the situation as to lands which have been filed upon or patented in the past.



JAMES WHITE,
Deputy Head Commissioner of Conservation

It is altogether probable that the careless or reckless burning of settlers' slashings constitutes the greatest single menace to our forests today. This situation is entirely unnecessary, and it is unthinkable that it should be allowed to continue in any section of Canada where valuable forests are at stake. Experience has proved conclusively that it can be controlled at a reasonable cost without antagonizing more than a very small element of the local population, and that probably only temporarily.

In British Columbia, in 1915, more than 9,000 settlers' burning permits were issued by the Forest Branch. Beyond any question, such regulation has proved effective to a very large degree.

Civil Service Reform.

It seems fitting to again emphasize a point that has been raised at nearly every annual meeting of this Commission, since its organization, namely, that both

efficiency and economy in the forestry and fire protection services of the Dominion and provincial governments will best be subserved by definite legislative action placing field appointments in such organizations upon a Civil Service basis. Beyond any question at all, the control of such appointments on a patronage basis has in the past caused Canada the loss of many millions of dollars in timber unnecessarily destroyed by fire and in salaries of fire-ranging staffs which were only partially effective because the basis of selection was fundamentally wrong. The evils of this system have, in many cases, been freely admitted, but action to cure the situation has, unfortunately been slow in coming. In view of the enormous war expenditures of Canada, it would seem that the country can ill afford longer to support this wasteful and inefficient method of making appointments in the public service.

It now appears that British Columbia is to be the leader in this reform, and the Chairman of the Dominion Civil Service Commission has for some time been in that province, by request of the provincial government, for the purpose of making specific recommendations in connection with the entire situation. Since British Columbia is essentially a forest province, it is safe to assume that the matter of appointments of the field staff of the Forest Branch will receive full consideration.

Railway Fire Protection.

The railway fire protection work, in the establishment and administration of which the Commission has co-operated with the Dominion Railway Commission, has porduced remarkably satisfactory results. Railway fires have been reduced to a position of very minor importance, and the railways have also rendered signal service in the extinguishing of many fires, for the origin of which they were in no wise responsible.

On all lines subject to the jurisdiction of the Dominion Railway Commission throughout Canada, the fires in forest sections definitely attributable to railway agencies did damage amounting to only $35,567—a remarkably good showing, considering the unfavorable weather conditions.

Of all fires reported, the causes were as follows: Locomotives, 61 per cent.; railway employees, 8 per cent.; campers and travellers, 7 per cent.; settlers, 8 per cent.; other known causes, 3 per cent.; unknown causes, 13 per cent.

Forest Planting.

The far-sightedness of some of the larger pulp and paper companies has resulted in a great impetus to forest planting, especially in the Province of Quebec. Extensive programmes of forest planting have been adopted by the Laurentide, Riordon and Pejepscot pulp and paper companies, each of which employs a trained forester in connection with this and other work.

White Pine Blister Disease.

This subject has been fully covered in recent issues of the "Pulp and Paper Magazine. There is the most urgent need for vigorous action by the respective provinces, but the Department of Agriculture should also be enabled to co-operate in the scouting for infections, as well as in the continuation of research work now under way.

Investigation of Forest Resources.

One of the most important lines of work to which the Committee on Forests has committed the Commission is the inventory of forest resources of Canada.

It is expected that an investigation of the forest resources of Ontario will be begun at an early date, by Mr. Craig. Assurances have been given that in this important work the commission may count fully upon receiving the hearty co-operation of the Provincial Department of Lands, Forests and Mines.

In connection with this study, it is proposed to start first with the investigation of pulpwood resources. This is particularly opportune, as well as of urgent importance, at this time, in view of the rapidly increasing demands upon the pulpwood forests of Canada, for both home consumption and foreign export. The price of news print has increased more than fifty per cent. within a very short time. It is estimated that the available pulpwood resources of the north-eastern States will suffice for only about 14 years supply, at the present rate of cutting. United States pulp and paper mills are forced to depend, to a constantly increasing extent, upon Canadian supplies. It is reported that more than half the pulpwood used in the United States comes from Canada. There is also a very strong tendency toward the establishment of new pulp and paper mills in Canada as well as for the enlargementof existing mills. Nothing seems more certain than that the drain upon our pulp wood forests will increase very rapidly, with the resulting investment of large amounts of capital in Canada, the employment of thousands of laborers, both skilled and unskilled, and the consequent stimulation of business of all kinds.

It seems evident that Canada is to be called upon to become one of the world's greatest sources for the supply of pulp and paper. The time has passed when intelligent men may speak of inexhaustible virgin forest resources, but it is only beginning to be realized that these resources may be made inexhaustible if the cutting is done in such a way that reproduction will be secured, and if destruction by fire is prevented.

In view of the certainty of a vastly increased demand upon our forests, especially for pulpwood, it becomes imperative that we should know with some accuracy the extent of these forests, and the character and amount of supplies of various kinds which they contain. To secure such information for Ontario will be the immediate object of the proposed investigation.

Forest Research.

The developments of the war have impressed upon the minds of people the vital importance of the basic industries in any intelligent plan of preparedness for either war or peace. The necessity for close co-operation between science and industry has become recognized as never before.

Here in Canada, it must be recognized that, on either a war or peace basis, the lumbering and pulpwood industries are essentially basic industries, that upon them depends a host of secondary industries of vital importance in the economic life of the country, and that the best utilization of the forest resources, including the development of new uses and new markets, both domestic and foreign, still offers a wide field for industrial research. It is perfectly reasonable to expect that we should be able to increase the intelligent use of wood by learning more about its qualities. This in turn means more and better business for Canada. This again means an increased capacity, from both direct and indirect revenues, for the payment of the great war debt with which the country will be confronted.

A most excellent beginning has beed made, in connection with such investigations, by the Forest Pro-

(Continued on page 135).

Canadian Pulp and Paper Association--Annual Meeting

COMMITTEE REPORTS

ADDRESS OF VICE-PRESIDENT.

MR. C. HOWARD SMITH.

Gentlemen: In making the opening address of this Convention, I am sure that I express the feeling of all the Trade and of everyone present in expressing our sincere admiration of our President, who gave up his



CAPT. J. H. A. ACER,
President, Canadian Pulp and Paper Association

regular vocation, and, at considerable personal sacrifice, has joined the Colors, to do his higher duty for King and Country. Early in July, Captain John Acer took this step, and it devolved on me, as Vice-President of the Canadian Pulp and Paper Association, to carry on this work.

The year past has been, generally speaking, a most successful one from a financial point of view, for the Pulp and Paper Industry. The manufacturers who have had a great many lean years, have made substantial profits, but I am glad to say they have not taken advantage of the situation and raised the prices to an unjust level.

The prices on paper in Canada to-day are lower than in any other country in the world, and this, notwithstanding the fact that the capital cost of paper mills in Canada is very considerably higher than in other countries, owing to the fact that practically all paper mill machinery is imported and pays a duty of 35 per cent.

The exports of paper from Canada have increased very materially, principally in News Print, more detail of which is given in the excellent report of Mr. A. G. Campion. The imports of paper into Canada have decreased, and a number of mills are taking up and manufacturing lines that have heretofore been imported—thus developing our own mills. There is still room for improvement in this regard. We are importing into Canada many lines of paper that should absolutely be made in this country, and these lines are imported in sufficient quantities to pay mills to manufacture them. The trade on most of these lines is split up among many consumers and buyers, and consequently it is much harder to market than the heavy tonnage that comes on the News, Book, etc.

The financial statement that will be presented by the Secretary shows that the Association is in safe financial position, but to extend the work of the Association more funds will be required.



HOWARD SMITH,
Vie-President Canadian Pulp and Paper Association

FREIGHT.—These matters have been dealt with in the careful report of Mr. Huff, who prepared the case for the paper manufacturers.

SECTIONS.—The Executive recommend to the different Sections that they appoint a Vice-Chairman, to act in the absence of the Chairman, and that either the Chairman or Vice-Chairman should be present at the

Executive meetings which are held from time to time. It is most important that every effort should be made to this end, as there are so many important questions to be decided, and each Section should be represented.

Your Executive having carefully considered the work that is entailed by properly getting out reports, and the numerous other matters that come up, have decided to ask the members of the Association to increase their annual fees from $35 to $50, and the assessment on tonnage to be increased as follows:

	From	To
News Print	¼c	½c. per ton.
Sulphite Board Wrapping		
Mechanical Pulp	Remains	¼c. per ton.
Book	2c.	3c. per ton.
Writing, Tissues, and Coated	2c.	5c per ton.

estimating that this would give us a revenue of about $8,500.00 per annum, which is not too much considering the work that has to be done.

Owing to the fact that Mr. Roy Campbell, the Secretary-Treasurer, is severing his connection with the Association, and is taking up an important position with the Riordon Pulp & Paper Co., Ltd.,—and I am sure that I express the desire of all the members when I say that we wish him great success in his new sphere, and feel that the Riordon Paper Mills have acquired a valuable asset while the Association has lost a competent Secretary—it will be necessary for the Association to appoint a new Secretary, and your Executive have selected Mr. A. L. Dawe, to fill this position.

Your Executive propose taking offices and having a stenographer, and will endeavour to make the office of the Association the headquarters of the Pulp and Paper trade, where all kinds of information will be kept on file, at the call of the members.

It is also proposed to extend the statistical information and to keep the members informed, as far as possible, of the condition of the raw material market, as well as that of the finished product.

There are two facts that stand forth at the present time, which are of the utmost importance to every manufacturer in Canada. I refer of course to the STANDARDIZATION and CO-OPERATION.

STANDARDIZATION.—The trouble with the paper industry has always been, outside of course of News Print, that there have been too many lines, too many varieties, too many weights, too many shades, and too many everything, made. Changes in the machine means lost time and lost time means lost money. With the advance in manufacturing knowledge, gained in many industries, it seems essential that the paper manufacturer should standardize his product, and thus manufacture paper at as low a cost as is possible, consistent with good quality. In many lines of paper the different varieties asked for are simply a whim of the purchaser; and if the manufacturer will adopt certain standards, and rigidly adhere to them, we will then have in a short time these standards, and they will be used generally, and one of the bugbears of the paper business will have passed away.

The writer knows this from personal experience in the past year, and while we admit the conditions have been favorable for adopting measures of this nature—customers who have taken on a standard line, have told us that they have found so much less trouble in handling it, that they were glad they had taken it up, and I am sure that this phase would equally apply to every line of paper.

The American mills in some of the different sections have standardized their weights and their selling price. That is, they sell at a ream price with a discount and all their weights are figured on a basis of 17 x 22, and the weight in the different sizes is sold as Thickness No.——which would correspond with the weight of the paper in the standard size.

We have in Canada been fortunate in this respect, inasmuch as the manufacturer in this market has had to contend with European competition and American competition, and the Canadian manufacturer has had to be a sort of composite fellow who could make pretty nearly everything. This day has passed, and if the manufacturers will stand resolutely together on this point, it will bring about the adoption of "standards." There must be no weakening in this respect, and if we once again commence to match samples of every other mill in the universe, our last state will be very much worse than our first.

CO-OPERATION.—There has been so much written by different people and so many speeches made about CO-OPERATION that it hardly seems necessary to dwell on this subject—but I would like to say that co-operation is essential to the success of all manufacturers. By co-operation I do not mean the fixing of prices or other arbitrary measures of that nature. I do mean that when two manufacturers meet together that they will feel at liberty to discuss the intricate problems of manufacturing paper frankly and openly, and to know that one would not take advantage of the other in any way. That if you have solved some trouble in your mill, and hand the benefit of your knowledge to your competitor, that you will not be harming yoursef by benefitting your opposition, but rather helping yourself because the more prosperous the industry as a whole, the more prosperous you will be. Outside of the German nation, the day of piracy has passed, and in this respect I am quite sure we have no desire to emuate the Hun.

The work done by the Association has been of great benefit during the past year where conditions have been so favourable to the manufacturers. We are bound, however, to have dull times, and it will be during this dull period, (which we all hope is a long way off), that the Association should prove its extreme usefulness.

By the tonnage reports that are sent each month, and in some cases each week, each manufacturer can see for himself the condition of the market, and will readily see that there is no benefit in piling up stock that cannot be disposed of, and that there is no benefit in cutting the price below a living profit, and it would be much better, under conditions of slack business to curtail the production of the mill. Each manufacturer, by considering carefully this point, will see how it would affect the whole trade as well as himself. There is no profit in making goods below a certain price, and as the capital invested in business is entitled to a fair return, when the price gets below a fair margin of profit, it is much better to restrict the production.

TARIFF CATTERS.—The Executive have done considerable work on this Tariff question, and this question of course is of vital importance to the Trade. We have endeavoured to have the classifications changed so that the manufacturer could tell exactly what goods are being imported into the country, and thus can take such measures as may be necessary to manufacture these goods in Canada. I am pleased to be able to report that the Minister of Customs has been

very sympathetic with this part of the work, and will, as far as lies in his power, amend the classifications to meet our desires.

I would point out, however, that there are considerable difficulties in the way. The wording of the Tariff can only be changed by Act of Parliament, that is to say, when the Budgets come down. The working of the classification can be changed, however, and this we believe will be done as soon as practical. We have made some recommendations, which, however, cannot be carried out in their entirety at the present time, as the only things we can change is the classification and not the clause. The changes of the clauses necessary will be taken up with the Minister of Finance, and I have no doubt this will be arranged in a satisfactory manner.

The reports of the different sections have been printed so that you can follow the Chairman, and any criticisms or questions pertaining to these reports, will be in order. Your Executive would like a full discussion of any questions—the idea of the Association be-that of mutual help.

REPORT OF THE TECHNICAL SECTION, 1915-17.

Mr. President and Gentlemen:

The Technical Section of the Canadian Pulp and Paper Association was organized at a very enthusiastic meeting in Ottawa on February 12, 1915, with the following objects: "To stimulate interest in the science of pulp and paper making in Canada, to provide means for the interchange of ideas among its members and to encourage original investigation." In addition to the business of organization a number of papers were read.

Meetings and Papers.

C. B. Thorne.—"Thorne's Reclaiming System." A description illustrated by diagrams was given of the patented tower system for recovering sulphur dioxide from relief gases by counter flow of cooled sulphite liquor over wooden blocks.

Dr. James W. Robertson, who served the country so well as Chairman of the Royal Commission on Industrial Training and Technical Education, gave a most excellent talk on the needs along technical lines in Canada.

G. W. Dickson—"Pulp Stones." It was pointed out that grit is the most vital quality, including size, hardness, sharpness and uniformity of the cutting particles. Natural defects include seams, cavities, sand pockets and foreign substances. Factors affecting operation are the mounting of the stones, danger of bursting especially on high speeds, proper burring of the surface, control of speed, pressure and temperature, and scaling of the surface. It was considered that the artificial stone might be used to advantage when the exact requirements of composition are more thoroughly understood.

J. A. DeCew—"The Value of the Forest Products Laboratories of Canada to the Canadian Paper Trade." The main work of the laboratories should be to elucidate the general principles regarding products which would establish a theoretical basis for consideration by those engaged in paper making. The recording of scientific data would be specially valuable in the mechanical and chemical field. Criticism of newer processes by such a disinterested organization would be valuable. The laboratories have an opportunity to aid in the development of more wood-working industries.

O. F. Bryant—"Sulphite Pulp Losses." The sulphite process holds first place among the chemical pulp processes in Canada. Less than 25 per cent. of the standing tree comes out of the mill as finished pulp. Only two-thirds of the tree reaches the mill as logs, 15 to 25 per cent. of the log is lost in preparing chips for the digesters and at least 50 per cent. of the chipped wood is lost in waste liquor. Losses occur in barking, chipping, cooking, acid making and in handling the pulp from the digesters. Methods of waste sulphite liquor utilization were discussed in some detail including binders, tannins, alcohol and fuel.

Einar Gelertsen—"Sulphate Industry in Canada." Conservation of forests can be carried out partly by planting trees in place of those cut and partly by developing the utilization of forest products. The advantage of the sulphate process is its ability to convert practically any kind of wood material into pulp. In Canada most of the sulphate pulp is used as "kraft" for dark colored wrapping paper, but in Europe large quantities of sulphate pulp are used for board stock or bleached for high-grade papers such as book and writing.

The second meeting of the Technical Section was held in Montreal on June 19, 1915. One of the features of the meeting was an inspection of the Forest Products Laboratories of Canada. The programme included the following papers:

H. N. Lee—"Structure of Wood and Some Other Fibres as Related to Pulp and Paper." The discussion was illustrated by numerous slides and photographs of wood sections, pulp fibres, etc. The structure of spruce as a typical coniferous wood was considered in detail including fibre dimensions, medullary rays, resin canals. Poplar is a typical broadleaf wood with much shorter fibres which give support to the tree, a large portion of "vessels" which transport the sap up and down and medullary rays which carry the sap horizontally and store food substance. The flax and jute family have very long bast fibres located in bundles near the periphery and set in a mass of thin-walled wide short cells. The grasses and cereals include esparto, hemp, straw, corn, sugarcane, in which the paper-making bast fibres are scattered throughout the stem among thin-walled short pith cells. Wood fibres are shorter than most other fibres but are of convenient length for paper making. The tree shows a rapid increase in fibre length for the first 25-50 years and a slow decrease as the tree becomes very old. Fibres of the branches are much shorter while the root fibres are longer than in the branches but much thinner walled. The broken irregular fibres of groundwood were illustrated in comparison with sulphite fibres. Identification of fibres is carried out by microchemical examination after staining with chlorzinciodide, by the shapes and dimensions of the fibres under the microscope, by studying markings on the different coniferous fibres. Balsam firwood may be distinguished from spruce by a simple method of cutting a thin diagonal section and noting the dark marks of the resin canals in the case of spruce.

J. S. Bates — "The Chemistry of Paper Making Fibres." Wood is composed of cellulose, lignin, lower carbohydrates, glucosides, resins, oils, tannins, proteins and mineral salts. The formula of cellulose indicates its stability to oxidation, hydrolysis and action of ordinary chemicals. The chemical composition of lignin shows its sensitiveness to reagents. The basis

of the sulphite process is solution of the lignin by formation of an additional product with the bisulphite. The basis of the sulphate process is solution of the lignin by the hydrolytic action of caustic soda and the solvent action of sodium sulphide. The chemical nature of cotton, jute, straw, sugar-cane and other fibrous materials was discussed in relation to manufacture of chemical pulp. Bleaching is oxidation and solution of non-cellulose materials by chlorine. Beating involves more or less hydrolysis of the cellulose in addition to mechanical separation of the fibres. Drying of paper often involves the chemical reaction of oxidation.

H. S. Taylor—"Wood Room Procedure and its Treatment of Pulpwood in Connection with News Print Manufacture." The dry system of handling wood by conveyors is considered better than the wet system for the wood room on account of giving drier wood, more positive action and fewer shut downs. Hand barkers have an advantage over mechanical barkers for ordinary wood up to 9 inch diameter and more than 2 feet in length. The knife barker with toothed cylinder for mechanical feed gives higher capacity and is fairly good for 4-feet wood. A simple machine is usually best for barking. The intermittent drum barker is favored over the continuous drum on account of giving cleaner wood with the bark removed by water, although the capacity is smaller. The barking drum is considered better than hand barker for river wood but not for rail wood.

The third meeting was held in Montreal on November 19, 1915.

Dr. B. Johnsen — "Chemical Analysis of Wood Pulps." The speaker first discussed the three types of technical schools in Germany for training technical managers, superintendents and foremen. The main part of the paper dealt with determination of lignin by the methyl iodide method, pentosans, etc., by production of furfural on treatment with hydrochloric acid, extraction of resins by alcohol and ether, determination of oxy—and hydro—cellulose by the copper method for reducing substances. In the determination of cellulose it is an advantage to first hydrolyze and swell the fibres by heating with acetic acid and glycerine.

J. A. DeCew—"Recent Disturbances in the Field of Paper Making Supplies." Chemical materials which we formerly imported have been most seriously disturbed by war conditions. Special discussion was given to aniline colors, bleaching powder, sulphate of alumina and rosin with predictions for the future.

The fourth meeting was the annual meeting held in Montreal on February 10, 1916.

A. O. Bowness—"Important Points in the Manufacture of Ground Wood." The fine new pulp mill of the E. B. Eddy Company, Limited, was described. Various factors connected with grinding were discussed. Results of barking tests by the author on barkers with Witham steam attachment showed loss of 25.2 per cent. for river wood 3 to 4 years old, 27.16 per cent. for round wood brought in on cars and 29.34 per cent. for old wood originally brought in on cars and stored in pile for 12 months. Hand barkers are most economical when good clean wood is desired. For the grinding operation a diamond burr is preferred, with medium sharp tone for best quality and output. An average temperature of 130-140 deg. F. is favored. An average pressure of about 60 pounds is considered most satisfactory for producing good ground wood suitable for most papers. A rotary screen is considered more efficient for ground wood than a flat screen. Wet machines, save-alls, and power were other topics.

G. W. Dickson—"Some Valuable Conditions Affecting the Manufacture of Ground Wood." The kind of wood affects strength, color and permanency of paper. Pitch troubles decrease in river-driven wood with best results by grinding in winter. Old dry wood requires a sharper stone than young wood or wet wood. Decayed portions have no fibre strength and should be removed from the stick. The grinding action depends more on the grit of the stone than on the method of sharpening. The unit pressure on the stone's surface is what produces stock variations, not the gage pressure. Low temperature and thin stock give a hard pulp. Variations due to screening are largely controlled by stock consistency.

A. G. Pounsford—"Safety First." The new secretary of the Ontario Papermaker's Safety Association outlined the methods of carrying out safety measures in mills and plans for organizing the men. The great educational value of the movement was emphasized.

The fifth meeting of the Section was held on June 29-30, 1916, and took the form of visits to pulp and paper mills in the Niagara Peninsula district. Eight mills were thrown open and the members enjoyed a most pleasant and instructive trip as guests of the companies in the district. This hospitality of the mills was heartily appreciated and it is hoped that one meeting a year can be devoted to visiting pulp and paper mills.

The sixth meeting was held in Montreal on November 24-25, 1916.

Ellwood Wilson—"Forestry in Connection with Pulp Mill Operations." The forester has to do with locating land properly supplied with pulpwood, mapping areas and making an inventory of the timber, carrying out fire protection, laying out areas each year for cutting and looking out for future growth and supply. The author's examination of cut-over lands shows that if left to grow for 30 years the yield will be only 3 cords per acre. The really good forests in St. Maurice Valley are composed generally of balsam fir 61 per cent., white birch 17 per cent., white spruce 15 per cent., black spruce 4 per cent., maple 2 per cent., cedar 0.5 per cent., other hardwoods 0.45 per cent., white pine 0.05 per cent.

By present methods of lumbering the forest is slowly but surely being converted from coniferous to hardwood. Hardwood is suggested for ground wood as well as for soda and sulphate pulp. The advantages of tree planting are emphasized.

R. B. Wolf—"Mill Efficiency." The author described the methods which he had used to replace science by rule of thumb in the manufacture of pulp by the Burgess Sulphite Fibre Company. Efficiency is a vital human problem and the function of the management is primarily educational in nature. Plant efficiency is not an aim in itself but the real aim is the development of men. It is necessary to teach men their place in the parent organization as well as to teach them how they can become more intensively creative in their own particular sphere of operation. The philosophy of management in practice was illustrated by numerous slides showing the tickler system, records of performance given to the men, and records of processes which form a basis for improvements.

O. Rolland.—"Some Notes on European Institutions in Pulp and Paper Manufacture." The author described his various visits to the Municipal School of

Technology, Manchester, England; the Pulp and Papermaker's Association of France; the official magazine of the French industry; the paper mills of the De Montgolfier Luquet & Company in Annonay; French School of Paper Making at Grenoble; the engineering firm of E. & M. Lamort Fils, at Vetry-le-Francois; Zum Bruderhaus Papier Fabrik of Dettinger and finally the Leipzig Exposition.

O. F. Bryant "Pulpwood Measurements and Some Factors Involved in Chipping and Baling Pulpwood." The results of measurements made at the Forest Products Laboratories were given, including weight and volume per cord, percentage of bark, bone-dry wood per cord, weight and volume of good chips obtained. The advantages and disadvantages of the proposed scheme of chipping, drying and baling pulpwood for shipping were discussed. Artificial dryers were described and operating figures given. Dry baled chips are uniform, give less danger of dry rot, cut down freight charges and give better penetration and yield in the digester.

Committees.

A number of committees have been appointed to take up matters of general interest.

The Committee on Literature and Statistics (O. F. Bryant, chairman), has looked carefully into the question of abstracting all technical literature on pulp and paper appearing throughout the world and has offered co-operation with the Technical Association of the Pulp and Paper Industry in the United States. The net result to date is that a start has been made by the Pulp and Paper Magazine of Canada with a staff of paid abstractors. The aim is to keep Canada supplied with all important information regarding pulp and paper developments.

The Committee on Technical Education (T. L. Crossley, chairman), has had to study present conditions in the mills and lay plans for gradual development of technical training. Several of the mills have signified their readiness to set aside a rest room supplied with technical magazines, books, etc., to encourage attention to technical matters. Thorold has been the leader in the movement and the night classes at the High School are enjoying a remarkably large attendance by men from the pulp and paper mills of the district. The educational authorities of the provincial government have offered further support whenever the industry has a definite proposition to make. One of the aims for the future is a School of Paper Making supported by the industry. The committee is handling a "question and answer" column in the Pulp and Paper Magazine for the benefit of mill men.

The Committee on Standards (J. A. DeCew, chairman), has considered methods of analysis and testing, and standards for materials. Testing methods have been put forward for rosin, rosin size and sulphate of alumina, while the testing of moisture in pulp is being investigated. The committee is able to use the methods put forward by other societies as a basis in many cases. Special attention will be given to standardizing pulp and paper materials and working out methods which will bear directly on the products of the mills.

The Committee on Collection of Samples (C. B. Thorne, chairman), held a very interesting exhibit last year and the excellent exhibit of Canadian-made products at the present meeting speaks for itself. This is an accomplishment of real value to the industry and the system will be continued. The aim has been to let every pulp and paper man know just what is being produced in Canada.

The Advisory Committee to the Forest Products Laboratories of Canada was organized only last November, the members being Messrs. C. B. Thorne, chairman; S. F. Duncan, H. Helin and F. A. Sabbaton. Two meetings have already been held in conjunction with the pulp and paper staff of the laboratories and there is every reason to believe that this active co-operation will mean much for the industry.

Membership.

The membership of the Technical Section has increased steadily and has now reached the 85 mark. Mr. Thorne has been handling a canvas for new members in order to build up a stronger association of all the capable men in the country who are doing technical work on pulp and paper. The constitution and list of members have just been published in useful form. It is a striking fact that only 30 per cent. of the members are Canadian born. This proportion shows how the industry in Canada has been strengthened and in fact largely built up by trained men from other countries. The membership fee has been kept low $3.00 per year) in order to bar no man who would be a valuable member. When it is found that further money is needed for definite work of importance we are confident that the mills will give the Technical Section the required support. The attendance at the meetings has averaged about 40 and is steadily increasing. One of the most encouraging features has been the frank and lively discussion of the papers by the members. Above all the members of the Technical Section have developed a fine spirit, the most valuable asset of any organization.

The Future.

In conclusion I give a word for the future. What has been said of England may also be said of Canada, namely, that the "idea of science," spelled in capital letters, has been lacking in the national make up. The war has stirred the industries and the public to a realization of the importance of science, but very few plants yet really believe in science, and carry out their programme of development on this basis. Germany in one well-known factory on the Rhine has more chemists than in the whole of Canada and much the same proportion holds true of engineers and trained workmen in the industries including pulp and paper. We must have the full co-operation of all if the pulp and paper industry in Canada is to be worthy of its trust and if we hope to progress beyond the range of low grade papers. There must be broad policies for training workmen, superintendents, and technical managers if we Canadians wish to have a fair share in the development which is going on. Nature has provided unparalleled forest resources and water powers and trained human intelligence must provide the rest. There should be co-operation of mills in manufacturing as well as in selling. Secrecy is a relic of tradition and the visiting of mills by members of the association should be encouraged so that all of us may profit to some degree at least by the special experience which has been gained by each mill. Not every mill can have a comprehensive investigative department, but no mill should neglect its department for studying raw materials, controlling the manufacture of products and improving processes and methods. The Technical Section should be a clearing house for the discussion of problems. Co-operation is the thing most needed and the mills, the main association,

the Technical Section, the Forest Products Laboratories, the Pulp and Paper Magazine, and all other forces must pull together to make Canada the by-word for quality as well as quantity of pulp and paper.

JOHN S. BATES, Chairman.

CANADIAN PULP & PAPER ASSOCIATION.

Report of the Secretary.

Mr. President and Gentlemen:—In the brief report which I shall make it is my duty to touch upon those questions which are not wholly within the scope of the President or the Chairman of Sections, and also to present a summary of the finances of the Association during the thirteen months which constitute the past fiscal year.

One of the most prominent and most highly appreciated of the Association's activities is the co-operation by members of the news, groundwood, sulphite and book and writing sections in the collection of statistics of production and distribution of product. The statistics in the past year have been thoroughly successful, to judge by the interest which the members take in the accumulated figures. Statistics are secured from over ninety per cent. of the producing mills, and it is altogether probable that those members who are not at present sending in figures, will do so very shortly.

The success of the statistical work so far augurs well for the future. The development of this side of the Association's work should constitute a programme of which one can hardly see the limits. Production figures of all kinds, import and export statistics, figures on general market conditions, and the gradual development of a series of graphical presentation of facts, will all be of the utmost interest to our members.

The great drawback of the development of statistics so evidenced in many lines of business, and above all in our own Government, has been the absence of co-operation in securing data. This is a difficulty which the members of the Association can overcome, and the desirability of having individual firms' information promptly and accurately cannot be over-estimated.

The Chairman has mentioned the fact that the Association will take offices of its own and have the full time of the secretary. This should be a source of great satisfaction to the members, particularly in view of the fact that not long ago the Association was battling hard for existence, and could not be said to command hearty co-operation of the industry in general.

The loyalty of the members and the progress of the Association may in part be judged by the financial statement which I have the honor to submit, as follows:

SUMMARY STATEMENT.

Receipts and Disbursements January 1st, 1916, to January 31st, 1917.

RECEIPTS:	$	$
Balance on Hand		45.15
In Bank	27.00	
Petty Cash	18.15	
Total Fees		4,908.68
Initiation Fees	225.00	
Membership Dues	4,683.68	
Eastern Rate Case Assessment	912.25	
Annual Meeting 1916	18.00	
Total Receipts		$5,884.08

DISBURSEMENTS:	$	$
Salaries		1,597.22
Secretary	1,049.97	
Stenographers	547.25	
Printing and Supplies		377.45
Postage		173.29
Telegraphs and Telephones		162.35
Travelling Expenses		94.16
Eastern Rate Case		575.00
Export Investigation		190.68
Newsprint Meetings		132.10
Stenographic Report, Newsprint Conference		80.00
Annual Meeting, 1916		320.48
Annual Meeting, 1917		75.30
Auditor		50.00
Bank Charges		12.89
Technical Section		7.30
Total Disbursements		3,844.22
Cash		2,035.86
In Bank	1,983.14	
Petty Cash	52.72	
		$5,884.08

Assets and Liabilities.

ASSETS:	$	$
Cash		1,983.18
Cr. Bank Balance	2,311.18	
Cr. Error of Bank	20.00	
	2,331.18	
Less Outstanding Cheques	348.00	
Petty Cash		52.72
Accounts Receivable, as per attached list		1,010.45
Technical Section		28.80
Newsprint Section Meeting		132.10
		$3,207.25

LIABILITIES:

None.

Surplus Account $3,207.25

In leaving the Secretaryship, I should like to convey to the members, my heartfelt appreciation of their many kindnesses during my term of office, and I would bespeak for my successor the loyal support of the central office, which will to a great extent determine the future of the Association.

Respectfully submitted,

ROY CAMPBELL.

REPORT OF SULPHITE SECTION.

CARL RIORDON.

Mr. President and Chairman:

The sulphite manufacturers have encountered a most unique experience in 1916. The war conditions created the largest demand in the history of the business, forcing production of this pulp to the highest point to keep the paper mills of the continent supplied. While great difficulty was experienced in doing this, it is to our credit that we fulfilled the task and all paper machines were kept running fully.

The United States paper mills, had to depend more fully on Canadian sulphite than at any time before, as

Scandinavian imports to the United States decreased materially during ten months of the year.

The market advanced in rapid strides from month to month, and the year ended under the highest prices of all time. As European and Asiatic export of considerable importance was another surprising feature, notwithstanding almost prohibitive freight rates. The scarcity of sulphite pulp in England, partly due to an embargo on the export of Swedish sulphite, has led to the construction in Canada, of at least one sulphite mill, the product of which is to go into the manufacture of newspaper in England. Two vessels carrying Canadian pulp were sunk by submarines.



CARL RIORDON,
Ex-President, Canadian Pulp and Paper Association.

Stocks in sulphite mills and at docks were heavy at the close of 1915, but were quickly absorbed while stocks at the end of 1916, both at the mills and at the docks were on the whole much less, sulphite production being at top notch and paper production ditto, the late winter and beyond should see a marked demand for Canadian pulp in America.

The construction of new sulphite plants and the plans for construction of new mills in Canada, are simply enormous. Without going into particulars,, on October 20th a list your secretary secured, gave a new production in anticipation of 900 tons daily in Canada, including British Columbia and the United States, which Mr. Jensen, the engineer, now finds is increased to 1,300 tons daily, all of which excepting two mills, were for ordinary news sulphite and kraft.

Another matter worth referring to, is the projected large increase in manufacture in Canada of paper, which will in a measurably short time, largely consume the increased tonnage we have referred to.

This new sulphite development should have the very present and earnest consideration of the section, because it contains elements fraught with the greatest influence on the continuation of profitable manufacture.

While cleaner, stronger pulp is not obtainable, or if it is at a very high price, quick cook news grades may be substituted temporarily, in order to in some way help lower the cost of these grades of paper, which also have been extreme.

Canadian mills cannot do better than take a lesson from Scandinavian sulphite makers, in producing higher grades, more regular grades and cleaner, stronger pulps, for the use of mills making the various grades of paper, requiring these features.

So much ordinary wet sulphite will be difficult to market, and I strongly recommend drying instead of wet pressing this pulp. One large mill, which has been selling 50 tons daily, has just commenced steam drying their quantity. Out of the whole production only about 450 tons per day is steam dried.

In view of largely increased production coming about, I would recommend serious efforts to export overseas a portion of the output, and I suggest formation from this division, of an export committee, to study the situation and make suggestions to the members.

I feel greater co-operation than heretofore is incumbent upon the makers of fibre, in order to put Canada in the front rank of successful sulphite manufacture. I ask the members and myself also to consider improving the quality and diversity the grade as much as possible. For example, a line of strong pulp could be made to advantage.

As Canada will, within a short period, become the leading producer of sulphite pulp, the formidation should be laid on the most modern and efficient lines, in order to compete wtih the rest of the world.

Prices.—At the beginning of last year, prices were forty to forty-five dollars per ton delivered, but the first of this year saw them $100 to $110, and even higher f.o.b. pulp mill.

In Sweden Strong $97.50, Easy Bleaching $107.50, and Bleached $160.00. Sweden's prices being so much lower than Norway because of the embargo. Recently Germany has declared sulphite from Sweden contraband, and seized two steamers with ten thousand tons destined for America. It is felt that a bright year is ahead of the industry, and that when normal times return, prices will remain on a much higher level than before the war.

By agreement of the members, the Government were recommended to classify under the several grades and to reduce the duty from 25 per cent. advalorem to $6 per ton, specific, to allow fine mills to import soda and straw pulps (not made for sale in Canada, at a reasonable figure, and also because pulp is free of duty in shipping to United States.

Bleached Sulphite.—A thirty-ton unbleached mill has been converted into a thirty-ton bleached sulphite plant. The other bleached mill is to increase by thirty tons per day.

Your division has expanded considerably and gained new members during the year, a weekly report being issued as well as a monthly, thirteen mills are now re-

porting production, etc., having a tonnage as follows:

Production, roughly	1,000	tons	per	day.
of which they use in mills	475	"	"	"
Sell in Canada	100	"	"	"
Sell to United States	300	"	"	"
Sell Abroad	125	"	"	"

It is hoped that all the mills will shortly become reporting members of the section.

CARL RIORDON,
Chairman.

REPORT OF THE BOARD SECTION.

Mr. J. F. Taylor, Chairman.

Mr. President and Gentlemen:—

I have pleasure in presenting my report on the Board Section, and am pleased to be able to state that nearly all the mills have joined our section and that we have finished the year with a very much more complete understanding with one another, than has hitherto existed in the Trade.

Meetings.—During the year, six meetings were held, at all of which, practically every mill was represented, with two exceptions, viz., The McLeod Pulp Co., Ltd., of Liverpool, N. S., which has not yet been rebuilt, but which has kept in touch with the proceedings throughout the past year; and are so well satisfied with the results that we feel that they will take their full share of interest as soon as their mill is again working; the other exception being The Bathurst Lumber Company, Ltd., of Bathurst, N. B., which have not yet decided to join our section. The meetings were well attended, and the discussions on the different subjects quite enthusiastic, showing the keen interest taken by all the mills.

Contract Form.—Some of the principal items which have been taken up and settled during the past year are as follows: The establishment of a standard count table, as a basis on which the productions of the different mills are to be sold. The establishment of uniform trade customs and conditions. A Standard Form of Contract, all of which prevents any one mill having any advantage over another and also prevents any customer getting undue advantage over his competitors, that is, the whole system of operation between the various mills and the trade generally is now on a very much better basis than it has ever been.

Membership.—This section has been instrumental in getting all of the Board Mills, which were not previously members of the Canadian Pulp and Paper Association, to join the latter or to express their willingness to do so.

War-time conditions have brought the mills closer together, and have put them in a position, probably for the first time, of meeting the trade as a unit. The relations between the mills and the trade are in a most satisfactory condition, this result having been brought about by the trade bringing their difficulties before the mills, and the frank discussion of mutual troubles, which has enabled the mills to look after their customers to better advantage.

Production and Deliveries.—I anticnpate that total production during the present year, including wrappers for news mills, beaver board, and some other grades not strictly consumed by the box makers, will be about 60,000 tons, to be marketed chiefly in Canada. Some of the mills have been exporting to Great Britain and the United States—during the past year, those mills, however, that have been exporting will in all probability reduce their exports, owing to the overseas export market, which has been completely demoralized by embargoes and excessive freight rates and which will enable them to supply more fully the Canadian trade. All the mills are heavily booked ahead, and some of them are as much as four months behind on their orders.

New Mills.—No new mills have been built during the past year although the McLeod Pulp Co., Ltd., are talking of re-building their mill at Liverpool, N. S., and it is stated the Spanish River Pulp and Paper Co. contemplate installing a board machine for the purpose of making wrappers for their output of roll news. Miller Bros. Co., Ltd., mill at Glen Miller, which had been destroyed by fire in the early part of the year, resumed operations about the first of May, and the Northumberland Mill, which has been down for practically the whole year, will probably resume operations in a month or so.

Colors.—The color situation is still in a very precarious condition, and some colors are still being quoted at prohibitive prices, while others are unobtainable at any price, the result of which, the tonnage of colored boards has been considerably diminished.

Freight Rates.—A decision having been handed down in the Eastern Freight Rate case, favorable to the railroads, and which has meant a heavy increase on all paper commodities, it only remains for the mills to try and arrange to take care of the increase.

I feel that the Association is to be congratulated upon the success so far achieved, and that we may look forward to its continued prosperity, relying on the members to give their most loyal support to the Association during the coming year.

JOHN. F. TAYLOR.
Chairman of the Board Section.

REPORT OF MECHANICAL PULP SECTION.

MR. J. A. BOTHWELL, Chairman.

Mr. President and Gentlemen:—

Owing to the scarcity and high price of chemical pulp at the present time, the mills purchasing their different kinds of pulp have found it absolutely essential to use a larger percentage of ground wood than heretofore used by them in the manufacture of their different grades of paper, even to the extent of slowing down their machines to make this practical.

At the present time this commodity is in active demand and selling at fairly high prices. This has not been caused by any shortage of this commodity under normal conditions, but as previously stated, by the excessive percentage used over and above the average general consumption. The question as to the quantity produced of this commodity during the coming year is going to depend entirely on the pulp wood situation, as owing to the scarcity of men and the excessive amount of snow in the woods, I look for a very material shortage of pulp wood during the coming year, in fact this is going to be the case to such an extent that mills purchasing their entire wood supply are going to find themselves shut down, for want of pulpwood, by September 1st, 1917.

Another costly and serious situation has been imposed upon the manufacturers of pulp by the labor scarcity and the high prices labor is demanding, especially those working in the grinder rooms.

As soon as the chemical mills which are now in the course of erection, are completed, the situation regarding ground wood will be somewhat relieved.

J. A. BOTHWELL.

REPORT ON TRANSPORTATION MATTERS.

MR. A. D. HUFF.

Mr. President and Gentlemen:

Eastern Rates Case.

The judgment of the Board of Railway Commissioners in the Eastern Rates Case was announced on July 6th, much to the surprise of a large section of the public. It was felt a year ago by many of those who had followed the case that as the abnormal conditions (on which the application was chiefly based) had disappeared, the Commission would reject the application entirely, or at least hold it in abeyance until the Smith-Drayton Commission had made its report on the general railway situation.

A study of the decision shows that the railroads have been granted practically all they asked for, without much sincere consideration of the reasonableness of rates affected. The judgment justifies the impression formed by many at the inception of the case, that the public would have fared as well had the application not been opposed at all.

The net result is that we are now saddled with increased rates on raw materials and manufactured products, many of which are unreasonably excessive and unjustified. The combined increases will be equivalent to over 50c per ton on car lots of newsprint and a greater increase in the higher grades and less car lot shipments.

Rates on Woodpulp to United States.

Tariffs making radical increases in rates on woodpulp from Eastern Canadian mills to United States points, were published to become effective May 1st, 1916. In conjunction with other interests we protested to the Board of Railway Commissioners against the proposed advances. The tariffs were suspended and are still under consideration by the Board.

Rates to Pacific Coast Points.

Effective December 30th, 1916, rates on newsprint, wrapping and woodpulp board to Pacific Coast points were advanced by 10c per 100 lbs. C. L.

Cartage Charges.

Effective March 1st, 1917, cartage on L. C. L. and "Smalls" will be advanced as follows:

Montreal	½c per 100 lbs.	"Smalls" 3c each
Toronto	¾c per 100 lbs.	"Smalls" 3c each
Hamilton	½c per 100 lbs.	"Smalls" 3c each
Ottawa	½c per 100 lbs.	"Smalls" 3c each
Other cartage points	½c per 100 lbs.	"Smalls" 3c each

Proposed New Classification.

The Freight Association has submitted to the Commission for approval a new Freight Classification, which, if allowed, will bring about numerous advances in rates and other charges. Shippers will be compelled to load and unload certain classes of carload traffic, which service is now performed by the railroads. This item alone will save the railroads an enormous sum annually.

Increased Demurrage Charges.

Effective January 1st, 1917, a new scale of demurrage charges was put into effect, the charges now being for 1st and 2nd day after expiration of free time $1.00 per day, 3rd day $3.00, 4th and succeeding days $5.00 per day. This arrangement to remain in effect until May 1st, 1917.

The roads claimed that such action was essential to relieve existing congestion, a view that the Chairman of the Commission agreed with, before permitting argument or discussion.

Car Shortage.

The car situation is about the worst in the history of the country. When the roads asked permission to increase demurrage charges it was claimed that the car shortage was largely due to shippers using cars as warehouses, for which they only paid $1.00 per day.

It was claimed in rebuttal that this was true to a very limited extent, applying principally on such commodities as potatoes.

A month's trial of the high demurrage charges prove this to be the case; the situation generally is infinitely worse now than when the application was made. This is due to some extent to weather conditions, but the principal cause is lack of motive power. Loaded cars are left in terminals and on sidings for weeks, cars are only moved an average daily mileage of about one-quarter that ordinarily considered normal. Every terminal is bocked to suffocation. The net result is a reduction in the efficiency of available equipment by at least fifty per cent.

Embargoes.

As a result of the shortage of equipment Canadian roads will not permit their cars to be loaded to a point on another road particularly if in the United States. Heretofore this situation has been met by United States lines supplying "Foreign" cars to the Canadian roads for loading to United States points. Recent changes in "per diem" charges appear to have materially curtailed this supply, with the result that while the Canadian roads will not permit their cars to be loaded to the States, they cannot or will not obtain sufficient "foreign" equipment to handle our American business.

With probably 75 per cent. or more of pulp and paper tonnage going to the States, the effect of this situation is obvious. Pending legislation regarding the interchange of foreign equipment will probably render the situation still worse.

General Remarks.

This industry is confronted with a most critical situation as regards transportation — mills are almost hourly facing the prospect of having to close down for want of coal and other raw materials, and cars to load manufactured product — newspapers are daily in fear of having to suspend publication.

Traffic officers of railoads have concentrated their energies for years towards increasing revenue from freight traffic, using any and all methods possible such as direct advances, insidious elimination of commodity rates, changes in classification, reduction or withdrawal of service, instrumentalities, etc. The Commission has viewed these steady increases in transportation charges with equanimity or "benevolent neutrality," no doubt impressed with the idea that the roads must have more revenue. As a result railroad earnings have been increasing by millions annually, but apparently no control has been exercised by the Commission as to how the increased earnings should be expended.

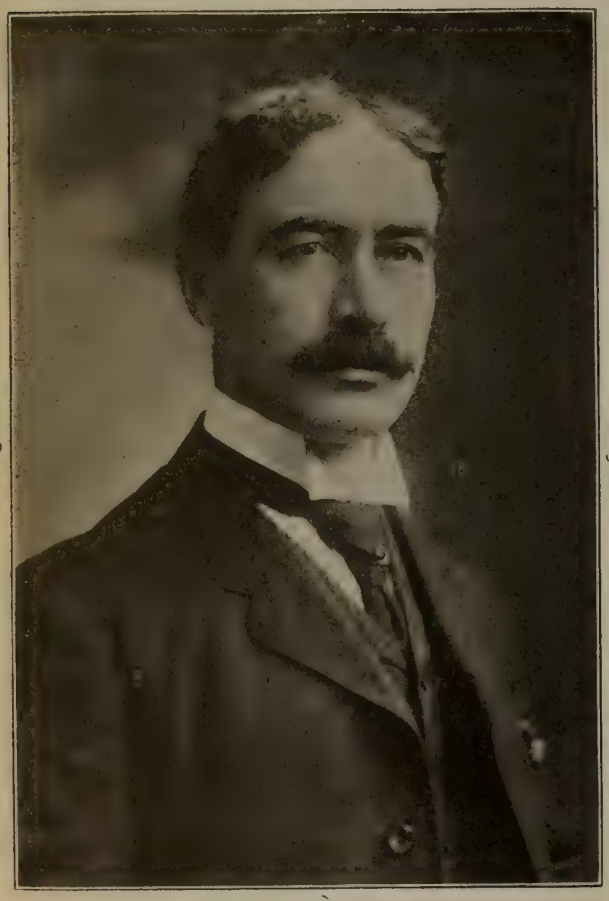
One of the arguments advanced by the roads in the Eastern Rates Case, in support of application for increased rates, was "the necessity of maintaining a higher standard of track equipment and facilities generally." During the past four years, according to obtainable information, the average annual expenditure for maintenance, renewal and additions to power and other equipment has steadily fallen off, in contrast to largely increased traffic.

In an effort to relieve the terrible conditions existing, the Commission recently ordered (?) the roads to

make radical reductions in passenger train service, so that more power would be available to handle freight. While this action will undoubtedly help to improve the freight situation, it is again at the expense (and inconvenience) of the public, incidentally effecting a large saving in operating expenses by the railroads, who deprive the public of accommodation and adequate transportation facilities with a negligible decrease in passenger revenue.

It is to be hoped that both the Board of Railway Commissioners and the railroads will now give consideration to the rights of the public in transportation matters by arranging for the expenditure of a sufficient portion of earnings to provide and maintain a service adequate for the protection and development of the nation's commerce.

We realize that owing to the deplorable condition



MR. A. D. HUFF

of the equipment of at least two of our large systems it will take years to accomplish necessary improvements, but the longer action is delayed the more serious the situation will become, and the more difficult to adjust. Unless some marked improvement in existing conditions is effected at once and necessary measures inaugurated for future efficiency of our transportation facilities the development of the pulp and paper industry of this country will be greatly endangered and its prosperity jeopardized.

Respectfully submitted,

A. D. HUFF.

Reports of Committees and of the Luncheon and Banquet Will be Continued in Our Next Issue.

A. R. HOLMES RETIRES FROM McKINNON, HOLMES AND CO., LTD.

Changes in the management of McKinnon, Holmes and Co., Ltd, of Sherbrooke, Que., have recently taken place caused by the retirement from the Company of Mr. A. R. Holmes, who in the past has occupied the position of director and secretary-treasurer.

It is understood that Mr. J. W. Bowman, president, Mr. G. D. McKinnon, vice-president and general manager, have purchased the holdings of Mr. A. R. Holmes and his friends, and new directors in the persons of Dr. A. W. Klein of Greenwich, Conn., M. L. McKinnon and J. Nicol of Sherbrooke, Que., have been elected with Mr. F. C. Johnston, secretary-treasurer.

The business will be conducted as in the past under the management of Mr. G. D. McKinnon, and it is understood the company is making extensive plans for future development.

The company has been particularly successful in its general business of structural steel and steel plate work, having one of the most complete plants in the country for these special lines. It has also been successful in installing equipment of this kind in many Canadian pulp mills.

NEWCASTLE TO GET ONE OF FRASER PULP MILLS.

That Frasers', Limited, will this coming summer build at Newcastle a big pulp mill, which will be one of four such mills to be erected in the province, is the assurance given the Advocate on Monday by a gentleman who is in the position to know something about the plans of the Company. Besides the proposed mill at Newcastle, it is said that another mill will be located on the Miramichi, a third one at Edmunston, while the site for the fourth plant has not been selected. No details concerning the proposed Newcastle mill could be obtained from the Advocate's informer. — Union Advocate.

CONSERVATION MEETING CHANGED.

On account of the large number who will attend the meetings on the Conservation of Forests, the rooms at the Board of Trade Building are not large enough. The meeting place has been changed to the Windsor Hotel. The meetings will be in session from 10 to 12 and from 2 to 5 on Thursday and Friday, February 1st and 2nd. Prominent speakers from various parts of Canada and the United States will speak and there will be a lively discussion.

RIORDON DIVIDEND INCREASED TO SIX PER CENT A YEAR.

Directors of the Riordon Pulp and Paper Company recently decided to increase the dividend from one per cent. per quarter to one and one half per cent., putting the stock on a regular six per cent. basis, instead of the former rate of four per cent. per annum. They also declared a bonus for the quarter ending January 30th of one per cent., both disbursements payable February 15th, and making the quarterly distribution equal to a rate of ten per cent. per annum.

Increases in the Riordon dividend followed one another in rapid succession, the company declaring an initial dividend in May last of one and one half per cent. to cover no special period. In August the dividend was placed on a one per cent. per quarter basis, and in November it was decided to pay a bonus of one per cent. per quarter in addition to the regular dividend.

PULP AND PAPER NEWS

Miss Rhoda Renfrew McFarlane, second daughter of Mr. Clement H. McFarlane, head of the wholesale paper firm of McFarlane, Son and Hodgson, Montreal, was quietly married in Montreal on January 10 to Capt. W. Davenport Brown, R.H.A., son of the late W. S. Brown, of Montreal. The ceremony took place at the home of the bride, Rev. Dr. George Hanson officiating.

George H. Millen, President of the E. B. Eddy Co., Ottawa, spent a few days in Toronto last week with Donald McLean, manager of the Toronto branch of the company, and called upon a number of members of the trade. Mr. Millen, who is in his 79th year, and has been identified with the Eddy Co. for the remarkably long period of fifty-one years, is enjoying good health, and speaks in optimistic terms of the outlook for all lines of paper for 1917.

Alex. White, manager of W. V. Dawson, Limited, wholesale stationers, Montreal, and formerly of Toronto, was in Toronto last week attending the funeral of his sister, who passed away a few days ago.

At an enjoyable dinner tendered their travelling staff by Rolland et Fils, wholesale stationers, Montreal, the President, Emile Rolland, said that the success of the organization for the last seventy-five years had been in a great measure due to the energy, zeal and tact of those in the service. Other speakers were M. L. Labrie, Secretary; F. Poudrette, Managing Director, and Pierre and Raoul Rolland, Directors. Replies were delivered by a number of the staff, reciprocating the good wishes and kind expressions of the firm and setting forth every assurance of support and co-operation in the future, as in the past.

W. S. Boyd, until recently sales manager of the Brompton Pulp & Paper Company, Limited, has opened an office of his own at 50 East Forty-second street, New York, N. Y., and will deal in paper, pulp and mill supplies. The telephone is Vanderbilt 3311. Mr. Boyd has had fifteen years' experience in the manufacture and sale of pulp and paper, and at one time was connected with Price Bros. & Company, Limited.

A charter has just been granted to the Rumford Lumber Co., Limited, with head offices in Cochrane, Ont., and a capital stock of forty thousand dollars. James Rumford ,and James A. Stewart, of Cochrane, are at the head of the new enterprise.

Paper Sales, Limited, is the name of a new concern which has just been incorporated with headquarters in Toronto and a capital stock of forty thousand dollars. The company will handle, sell and dispose, of both as jobbers and agents, all kinds of paper and paper products. The incorporators are, John A. Macintosh, and George Adair and others of Toronto.

It is expected that the Houpt Paper Mills, Limited, of Camden East, Ontario, of which L. F. Houpt, of Buffalo, is President and E. A. Crippen, of Toronto, secretary and sales manager, will be in operation in March next. The plant has been thoroughly overhauled and is one of te most complete and up-to-date to be found anywhere. The company have installed a new Harper Fourdrinier machine, which trims 72 inches, bleaching tubs with washers, two Horn beaters, of one thousand pounds each, and one Jordan, with rag room equipment for handling rags and other stock in addition to ground wood and sulphite pulp. The capacity of the machine will be twenty tons a day. In addition to water power the company have installed electric power. They will make pure vegetable parchment, greaseproof, light weight bleached sulphite for waxing purposes, manilla and bleached tissues, crepe toilet paper, and high grade machine finish and supercalendered specialties. It was in September last that the present company bought the mill which was then known as the Thompson plant and many improvements have been carried out to the buildings and general lay out and considerable money expended in increasing the water power, output, etc. The company have built a trestle and three quarter mile of siding leading from the Canadian Northern railway main line directly to the mill property which will greatly facilitate the handling of all their shipments as compared with conditions prior to their taking over the property. C. M. Nealy, late of Buffalo, N. Y., has joined the office staff of the company as auditor.

The New Brunswick Sulphate Fibre Co., of Montreal, with a capital stock of two hundred thousand dollars, has been federally incorporated. Montreal interests are behind the new proposition which has wide powers among them being to manufacture and deal in logs, lumber, timber, pulp, pulp wood, paper and other products or by products.

Mayor D. J. Cowan, City Solicitor Langworth and Ald. W. Marrigan, of Port Arthur, were in Toronto this week conferring with A. G. Pounsford, General Manager of the Port Arthur Pulp and Paper Company, in reference to certain preliminary details and construction which will be started early next month. The company has awarded to Wickes Boiler Co., of Saginaw, Mich., the contract for three, 365 horse-power boilers.

C. B. Smith, late of the New York and Pennsylvania railway at Johnsonburg, Pa., has joined the staff of the Mattagami Pulp and Paper Co., Limited, Toronto, and is now one of the purchasing agents of the company.

Miss Irene Gage daughter of W. J. Gage, head of the firm of W. J. Gage and Co., manufacturing stationers, Toronto, and the Kinleith Paper Mills, St. Catharines, was married on January 24th, at the home of her parents, to William Martin Griffith, of Buffalo, N. Y., the ceremony being performed by Rev. Dr. Tovell. After spending their honeymoon in the south, Mr. and Mrs. Griffith will reside in Buffalo.

A charter has been granted to the London Waste Paper Co., of London, Ont., with a capital stock of forty thousand dollars. The company is empowered to buy, sell and deal in waste paper, rags, etc., and among the incorporators are H. Depper, A Rottenburg, I. Matthews, and Samuel Silverstein.

PAPER-MAKERS' BANQUET AT THOROLD, ONT.

The new hall of the Papermakers Union, the old lodge-room in the top of the Oddfellows building, was thrown open to the public for the first time Sunday 21st, being the occasion of the first annual banquet of Local No. 101 International Papermakers Union. E. T. Loud was the caterer, and an elegant menu was served by him and his helpers.

The room was filled with four large tables and over a hundred members and invited guests sat down about three o'clock, a little delay having occurred because of local culinary difficulties.

Among those present were, J. T. Carey, of Albany, N. Y., President of the International. Sam Witbeck of the Niagara Falls, N. Y., Local; W. E. Wade representing the Pulp and Sulphite local, and J. A. Wiley secretary of the trade and labor council of St. Catharines; Mayor Joseph Battle, of Thorold, Jas. Battle, G. T. Richings, J. A. Sneath, W. C. Braun, J. A. Batten, H. Burley, A. Martin, and many other business and representative men.

Most of the visitors occupied the seats of honor at the front of the table and behind them, in the alcove, was stationed the orchestra, which discovered sweet music all the afternoon. Matt Burns the local president called order and asked for attention while the scene was photographed. He said the papermakers were not lacking in the social aspects of life, as this banquet was evidence. They had leased and fitted up the hall, and had other advance steps in view.

It took some time then to dispose of the well-ordered and well-served courses of the rich banquet and at its close speeches were called for from several of those present. Mayor Battle leading off in happy vein, and being followed by Ald. Wiley, Sam Witbeck, Burt Franklin, Ex-Mayor McMann and Jas. Battle. Then came the speech of the evening, delivered by the International President, J. T. Carey, who held the close attention of the assemblage for an hour, while he handled in a most able manner the many subjects connected with their cause of labor.

To those who frequented the old lodge room thirty years ago it seemed like a home coming. It had fallen into neglect and decay while abandoned, but the new lessels have entirely renovated and furnished it, and it is again a cosy and comfortable looking place beaming a warm welcome.

Several remarked the splendid order that prevailed from start to finish. Even Burt Franklin who keeps a saloon across the river said he would bet two dollars that prohibition would carry in that crowd, much as he pitied their benighted condition.

Following are the officers of Local No. 101: President, Matt Burns; Vice-President, J. Kelly; Financial Secretary, F. Murtaugh; Record-Secretary, S. Murphy; Treasurer, J. M. Farrel.

The committee responsible for the splendid banquet consisted of John Aikens, John Farrell Frank Hickey and Duffy Carriveau.

CHARLES E. EATON MOVES.

Watertown, N. Y., January 25th.

The announcement is made that Charles E. Eaton, of Watertown, N.Y., has moved his office from 41-42 Smith Building to 306-307 New Sherman Building. Mr. Eaton's specialty will continue to be the designing and planning of up-to-date and efficient paper, pulp and fibre mills, hydro-electric and steam power development.

CRANE COMPANY'S CHRISTMAS GIFT, 1916.

Chritsmas, 1916, found Crane Co. following a plan, adopted in 1899 by the founder, R. T. Crane. About $900,000 in gold was distributed, each employee of the company receiving ten per cent of his annual earnings. For the seventeen years that this plan has been in operation, approximately $7,000,000 has been distributed to Crane Co. employees in this way, and about 12,000 persons share in the distribution this year, embracing all the employees in the general offices and shops and all the Branch Houses of the company throughout the United States and Canada. As usual the payment was accompanied by a neat Christmas card, on the reverse of which was printed:

For age and want save while you may;
No morning sun lasts a whole day.

PAINFULLY BURNED AT MERRITTON.

W. Kross of Thorold, Ont., who is employed doing some painting at the Lincoln Paper Mills in Merritton met with a painful accident this morning when heating some paint over a fire, the paint exploded, badly burning his face. Luckily his eyes were closed when the fluid struck his face thus saving his eyesight.

NEW DIRECTORS FOR WAYAGAMACK.

Fore some time there have been reports that the Wayagamack Pulp and Paper Company intended adding to its list of directors.

At a special meeting recently the company obtained authorization to increase the board from five to nine. In the meantime the Hon. Robert Mackay died, creating a fifth vacancy, all of which were filled a few days ago.

The new directors are: Sir William Price, Quebec; Alex. McLaren, Buckingham; G. H. Duggan, Alex. Pringle and Hugh Mackay, Montreal, the latter taking the vacancy caused by his father's death.

Sir William Price and Alex. McLaren have for years been very prominently associated with the Canadian lumbering industry, Sir William being also president of Price Bros., Limited, one of the Dominion's foremost producers of pulp and paper.

G. H. Duggan is well known as first vice-president and general manager of the Dominion Bridge Company and a director of the Royal Bank of Canada, the Montreal Trust Company and other corporations.

Mr. Pringle is a well known hydraulic engineer and has been associated with the engineeirng aspects of many of the large water power undertakings in Canada.

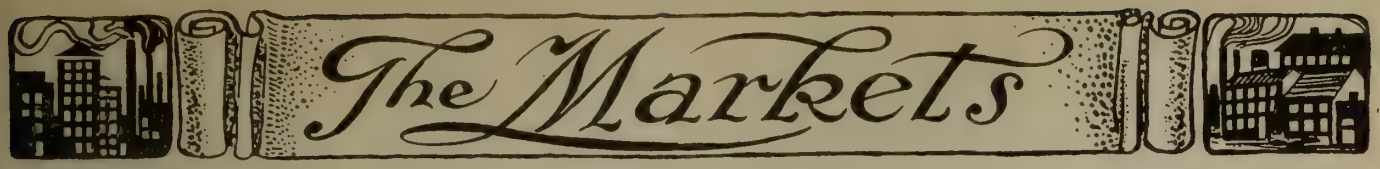
Hugh Mackay is one of the younger set upon whom large responsibilities devolve with the passing of parental control of extensive interests.

The other directors are, J. N. Greenshields, K. C., C. R. Whitehead, vice-president, J. W. Pyke and Henning Helin.

NEWSPRINT SHIPMENTS.

In the month of December twelve Canadian pulp and paper concerns produced 44,758 tons of newsprint and shipped 46,639. Newsprint manufacturers in the U.S. produced 85,520 tons and shipped 88,261. Shipments thus gained on production in both countries.

On December 31st total stocks on hand at all points amounted to 49,401 tons, a reduction of 3,823 tons since November 30th, and of 31,149 tons, or of about 40 per cent since December 31, 1915.



Toronto, January 30th.

There is little of interest or excitement to record in the market situation. The price at which news print shall be sold has not, at the time of writing been agreed upon, between newspaper publishers and the manufacturers and until that important question is settled, there will not be much of a change in any of the other items. Book and writing mills are busy and are giving quotations as far ahead as three months on the better lines. The mills have been hoping to get down to a stable basis for some time and are making tentative effort in that direction. Warehouse business has fallen off with the jobbers owing to low supplies and the lull after the holiday period. It is expected, now that inventories have been completed and annual meetings will soon be over, that business will resume its wonted activity with the wholesale people.

In the sulphite situation there has been no perceptible change for some weeks and the ground wood market matters are holding their own. Prices remain from 40 to 45 at mill and there is very little offering. In the rag and paper stock arena there has been a decided quietness a sort of marking of time. Prices remain about the same. Roofing stock is quiet.

The whole situation may be summed up in the announcement that the news print drama is now holding the centre of the stage and sulphite, kraft bonds, wrappings and other lines have had to take a back seat. At some period or other during the past year each of these has been in the spotligth but not now. Until the figure for news print is definitely fixed or forced, (whichever term seems most suitable), there will be little interest aroused in any other lines. The one feature is that prices are holding firm and the members of the trade all view the coming year with assurance of larger production and constantly increasing demand while it is predicted that quotations will hold their present high level. There is no cloud on the horizon except rising costs, the labor scarcity and the supply of coal.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as	5½c
News (rolls), at mill, in carload lots	$3.00 up
News (sheets), at mill, in carload lots, smaller lots higher	$3.75
Book papers (carload), No. 3	$7.50
Book papers (ton lots), No. 3	$8.00 to $8.50
Book papers (carload), No. 2	$8.75 to $9.50
Book papers (ton lots), No. 2	$9.75 to $10.25
Book papers (carload), No. 1	$9.25 to $10.00
Book papers (ton lots), No. 1	$10.00 to $11.00
Ledgers,	12c and way up
Sulphite bonds	14c up
Writings	9½c up
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50—$10.00
Unglazed Kraft	$9.00 to $12.00
Glazed Kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap.	80c to $1.15
Natural, greaseproof	13c to 18c
Half Bleached Greaseproof	15c to 19c
Bleached greaseproof	17c to 21c
Genuine Vegetable Parchment	26c to 35c.
Drug papers, whites and tints	11c to 14c.
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$95.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.50
No. 1 soft white shavings	4.50
No. mixed shavings	1.10
White blanks	1.90
Heavy ledger stock	3.40
Soft ledger and writings	1.85
No. 1 magazine	2.10
No. 1 book stock	2.00
No. 1 manila envelope cuttings	2.60
No. 1 print manila	1.40
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.75
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.75
Tailor rags	1.75

NEW YORK MARKETS.

New York, N. Y., January 27th.

It is evident from events reported during the past week, that ground wood has recovered or is rapidly recovering any of its lost strength. As a matter of fact, pulp men insist that there never was any weakening, despite the insistence on the part of some outside factors that sales were made at comparatively low prices. It is admitted that the transient demand suffered a little lull after the first of the year, but this, it is said, was expected and did not in the least interfere with the plans of the grinders, nor alarm them in any way. Some producers even venture the sugges-

tion that if they had a lull of some sort for a short time, it would give them a chance to put up a little stock. As it is, the grinders are busy taking care of their obligations, which means that, in the event of an easing in the demand, they would not be very much concerned, for the time being at least, in as much as contracts would keep them operating steadily for a while. However, the general belief among grinders is that there is not much possibility that the market will ease to any extent for some time. They feel that, with the mills continuing operating at capacity, which is expected for the next few months, there will have to be a good need for ground wood, especially as there is no likelihood that sulphites will lose any of their strength. As we have stated several times, the possibility of the cold weather severely affecting the water power in many sections is very strong. In fact, there have been several machines which have not been able to run steadily for some time, due to conditions such as these. With the coming of spring, when anchor is ice is rather common, the danger of stopping the water wheels is very great and there is generally a curtailment in the production of ground wood during this period on that account.

For numerous reasons, it was rumored about the market during the past week, that sulphites were losing a little strength. It may be that the mills are not inquiring as freely as they have been, but it appears certain that those having stocks of chemical pulp in their possession are holding them firmly for the top market prices. It is true that some foreign pulp was received recently and that this might be inclined to have a sort of "bear" effect on the market. But it can be of only short duration and can accomplish nothing — in the face of an actual shortage. Then again, it is hardly possible that any large shipments will arrive here from abroad so long as the Baltic Sea continues frozen. After May, it is questionable what the results will be, for, if England and Sweden should settle their differences, some agreement may be entered into whereby Great Britain will resume getting her pulp supplies from the Swedish producers. As we have said, there is no definite information on this matter, but it is a probability which is being considered in some quarters and which is tending to keep the market up to a substantial level. Domestic mills are working at capacity, with their production contracted or well ahead. There is very little stock being offered from these sources and there seems to be no thought of taking anything but the very highest from those who have anything to offer.

The rag market seems to be in a strange condition. It is firm, for dealers everywhere are reported to be holding strongly to prices and there is apparently an undercurrent somewhere. Nevertheless, there is not very much in the way of buying life visible. The mills though they are said not to have any abundance of stocks, are buying very sparingly. It may be that this is because of a little relaxation after the holiday season and that it will soon disappear. Dealers are confident that activities will readjust themselves and that a good demand is in store for them in the near future. It seems to be certain that everything will be done to keep prices firm for the present so as not to allow the mills to gain an advantage by keeping out of the market. Prices have not changed to any extent; white shirt cuttings, No. 1 are quoted at 10c; old white rags are held at 6c; house soiled whites, at 4c; street soiled whites, at 3¼c; thirds and blues, at 3½c; and black stockings, at 3c.

The demand for bagging and manila rope is reported improving and a fairly live interest in these stocks is being taken by many of the mills. It is believed that the paper manufacturers are realizing how strictly England is adhering to her embargo on these goods and that an acute scarcity is more than a possibility. Gunny is now holding to about 3¼c and higher. Bright bagging is being sold for 3c to 3¼c; sound bagging, at 2½c to 3¾c; mixed bagging, at 2¼c to 2½c. Rope continues strong, at the figures of about 5½c to 6c.

A falling off in demand is reported in the market for old waste papers. Just what this means is not yet possible to state. The mills are not buying so heavily, nor do they manifest as great an interest as they did up to a month or so ago. Nevertheless, the paper stock dealers have great confidence in the market and believe that it cannot long be hindered in continuing its upward movement. The demand for the finished product, they calculate, will soon be in good shape again and, as there is little or no chance that pulps will weaken very much, it follows that paper manufacturers will continue to reclaim some of their raw materials from the waste papers. Hard white shavings are going perhaps better than any of the other grades. They are quoted at 5½c to 7c. Soft white shavings are being held at 5c to 5¼c; magazines, at 2c to 2¼c; ledger stock, at 3½c; old manilas, at 1c to 1¾c; old krafts, at 3½ to 3¾c; over issue news, at 1¼c and higher, old mixed papers, at 85c per hundred pounds, and higher.

To all appearances, the paper market is now working its way around to the most desirable condition. It is understood that the remarkable demand which was so visible before the first of the year, is now giving way to a more quiet spell, which means that many of the mills are working up on old orders with the idea of getting themselves "square" on their books. Prices, however, continue strong. It is true that jobbers are still trying to bear the market and that many of them are making statements that they are trying to unload on the market surplus stocks which they claim to have on hand. However, while these statements continue to be made, the mills are holding firmly for their figures and do not seem to be anxious to take business at anything below what they term "their" price. The relapse at the present time, is the most natural thing that could happen. After the market had been going on in such a rabid way for a whole year, a relapse was necessary. But it would be wrong to say that it was a sure indication of a change in the tendency of the market.

Some relief appears to have come to the newsprint market. Where publishers formerly found it difficult to get stocks, there now seems to be quite some available. Various concerns have notified the trade that they have considerable stock on hand which they would be willing to dispose of at reasonable prices. Book papers are strong, especially supers. Coated is not keeping so firmly. Tissues are firm but there is no interest being manifested by buyers. The mills are delivering more promptly, which seems to indicate that they are catching up with their orders. Krafts and manilas continue very strong with a good demand reported. In fibres, however, no interest is noticeable. Boards have weakened a little, so far as demand is concerned, but prices are as high as ever.

New York Quotations.

These prices are onminal—a fair average:

Foreign bleached sulphite, ex-dock, New York ..... 10c and higher
Domestic bleached sulphite, f.o.b., mill. 8¼c and higher
Foreign unbleached, ex-dock, N. Y. 5¾c
Domestic unbleached, f.o.b., mill .. .5¼c and higher
Bleached soda pulp, fo.b., mill. ..... 5¾c to 6c
Easy bleaching, f.o.b., mill... ..... 6c and higher
Kraft, f.o.b., mill... ..... high as 7c
Ground wood pulp, f.o.b., mill about $40.00

Paper.

News (rolls) at mill, in carload lots..... $3.10 and up
News (sheets) at mill, in carload lots..... $4.25 and up
News, from jobbers, as high as..... 5½c
Book papers (carloads) No. 3... ..... 8c
Book papers (ton lots) No. 3... ..... 9c
Book papers (carloads) No. 2... ..... 9½c
Book papers (ton lots) No. 1... ..... 11c and up
Book papers (ton lots) No. 2... ..... 10c and up
Book papers (carloads) No. 1... ..... 10¼c and up
Sulphite bonds... ..... 9c and up
Writings..... 11c and way up
Ledgers... ..... 12c and way up
Fibres, ... $4.75 to $6.00
Manilas No. 1 ..... 7c and up
Manilas, No. 2 ..... 5c and up
Kraft papers, ... 9c and higher
New board, f.o.b., New York, ton... ..... $70.00
Chip board, f.o.b., New York, ton ... .$65.00 to $70.00
Straw board, f.o.b., New York, ton....$65.00 to $70.00

R. W. JOLLY.

CANADIAN CHEMICAL MARKET.

The market for Paper Makers' Chemicals has remained firm during the past week with no important changes. Congestion on the railways makes delivery extremely slow. Supplies should be ordered weeks in advance. The list of prices is omitted due to lack of space in this issue.

WHAT CONSERVATION IS DOING FOR THE FUTURE PULPWOOD AND TIMBER SUPPLY IN CANADA.

(Concluded from Page 120).

ducts Laboratories, maintained by the Dominion Forestry Branch, in co-operation with McGill University, at Montreal. Particularly valuable are the investigations of pulp and paper manufacture which promise results most important to the industry.

The situation in British Columbia appears to call at present for special consideration. That province contains approximately half the saw timber of Canada. It is estimated that the annual cut could be increased five times without impairing the productive capacity of the soil or infringing upon the capital stock. If this enormous potential wealth is to be realized upon, it is perfectly obvious that a large export trade must be developed, since the local market could not possibly absorb so much.

It is essential, in order to cultivate a market satisfactorily, that grading rules for lumber, based on scientific research, be formulated, as is being done in the United States.

Unbelievable ignorance of the physical qualities of Douglas Fir exists in most of the foreign markets and this results in limiting the use of this wood, especially in South Africa and Australia, to the cheapest and most temporary construction. In the absence of official data to the contrary, the prejudices in favor of woods to which the dealers are accustomed can be overcome only with great difficulty.

There are many other cases where scientific search may pave the way for vastly increased markets for Canada's surplus forest products. In addition to such opportunities, there may be mentioned the need for research to determine methods for the better utilization of wood waste. Under present conditions, only about one-third the solid contents of the tree is utilized in the form of lumber, the balance largely going to waste in the form of sawdust, slabs, edgings, tops and stumps. Ultimately, it should be possible, with proper methods, to use to advantage at least a considerable proportion of this waste material.

There is a great difference of opinion as to whether, under present methods, cut-over lands are reproducing the valuable species in potentially commercial quantities. It is of the highest importance that this question be fully investigated. This investigation should be of a thoroughly practical character, with definite conclusions as to what measures are necessary to place the pulpwood forests of Eastern Canada upon a permanently productive basis. Only too generally has the forest been treated as a mine of inexhaustible resources, rather than as a crop which may be reproduced time after time upon the same soil.

Employment of Returned Soldiers.

Much attention is being paid to the problem of suitable employment for returned soldiers. In this connection, the possibilities in forsetry and fire protection work should not be overlooked. For many of these men, such work would be highly attractive. There would seem to be no reason why, in carrying out a plan for the establishment of vocational schools for the training of returned soldiers, provision should not be made in some way for special courses of instruction in forestry work. It goes without saying that such courses should be of the most practical character, calculated to make the services of the men of great value to Dominion and provincial forestry and fire-protective organizations and to private timber owners as well. Technical forest schools are already in existence at Toronto, Quebec and Fredericton, and another is contemplated at Vancouver. It should be possible to secure the co-operation of these schools in the establishment of supplementary ranger schools, specializing primarily in the several classes of forest engineering work would best fit the men for the practical duties with which they would be confronted in the lines of government or private employ suggested. Another possibility is the establishment of such courses of instruction direct by the several governmental fire protective organizations, Dominion and provincial. Each of these should be able to provide employment for quite a number of returned soldiers, with great mutual advantage, providing the men are properly trained.

U. S. POST OFFICE BILL PASSED.

After rejecting amendments by Representative Randall of California, to prohibit the use of the mails for liquor advertisements in any form, the Post Office Appropriation Bill was passed by the House of Representatives on January 15th, in the same form in which it was completed last Saturday, without the proposed increase in second class mail rates, penny postage, or increase of pay to postal employes.

SERIOUS CONDITIONS AFFECTING SUPPLY OF PULP WOOD.

By G. B. VAN BLARICOM.

What is the outlook for the supply of pulp wood for the coming season so far as the Province of Ontario is concerned? This is naturally a very live issue at the present time, in view of the increased consumption, the scarcity and high figure for labor of all kinds, and the congestions in transportation. The situation from several standpoints is certainly serious and as the winter proceeds and the time for getting out the wood to the tracks of railway lines draws to a close, conditions do not seem to improve.

It is estimated by competent authorities that not more than forty thousand cords will be taken out this winter by settlers and wood jobbers, other than those working for mills having their own limits, in the territory between North Bay and the Transcontinental railway and along the Timiskaming and Northern Ontario line.

Enlistments for overseas service, the attractive wages offered in munition plants and in the mines, and other drawbacks have to be contended with and there is a great dearth of labor. The bulk of the pulp wood will be taken out in the rough this year as men will not peel wood when they can earn so much more in other lines of employment. Last year there were about fifty thousand cords taken out, of which sixty per cent. was shipped in the rough. Out of the forty thousand cords being cut this year probably not more than five thousand cords will be peeled and about twenty thousand cords rossed.

Prices for all kinds of wood have gone up fully twenty-five per cent. within the last few months and the end is not yet. Last summer rossed wood along the tracks in Northern Ontario was about eight dollars per cord and now it is ten dollars. Peeled wood on the average was around six dollars and now it is eight a cord. In the rough, pulp wood at point of shipment brought last spring four dollars and a half, and now the quotation is six and a half.

A good indication of the state of affairs at the present time is afforded by the operation of the Monteith Pulp and Timber Co., Limited, who have a plant to Monteith on the Driftwood river, capable of rossing sixty cords a day. Last year this company, of which James Thompson, M.P.P. of East Peterboro, is President and Manager, and E. R. Heyland, of Toronto, Secretary-Treasurer, took out fifteen thousand cords of pulp wood. This season they are getting out only four thousand cords owing to inability to get sufficient help, while the extremely high rate of wages is also a serious deterrent. The company have still seven thousand cords on hand, which they did not ross owing to labor and early winter weather conditions. As already stated, fully fifty thousand cords were taken out by the settlers and jobbers last year, but certain districts are now almost bare of available labor and not nearly as much attention is being directed to pulp wood operations as formerly. Take the Shillington district for instance—it is estimated that fully sixty per cent. of qualified labor in that district has enlisted or is employed in munition factories, and this is only one of the many former flourishing pulp wood areas. The stock of the mills is very low, and hand peeling is a thing of the past owing to the slow, hard nature of the work.

One firm, which buys greenwood along the Transcontinental Railway, has shipped out since December 1st last, only one hundred cars, whereas it should, under normal conditions, have sent forward five hundred cars. The railways cannot get men to handle freight and there has in consequence been a great congestion which may not be relieved for some time. One road declares its inability to furnish any box cars and flat cars may have to be put into service.

About six thousand cords of poplar were used in Ontario last year. In the Niagara district, where so many mills are located, there are probably a hundred thousand cords of wood consumed annually in spruce and balsam. In the sister Province of Quebec about sixty per cent. of the wood taken out is balsam and the remainder spruce, with a considerable quantity of poplar in addition. In New Ontario, ninety per cent. is spruce and the balance other kinds. Rossed wood is now bringing eighteen dollars a cord, delivered, at Thorold, and by spring, it is predicted that the figure will reach twenty dollars or more. How high this will cause the quotations for ground pulp to ascend may be gauged from the fact, that, up to within a few months ago, mechanical pulp plants were only too pleased to sell their product at the mill for fifteen and sixteen dollars a ton. Now they are paying more for the rossed wood delivered than they were getting for the finished article.

In other districts in Ontario the production is away below normal. In the Utterson area, lying between Utterson and North Bay, about eight thousand cords will be the crop, while from the Haliburton district and along the I. B. and O. Railway will come five thousand cords, all in the rough. Some companies are buying more hemlock than in the past and a high figure can be obtained for the bank, which makes the operation profitable. The bark is, of course, used for the purpose of tanning leather.

Reviewing the situation generally, a leading operator in pulp wood said, "All the mills have their buyers out at all times and wood jobbers are very busy, but the outlook for a sufficient supply for the coming year is not bright, especially for those pulp and paper mills, which have no limits of their own. Some plants have not more than a month's supply on hand and are getting anxious about deliveries. The scarcity of wood and the difficulties in shipment are bound to make prices stiffer. Then the devastating forest fires in Northern Ontario last year gave the pulp wood industry a set-back as some sixty thousand cords were burned and settlers saw the fruits of a hard year's work go up in smoke. War has brought about changes in pulp wood operations just the same as it has in other lines of manufacture and all wood will now be pretty much in the rough. Ten thousand cords of spruce and balsam, I should say, were peeled in Ontario last year and I do not think that more than five thousand will be peeled this coming summer. Mills will be glad to get pulp wood before fall at any price and in any condition. I am not an alarmist, but I tell you matters are getting to be most serious and labor is the chief cause. In Quebec, I understand that not more than fifty per cent. of the normal cut was taken out in 1916. The settlers there do not have to exert themselves as in the past. Owing to the higher prices they do not have to produce nearly as many cords and yet they will have just as much money by reason of present quotations prevailing for pulp wood, which, in my opinion, are bound to go higher still."

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The Penn Paper Products Co., is the name of a new Pennsylvania corporation. The company was chartered last week with a capital of $50,000, at McKinley by these incorporators: A. E. Tomlinson, Le R. Jacobus and G. L. Townsend, Jr.

Another paper company chartered during the week is reported in Michigan. It is the White Pigeon Coated Paper Company, of Lansing. The capital of this concern is $150,000.

Steffanson & Company, Inc., of New York City have applied for a charter to carry on the business of paper and pulp manufacturing, importing and exporting. The company is listed as a $100,000 corporation divided into 10.000 shares of no par value. The incorporators are C. Engle, R. N. Chambers and J. French.

Paper Bag manufacturers and dealers of the U. S. will be interested in learning that the old established business of J. S. Luneschloss has been chartered in New York under the corporate name of J. S. Luneschloss, Inc. The company will continue to deal in paper bags and paper products. It has a capital of $25,000. The incorporators are: J. A. Arnold, W. W. Bock, and J. S. Luneschloss, all of 115 Worth street, New York.

Arthur C. Hastings, of Holyoke, Mass. Ex-President of the American Paper and Pulp Association and president of the American Writing Paper Company spoke at the weekly noon-day lunch of the Falls Rotary Club, at the Tower Hotel, Holyoke, Mass., on Wednesday afternoon of last week. Mr. Hastings, who is also a member of the Holyoke Rotary Club, and president of the Holyoke Chamber of Commerce was introduced by Manager A. C. Deuel of Niagara Falls Gazette.

A crew of men was put to work last week building the transmission line between Stevens Point, Wis., and the heart of the city; so that the city electric line may be able to use the surplus power being developed at the company's dam. The system of utilizing surplus power is being adopted throughout this section of Wisconsin River valley.

There were 227 tests carried on by the paper laboratory of the Bureau of Standards, according to the December report made by F. C. Clark, chief of the laboratory to the director of the Bureau. Of this number 108 tests were made for the Public Printer, 114 for other Government departments and five for outside parties. Among visitors Mr. Clark mentions that representatives from two papers manufacturing associations visited the laboratory. One was interested in securing information that would enable his association to secure the entry of foreign technical periodical relating to the pulp and paper industry. The other one was interested in the general work of the section of particularly in regard to the work of standardizing the paper supply purchased by the Government service.

If the city of Lockport, N. Y., succeeds in compelling the International Railway Company to build a surtch to the plant formerly occupied by the Lockport Paving Company plant in Market street, Lockport, it is said that New York capitalists will remodel the plant and start paper making. The railway company is expected to give its decision this week. The name of the proposed paper company has not been made public.

J. C. Kenyon and R. McLloyd purchased the old Forest Castle Brewery property at Pittston, Pa., and are preparing to establish a plant for the manufacture of tissue and high-grade papers. The project has been developed to the point where a new industry for this community is assured. It is proposed to incorporate the new company with a capital of $300,000. The machinery for the paper mill it is said will cost $45,000. The equipment purchased insures a daily maximum output for the mill of 1,000 already reams per day.

The Continental Paper Bag Company a $5,000,000 Maine Corporation, was authorized by the Secretary of the State of Ohio last week to do business in that State with headquarters in Cincinnati. It is understood taht the corporation's business in that part of the country has increased materially during the past year and that it was found advisable to establish a branch in Cincinnati.

The paper trade of Ohio will be interested in learning that Senator Oberlin has submitted a bill providing for the establishment by the State of a wood pulp mill for making white paper to meet a shortage now existing. According to his plan all the waste land in the State would be used to raise timber while he would have lands sold for delinquent taxes taken over by the State as additional pulp timber land. There is quite a quantity of pulp wood grown in Ohio, that is timber that could be used for pulp, but there has been no concerted effort at any time on the part of manufacturers to utilize it, as great quantities are necessary and it was never considered advisable to rely on a local supply.

The Itasca Paper Co., at Grand Rapids, Mich., has started work on extensive additions and repairs at its mill. This work includes the improvement of the dam, the installation of a new machine for removing the bark from pulp wood. The generator will be of 800 horse-power capacity and will be used to provide electric power for various plants of the plant.

The Champion Coated Paper Company of Hamilton, Ohio, was forced to close down two days last week on account of the lack of coal. The cold wave had something to do with the situation, the consumption having been so great that it was impossible for the railway lines to transport the fuel. When the Champion mills were opened for the week it was found there was not enough coal to keep things moving and it was decided to suspend.

At the annual meeting last week of the Frank Gilbert Company at Cohoes, N. Y., H. T. Prankard was elected president. The other officers elected for the ensuing year are, vice-president, Jay Gilbert, secretary and treasurer Frank W. Ponery. The board of directors for the present year will be composed of the three officers and Thomas B. Fayor and Frank E. Hall, both of Troy, N. Y. Mr. Pomkard was formerly secretary-treasurer of the company.

Frederick A. Funkhouser has been elected vice-president of the Sefton Manufacturing Corporation of New York. This is one of the largest Manufacturers of corrugated paper, in the country and has plants in Brooklyn, Chicago, and Anderson, Ind. Mr. Funkhouser will retain his residence in Dayton, Ohio.

A final report to Congress on the Newsprint Paper investigation was virtually completed on January 19 by the Federal Trade Commission, and was prepared on Saturday for submission. The Commission has already turned over to the Department of Justice much of the information gathered for use in possible prosecutions.

The Maine Press Association appointed a committee to investigate the feasibility of forming a co-operative agency for the buying of newsprint paper. The committee consists of B. Nichols, of Bath; C. H. Fogg, of Houlton; and J. H. Ogier, of Camden.

Resolutions were adopted recently by the Missouri Senate stating that State Departments "should not enter into a contract with any Missouri jobbing house for paper supplies until reasonable proof has been furnished to the effect that such jobbing houses are selling their materials at fair prices, and without any understanding as to charges to publishers of the State."

Philadelphia newspapers now selling at one cent, it is stated, will increase their prices to two cents beginning January 29. The high cost of newsprint and other materials entering into the making of a newspaper is given as a cause for the increase.

Several manufacturers of cigarettes announced recently a rise in price ranging from 25c. to $1.00 a thousand, and notices were posted in local stores that cigarettes would cost the buyer from one to three cents more per package, beginning January 22. Though paper is a big item in the manufacture of cigarettes, the pasteboard used in the boxes is what chiefly counts.

M. M. Elish & Co., Inc., New York City, was the name of a new incorporation which applied for a charter at Albany on January 17. The company, which is to manufacture and deal in paper, has a capital of $100,000. The incorporators are: H. L. Gutterson, L. H. Biglow, Jr., and M. M. Elish, of 620 E. 26th Street, New York.

R. W. JOLLY.

NO LIQUOR ADS IN U. S. MAILS.

Following closely the Supreme Court's decision in favor of the constitutionality of the Webb-Kenyon law, governing the shipment of liquor in interstate commerce, the Senate on January 11th passed without a roll call a bill forbidding the use of the mails to convey newspapers or other printed matter containing liquor advertisements into states whose laws forbid such advertising.

The bill, which was introduced by Senator Bankhead of Alabama, provides a penalty for violation of the act a fine of not more than $1,000 or imprisonment for not more than two years, or both.

Debate on the measure was very brief. Senator Stone of Missouri opposed it as discriminating against newspapers in the large cities, pointing out that their circulation extended into all parts of the country.

Want and For Sale Advertisements

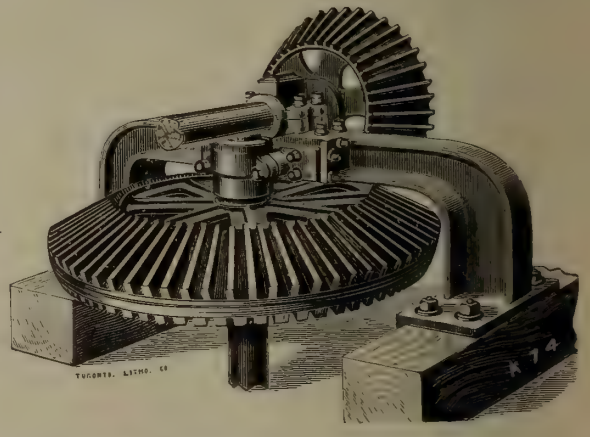
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STEEL TANKS AND STEEL PLATE WORK

WATER WHEELS AND HYDRAULIC POWER PLANT EQUIPMENT

Review of Recent Articles of Interest to the Pulp and Paper Industry

Comparative Strength of Douglas Fir and Concrete.—By Chester Hogue. (American Lumberman, No. 2174, 1917, p. 52.

1.—Concrete is four times as heavy as Douglas fir, but fir has three times the average unit strength of concrete, and is therefore twelve times as strong, per unit of weight.

2.—Steel, in a beam, costs five times as much per pound of strength developed, as does Douglas fir; and in a column, seven times as much.

3.—Concrete, in a column, costs six times as much per pound of strength developed, as Douglas fir; and in a beam, ten times as much.

4.—A 12 x 12-inch concrete column 10 feet long, will carry 65,000 pounds; a Douglas fir post of the same dimensions will carry 200,000 pounds; a 78-lb. Bethlehem steel column of the same size will carry 800,000 pounds.

5.—To carry the load of a 12 x 12-inch Bethlehem steel column requires a 15 x 15-inch Douglas fir post. —H. N. L.

The Superiority of the Wooden Pulley—(Western Lumberman, Jan., 1917, p. 32.—Iron pulleys are more expensive than steel. Many wooden pulleys have been in use thirty years. Crystallization in steel pulleys makes their average life period much shorter. Wood pulleys are not suitable when exposed to excessive moisture, a service in which a regular leather belt cannot be successfully used. Under such conditions steel pulleys rust, the joints work loose and the pulley is gone. The pulley for wet places is the cast-iron pulley.

Wooden pulleys transmit more power than do pulleys made of iron, and still more than those made of steel, since the latter are never perfectly round. Haswell's tests, showing that the co-efficient of friction of belts running over wooden pulleys is 47, and over iron pulleys is 24, have never been controverted.

Last year Prof. Price, of the University of Toronto, conducted a series of tests to compare the relative efficiency of wooden and of iron pulleys. His conclusion was that, in terms of dollars and cents, you save on the average about $6 a year per pulley by using wooden pulleys rather than iron.

The flexibility of steel, its tendency to distortion, and its inevitable crystallization make it often untrustworthy for pulleys.

Tables of comparative weights and prices for typical sizes are given, for wood and for steel pulleys.—H. N. L.

Waste Sulphite Liquor—Method for Precipitating Organic Matters in. Answer to Strehlenert by H. Landmark (Papir-Journalen, 1916, No. 24, p. 279).—Landmark calls attention to the fact that Strehlenert, in the demonstrations of his process, has used 20 Atm. pressure, and 200 deg. C., and that these figures are also used in the description of his Norwegian patent. Even when copper sulphate was used as a catalyst, a pressure of 20 Atm. was necessary. Landmark says that a precipitation of the lignin is possible at 7—9 Atm. if the required amount of H_2SO_4 is present (2% of the liquor), and Landmark has at this pressure obtained a product, which can easily be filtered and washed. The precipitate may in that case be a little carbonized, and the yield somewhat lower, but the lower yield is then balanced by the better quality of the product, the fuel value being higher. The yield depends on the amount of solid matters in the liquor. Analysis of liquor from one mill gave 100 to 123 gr. per litre. With 100 gr. solid substance, the liquor contained 14 gr. ash and 18 gr. sugars per litre. The rest is chiefly lignosulphonic acid, and 60 gr. will be the maximum yield obtainable. Landmark obtained in a demonstration of his process 60 gr. The gypsum was in this test previously removed with sodium sulphate. Landmark claims in his new patent the use of electric sparks for the ozonizing of the oxygen in air.—B. J.

The Colour Producing Constituents of Wood.—H. Wichelhaus and M. Lauge, Berichte (1916), 49, p. 2001.—Journal of the Society of Chemical Industry, No. 22, Vol. 35, Nov. 30, 1916. — The hydrolytic decomposition of wood by means of superheated steam at 180 deg. C. gave a distillate from which, by extraction with ether, an oil was obtained which gave with phloroglucinol and hydrochloric acid a coloring matter apparently identical with that produced on wood itself with these reagents. The aqueous liquid after extraction with ether, gave under similar treatment a pale red coloration, which eventually became greenish-brown.—E. K. M.

Lalang as a Paper-making Material.—The World's Paper Trade Review, Vol. 66, No. 26, Dec. 29, 1916. —Attention is directed to Lalang grass as a paper-making material by the Trade and Industry Committee of the Royal Colonial Institute. The grass occupies large areas of waste lands throughout Malaya and British New Guinea. Much of the grass occurs on the hillside slopes bordering on the beaches, from which it could be economically baled and shipped direct from the shore. A chemical analysis of the grass gave a percentage of cellulose of 47.41. The ultimate fibre in most cases was similar to esparto, the yield of bleached fibre being about the same.—E. K. M.

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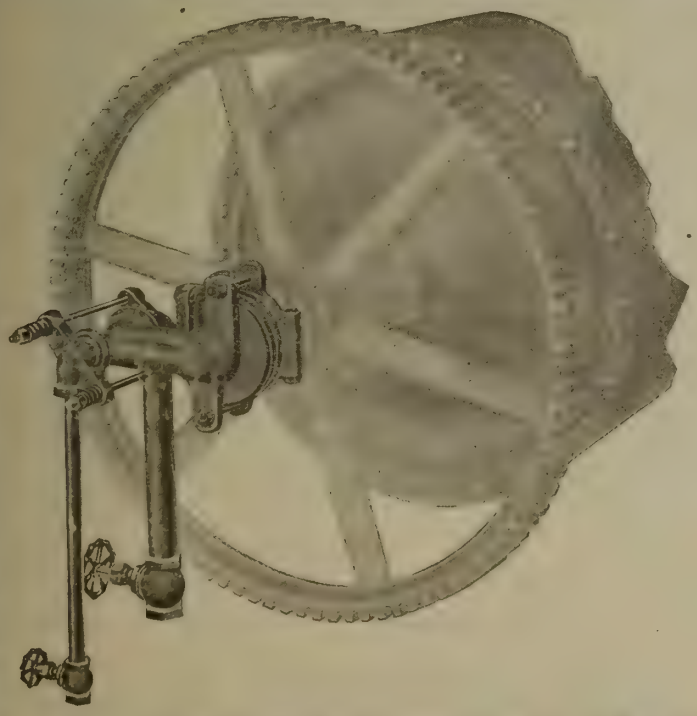
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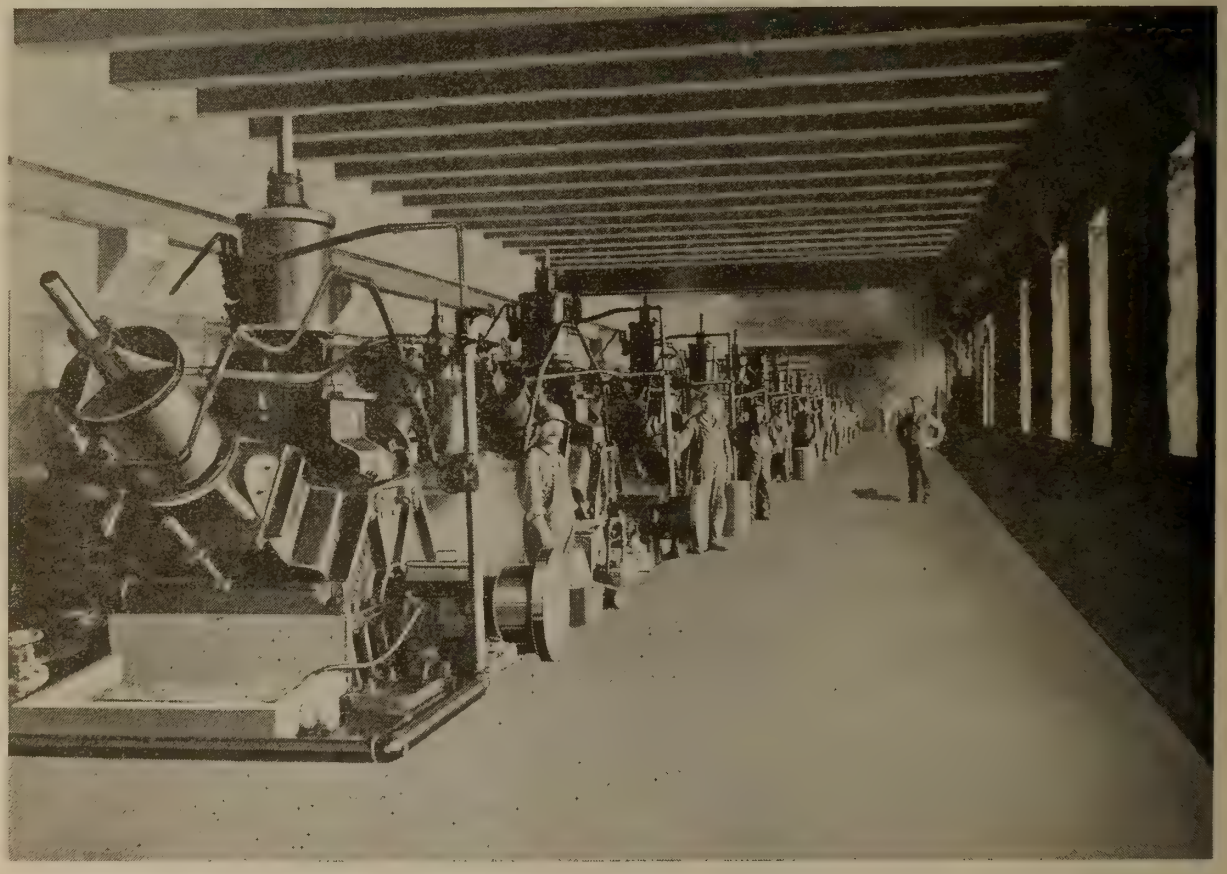
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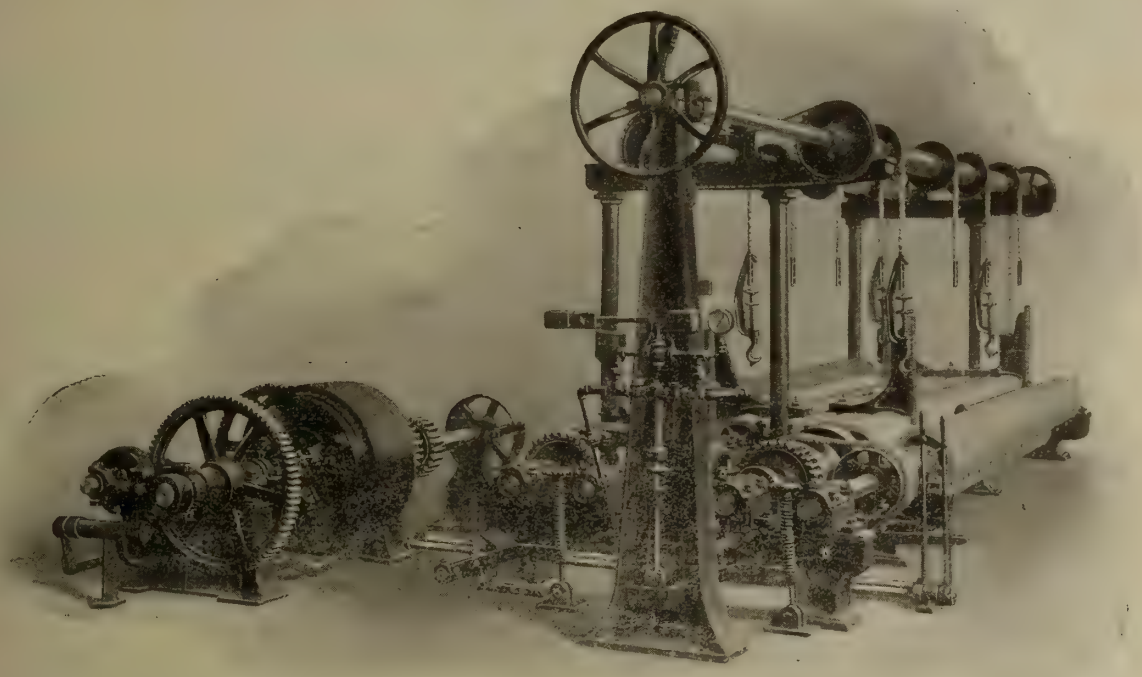
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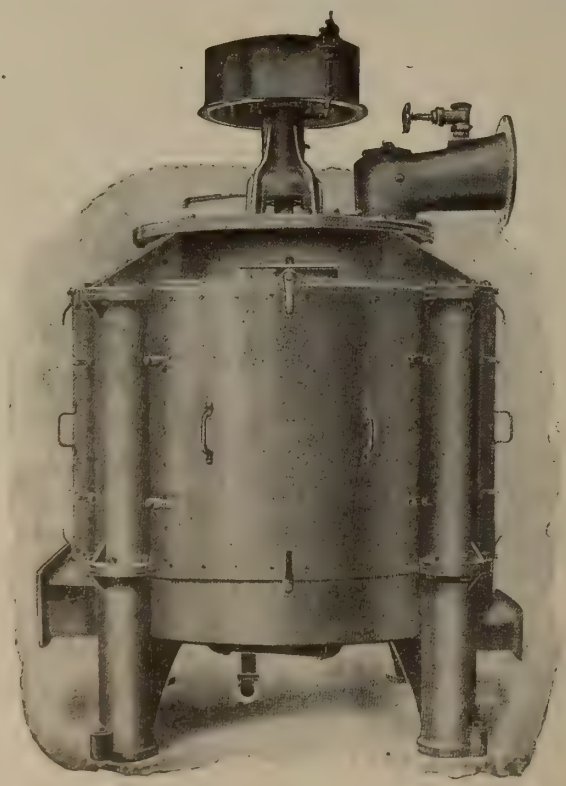
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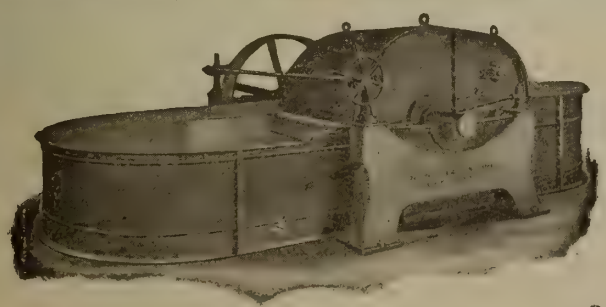
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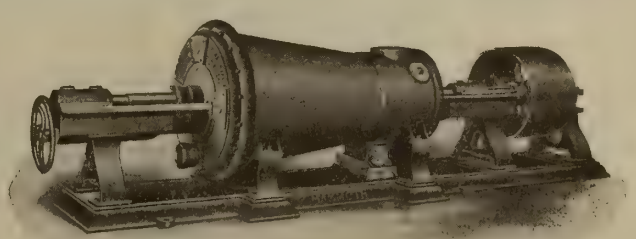
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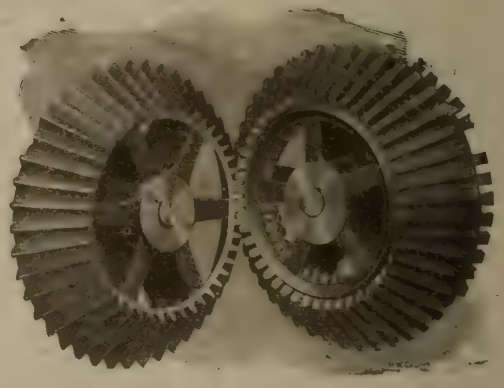
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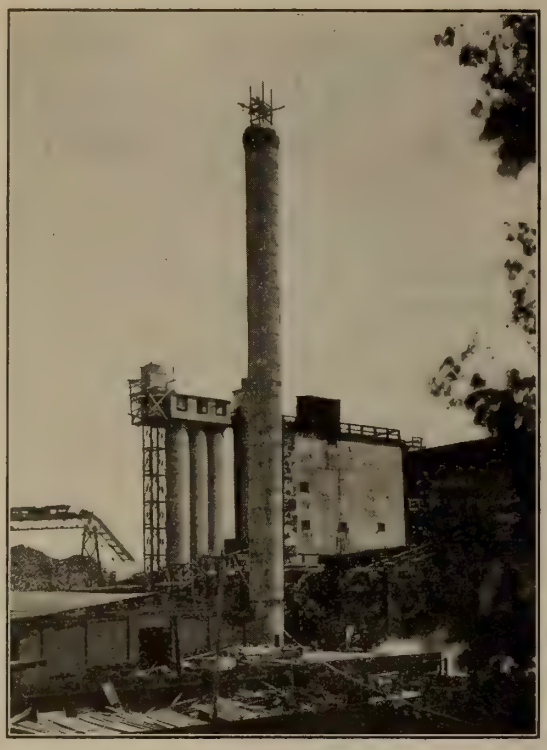
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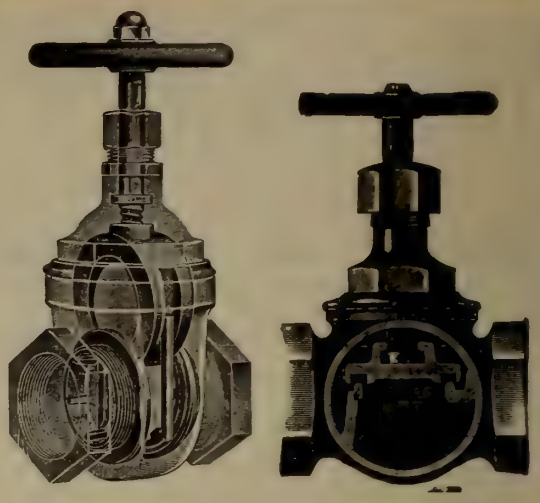
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EDITORIAL

ECHOES FROM THE CONVENTION.

An echo is defined in acoustics as a sound returned by a reflecting surface. Such a definition implies that very little of the original sound was absorbed which in turn indicates the substance of such a reflecting surface is hard. Now the majority of those who attended the meetings of the Canadian Pulp and Paper Association were hard-headed business and technical men. Few, if any were of the ivory type. And these were reflected and will continue to reflect some of the statements made and the ideas expressed by the speakers. This is what we mean by "Echoes from the Convention."

There are some spots among hills or mountains from which a shout is echoed back from several points. It was somewhat so at the convention. Pulp and Paper stood together among the hills — the war, the protection of the forest, the training of the workman, how to increase efficiency and eliminate waste, standardization of materials and methods, governmental interference. We may say that these things represent certain fundamental thoughts and ideas in the minds of many men in our industry. Expression was given to them by one or more of the speakers who addressed meetings, luncheon or banquet.

The war was approached from widely different angles. We should perhaps put first the effect of the war on the personnel of the industry from officials to workmen. Some executives are in khaki and many workmen, not only in pulp and paper mills, but in associated businesses as well. The drain has been particularly felt due to shortage of help in lumbering and transportation. Many places in paper mills are now filled by young and inefficient workers. The other aspect of the war is its present and future effect on the business of the industry. We know what the present condition is. But what will be in the future? What can we make that other people will want, what things can we make better or more cheaply than other people?

It is impossible to get very far in a consideration of the proper industry without meeting the forester. This is particularly true of Canada. There are more paper mills in Massachusetts than in the whole Dominion, but the majority of the Massachusetts mills use very little wood pulp and much of that comes from Europe. Few mills in the Bay State could operate without rags, whereas scarcely a mill in Canada could live without wood. For this reason a great forest fire does not appear the calamity to the paper maker of Massachusetts that it does to one in Canada. The conservation of the forest is **absolutely essential** to the life of the Canadian paper and pulp industry. This vital point received considerable attention in the speeches, discussions and resolutions of the convention.

Much material and effort is wasted because of two things. First, the IDEA OF SCIENCE, which as Dr. J. S. Bates says, should be in large capitals, is not appreciated and applied by the owners, managers, superintendents and foremen of the mills. Second, the majority of employees lack the intellect or intelligence to understand the application of scientific methods if they were introduced—and on the part of the workman all that is usually required is accuracy and carefulness.

The Technical Section discussed the standardizing of wood and other materials. The general meeting was informed as to standard cost sheets and other business methods as they apply to this industry.

The matter of governmental interference with the paper business was handled without gloves. Several speakers dwelt on this subject, especially emphasizing the injustice of over-taxation on the one hand (speaking of the United States) and of attempting to fix the price of a commodity in the face of the law of supply and demand.

As an indication of the desire for co-operation among Canadian pulp and paper makers, the fourth annual meeting was a grand success. Ninety-eight per cent of the industry was represented. The atmosphere of the meetings was distinctly a desire to appreciate one another and a determination to solve the problems and overcome the obstacles that now retard and obstruct the progress of this great and potentially greater industry.

INCORRECT INFORMATION.

The Star (Montreal) recently published an article by George Bryce, LL.D, F.R.S.C., which may give a decidedly wrong impression of the work being done by the Forest Products Laboratories of Canada. Dr. Bryce has evidently given greater attention to the work at Madison, Wis., than he has to that at Montreal. His description is correct as regards the equipment and work of the United States Forest Service Laboratory, staff, and researches. It is also true, as he says, that "perhaps no more valuable institution than one of the character of the Madison 'Forest Products' Laboratory could be established in some central part of Canada." This need has been largely met, unknown to Dr. Bryce by the establishment of the Forest Products Laboratories in connection with McGill University at Montreal.

We are led to believe that there are many men directly interested in pulp and paper manufacture who do not know of these laboratories. Many of those who do know fail to realize and appreciate the value of the work that is being done. To quote again:

"The vast number of important wood product questions that are dealt with in Madison suggest great possibilities to a well established body of men to deal with these problems.

"For example, the Royal Commission on Technical Education was informed that in many pulp factories 40 per cent of the pulp was allowed through carelessness and imperfect machinery to go down the drains from the pulp factory and is not only lost, but is a menace to health in polluting the streams."

Now it is just these problems that are being worked on and some are being worked out by the Laboratory at Montreal. The work is slow, as most scientific work is and ought to be. Besides the ordinary handicaps to research in forest products, the Canadian laboratory is handicapped by the reduction in its force due to enlistments.

The last statement in the above quotation is quite incorrect as it stands. The original statement may have been that 40 per cent of the pulpwood did not appear finally as pulp, or that only 40 per cent of the tree was obtained as pulp. In any event, the loss in the pulp mill and the paper mill is large, but credit should be given to the Forestry Branch of the Dominion Government for the active and to some extent successful efforts that are being made to solve these problems.

Mr. J. B. Larkin, of the Howard Smith Paper Co., will succeed A. L. Dawe as manager of the Federal Paper Co. Mr. Dawe has taken the place of Roy Campbell as secretary of the Canadian Pulp and Paper Association.

PERMANENT SECRETARY FOR PULP AND PAPER ASSOCIATION.

Mr. A. L. Dawe for the past three years Manager of the Federal Paper Company, Limited, Montreal has been appointed by the Executive Committee as Secretary to the Canadian Pulp and Paper Association.

Prior to his connection with the Federal Paper Company, Mr. Dawe managed the Canadian interests of



Messrs. Edward Lloyd, Limited of London, England.

His knowledge of the Canadian Paper Trade, and his experience in export business will undoubtedly be of great service to the Association.

Permanent offices have been secured in the Shaughnessy Building, McGill street, and Mr. Dawe will enter upon his duties at once.

SPECIAL RATE TO TECHNICAL SECTION.

In order to do its part in promoting the scientific and technical side of the pulp and paper industry in Canada and to encourage men with the proper qualifications to affiliate with the Technical Section, the Pulp and Paper Magazine of Canada will allow members of the Technical Section a reduced subscription rate of only three dollars a year. The magazine has begun a new department which will be of considerable help to technical men, namely, the Review of Current Literature. A Question Drawer is also carried on with the co-operation of the Committee on Technical Education.

Other work will be undertaken by the magazine as the opportunity arises.

Members may send subscriptions direct to the Pulp and Paper Magazine. Applications for membership should be sent to Dr. J. S. Bates, 700 University street, Montreal, Canada. Annual dues are three dollars.

Banquet of the Canadian Pulp and Paper Association

A Large Attendance Was Expected at the Banquet of the Pulp and Paper Association at the Ritz-Carlton in Montreal Last Week, but Expectations Were Exceeded by More Than Fifty Per Cent. One Hundred and Sixty Guests Listened With Keen Interest to the Speakers of the Evening. The Account of the Banquet Follows. The Excellent Speech of Sir George E. Foster, Delivered at the Luncheon, Will Appear Next Week.

Address Delivered at Banquet of the Canadian Pulp and Paper Association, Held in the Ball Room, at the Ritz-Carlton Hotel, Montreal, January 31st, 1917.

The President: Gentlemen: I wish you would give me your attention for a few minutes, and as usual on occasions of this kind, I wish you to stand, fill your glasses and drink to the toast of "The King."

THE KING.

The President: Gentlemen, before going on with the speeches we have some letters of regret from some of the people who have been unable to attend to-night. I was going to read these letters, but owing to the fact that it is getting rather late and we have so many things about which to speak this evening, I will simply refer to them in a general way.

The first letter is from the Right Honorable Robert Laird Borden who had intended to come to this meeting, but owing to more important duties he was unable to attend.

We have another letter from Sir Lomer Gouin who also regrets that he cannot come, but has sent the Honorable Jules Allard to take his place.

We have a letter from the Russian Consul — somebody says that I was going to try and pronounce his name, but I am not — we will have to let it go at that.

We have a letter from the Italian Consul who has sent a representative in the person of Dr. Vittorio Restalzi.

We also have letters from Arthur B. Daniels, President of the American Pulp and Paper Association, regretting that he is unable to be present, but advising that he is ably represented by Mr. Frank L. Moore.

We also have letters from the Honorable George B. Clarke, of New Brunswick; Mr. G. H. Ferguson, Forester for Ontario; Mr. Davis, Minister of Crown Lands of Nova Scotia, and from a number of others.

I also have a telegram here which was sent in at the last moment. This telegram I will read to you.

"Greatly regret that I am unable to be with you but sincerely wish the association a most successful convention and trust every member may find it enjoyable as well as beneficial. Kindly remind the Ontario members that Ontario is dry."

By Mr. Carl Riordon:—Who sent it?

By the President: Ike Weldon, of course. Who else would send this telegram? I don't know if he means for the Ontario members to take enough to carry it back with them, or just to remember it.

Now, gentlemen, it is my duty this evening to propose the toast to Canada. I am sorry that this duty is not in worthier hands than mine, because Canada is a very big subject, gentlemen, Canada to-day stands before the world as a nation, and as a nation that has done its duty. (Hear, hear). Our main thought perhaps concerns all, and is one regarding so many of our young men who have gone to the front; many of them will not come back. I know that at this time while this war is going on I am only expressing the feeling of this meeting in extending to the families of the bereaved our sympathy, and our debt of gratitude for those men who have given up their lives in our service (hear, hear); because, Gentlemen, these men have given up their lives in our service, so that we who stay behind may live here, and live our lives in our own way in peace and security.

There is another way, Gentlemen, in which Canada is coming to the front, and has done her bit for the Empire. I refer to the call for ammunition. Whereas at the beginning of the war there had never been a shell made in Canada, I am glad to say that when the call came the Canadian captains of industry produced shells and the shells of Canada were the first shells shipped into Europe. These have all proved very beneficial for Canada and for the British Empire, not only in supplying munitions, but Canada has paid all the expenses of these expeditionary forces. It was not more than we should do, not a thing. It does not matter what we did, or what we do, we cannot do enough.

Not only have we paid the expenses of this expeditionary force, but, until the war started Canada largely drew her capital from Europe, and as soon as the war started that source of capital was shut off, and Canada has had to turn to other fields for this. Since that time we have raised this capital in our own country. In this way we have helped very materially the Mother Country in carrying on this war.

At the last meeting of the Patriotic Fund the celebrated artist, Harry Lauder, made a speech. Another speaker previous to Harry Lauder had made the remark that they had done very well. Harry Lauder said they should not be inclined to pat themselves on the back, and looking around he said, "You have done well, but you have not done a bit too much. It is no more than you should have done." He said, "You are only giving money, while the boys at the front are giving their blood." And I think Harry Lauder got to the base of the question in that statement.

The paper trade is one of the largest industries, and I do not mean the paper trade alone, but I include the pulp industry and they have all given of their men and their money to aid this work.

The executives of those companies have done all in their power to aid recruiting, and assist in paying the expenses in carrying on the war. In many cases they have sent their men, and of course have kept their men's positions open for them. It is not more than they should have done, but, still, they have done it.

Your executive has prepared a roll of honor com-

prising the names of over fourteen hundred men from the pulp and paper industry who have gone to the front. This roll of honor is one specially prepared, and we have one for each person present to-night, and one for each man gone to the front, and if the man does not return, there is one for the ones that he has left behind. I have much pleasure in presenting Dr. Roche with this roll of honor.

Before calling on Dr. Roche to respond to the toast "To Canada," I would like to say a word about the important work that Dr. Roche has done to benefit the pulp and paper industry in his department and the Forest Products Laboratories. We all know of the great benefit this establishment at McGill has been to us, and I believe I am right in saying that the experimental machinery set up is the best experimental machinery in the world.

I did not read you a letter from the Right Hon. Sir Robert Laird Borden, but he deeply regrets being unable to be present and I am sure that I express the feeling of all here when I say we quite understand the arduous work that is put on the Premier of this country at the present time, and understand that he was quite unable to attend this banquet to-night.

Gentlemen, I ask you to fill your glasses and drink "To Canada."

CANADA.

The President: Gentlemen, it gives me great pleasure to introduce to you this evening the Honorable Dr. Roche, Minister of the Interior for the Dominion of Canada.

Hon. Dr. Roche: Mr. President and Gentlemen: Permit me at the outset to express the pleasure it affords me to have the privilege of being present at the annual banquet of the Pulp and Paper Association. We all recognize that the members of this association are amongst the substantial men of Canada (hear, hear); men with great interests in the country; men of capital; men who are engaged in the very laudable undertaking of manufacturing into the finished product the raw material of our vast forests.

There was a time in the history of our country — and not so very long ago — when it was considered that that the operators in our forests were not the very best friends of those forests. Possibly the waste that took place in our forests in connection with these operations lent color to such an impression, but owing to the educational campaign propaganda carried on in Canada in connection with other countries, of recent years, the operator himself is now impressed with the importance, by reason of his experience, of conserving to the greatest possible extent, the great forest growth of this country, and reducing to a minimum the wastage that heretofore has taken place. We are not content in Canada with reducing to a minimum this great wastage and to manufacture the waste product into a manufactured article which can be utilized in the scientific world, in the arts, and in the great manufacturing industries.

We have associated with the Privy Council in the organization of a research committee to be of an advisory capacity to be presided over by Professor MacCallum of Toronto University. This research committee, amongst its other functions, has to co-ordinate the efforts and the experiments that have been taking place in the past in our various Universities and various departments of the Government.

We have some of our Universities carrying on experimentations on various lines; we have the Forestry branch of the Interior Department carrying on experimentation; and we have as well the Inland Revenue Branch and the Agricultural Branch of Trade and Commerce and there has been a great duplication of effort as well as of money, in these efforts, in which they have been operating in years gone by, and therefore one of the functions of the research committee will be the co-ordination of effort of these various parts, and one University will be allowed in the future that particular research work for which it is best equipped. And so on with the other departments carrying on this work, so I think we can look forward in the future to better work, and this with less expenditure of time, labor and money.

Now, gentlemen, it is not my intention to talk shop to-night. You have had to-day a most successful — so I am informed — convention. You have had various



HON. W. J. ROCHE,
Minister of the Interior for Canada.

papers read to you, and discussions took place that must affect the industry in which you are engaged. You have had an excellent address on the resources of Canada from my colleague, the Minister of Trade and Commerce, at to-day's luncheon, but as the spirit of this banquet to-night seems to be of a patriotic character I will try and harmonize the few words it is my intention to address you to meet that spirit.

You have assigned to me the honor of replying to the toast of Our Country. It is a toast of importance, and it will be almost impossible for me to give it full justice in the short time at my disposal to-night. You know that we in Canada are a peace loving people. No better evidence of this can be found than the fact that we have lived side by side with our neighbors in amicable harmony for upwards of one hundred years without resorting to the sword, and the little disputes which have arisen from time to time, as they always

do, have been settled by negotiation, and while at times we as Canadians may have considered that our American cousins had the better of us as a result of some of these negotiations, on other occasions a different idea has prevailed in the minds of the American people; so I think upon the whole, justice has been accomplished, and certainly the arbitraments of the sword have been avoided and we have good evidence and illustration of what two sane people may accomplish when each is sincerely desirous of living on terms of peace and amity with the other. (Applause).

But, gentlemen, in so far as the great, great conflict in Europe is concerned, it was simply impossible that our Mother Country, England, should have held aloof and kept out of this war without involving national dishonor and the reproaches of the entire civilized world. (Cheers).

I am quite well aware of the fact that that term "honor" has been made to do duty upon many and inopportune occasions. Ruin and devastation, crime, destruction of life and property have in the past on many occasions taken place under the guise and in the name of honor. Nevertheless, the term "national honor" is no mere idle phrase, but a living reality and woe betide the country that attempts to ignore the same. Germany has done so, and Germany will most assuredly pay the penalty. (Applause).

Now gentlemen, I have said we have lived on terms of peace with our American neighbors for upwards of one hundred years. It has also been upwards of a hundred years since England and France clashed for the last time on the field of bloody Waterloo and brought to an end a long and terrible warfare. But, sir, the sword once sheathed should not be unsheathed until another century of peace has been enjoyed, and surely by that time our descendants will not be called upon to re-fight the battles over again particularly in view of the fact that by that time the great British dominions over-seas filled with hundreds of millions of free people, British born whose voice in the affairs of the world will be of a paramount character, and that voice will undoubtedly be on the side of permanent and lasting peace. Much, therefore, gentlemen, as we regret the horrors of war, anxious as we are for the speedy restoration of peace, a premature peace would not only be absolutely useless, but I was going to say, absolutely criminal. (Applause). The old order of things can never be restored. England above all countries should not, and must not, sheathe the sword and end the war until Prussian militarism shall have been crushed for ever, until the criminals that have devastated the countries of our Allies shall have been brought to justice and fully punished, until civilization shall have been placed upon a surer foundation; until the other nations of the earth shall have been insured against a repetition of such attacks in the future. (Applause).

Therefore, gentlemen, when we have a peace it must be a permanent peace, and that is just why we cannot afford to lose. We owe it to our living, and we owe it to our dead; we owe it to our Allies and we owe it to ourselves, not to lay down the sword until this curse of Prussian militarism no longer hangs as a pall over Europe and over the world and in the performance of this task Britain must not and shall not fail. (Applause).

So far, Gentlemen, as the great British Empire is concerned, while we recognize that the task is a herculean one, still Britain will do her duty. (Applause). Winston Churchill, I think it was, who a few months after the outbreak of the war said, that the nose of the British bulldog is slanted downwards for an express purpose, namely, that when he takes his grip upon the throat of an antagonist he may be able to hang on without interfering with his respiratory apparatus. To-day the British bulldog has his grip on the throat of Prussian militarism and it is a well known British maxim that "What we have we'll hold."

So far as Canada is concerned, Canada is an integral portion of the British Empire; its interests are our interests, and in the defence of these interests Canada will not be found wanting. (Cheers).

We have prided ourselves on being a nation and have pointed with justifiable pride to the great development and prosperity and progress of our country, but we should halt occasionally and ask ourselves the question, "What has rendered possible all this progress and development?"

First, I will admit it is owing to the push, perseverance, industry and enterprise of our own Canadian citizens. There is no doubt whatever about that. But even these admirable qualities could not have brought about the results we have all seen had it not been for the results we have all seen had it not been for the great influx into Canada of British gold and British capital upon which the major portion of this development has securely rested. All these things have brought about the result that we do know for a fact that we have had vouchsafed to us that peace and security that allowed us to pursue the peaceful avocations of every day life confident in the security we have enjoyed by reason of the power and prestige of the great British navy. (Applause).

And now, gentlemen that we have arrived at the years of maturity; now that we have arrived at a time when we can be some service to the Motherland and show her by giving of our very best in men, and material to assist the old grey mother in this her testing time, and that Canada, with the other portions of the British Empire, with Australia, with New Zealand, with South Africa—when the tocsin of war resounded throughout our land, this country came to the succour and the assistance of the Motherland. Today the high and the low, the rich and the poor, the plebian and the aristocrat, our brave men and noble women, all are fighting with these other countries in order that the cause of justice, freedom and humanity may prevail. Some are giving in money; others are giving in blood; some are giving in blood and gold; some are giving in noble self sacrificing efforts and I never felt so proud of the splendid women of our country as when I think that day after day, week in and week out they are working untiringly and with energy to provide the necessities and comforts, yes even luxuries in some instances for our brave boys in the trenches. All honour to the women of our country. (Prolonged applause).

I have said this is the same throughout the British Dominions, and it is the result and the reward of British rule: the spirit of the Imperial Army that has stirred the imagination, that has aroused the conscience, that has unleashed the manhood and that has cemented into one compact and irresistible force the whole of the

energy of the greatest Imperial structure that the world has ever known.

Sometimes I think that even yet it has not been sufficiently impressed upon the minds of our Canadian people, removed as we are so many thousand of miles from the scene of the conflict what it would mean to the British Empire; what it would mean to Canada, the supremacy of German arms. Today a solemn and serious responsibility and duty rests upon every Canadian citizen. Those of us who are beyond the military age and by reason of large financial relations, or family ties, or for any other reason are not permitted to go to the front, a serious responsibility rests upon us. If we cannot fight the least we can do is pay; the least we can do is to devote our time and talents and energies in the various philanthropic enterprises opening up an avenue to each and everyone of us.

And the young men of our country as well have a serious duty, and that duty calls them to the firing line to take their place in the trenches with their fellow Britishers and Canadians, there to contend against the barbarous methods of the enemy. Today tens of thousands of our Canadian citizens I am pleased to say are doing just this, and this reflects the highest credit upon our country as well as upon those in the trenches. Who can hear and who can read of the noble exploits of these gallant lads with a thrill of pride permeating every fibre of his being? Cold would be the heart, sluggish would be the disposition of the individual who could read or hear unmoved the gallant exploits of those brave lads engaged in the combat.

The good book has said, "Greater love hath no man than this that a man lay down his life for his friend." Those brave lads at the front are laying down their lives for you and for me, in order that we may be the beneficiaries of their great sacrifices. (Cheers). And with such a noble example of duty before us, who of us can afford to be a shirker?

Now, gentlemen, there is possibly no one characteristic of a people that will entail on the people greater sacrifices, that will stimulate them to greater exertion and more enthusiasm than that fame known by the name of patriotism, love of country.

You know that the Scotchman justly prides himself on the beauties of his Highland scenery. He sounds the praises of his Loch Lomond and it warms up the cockles of his heart when far removed from the country of his nativity if he hears the pipes we have just heard in the distance, the old bagpipes, their old familiar national instrument. Go where you will, in whatever clime you may go, occupying the topmost rung of the ladder, you are sure to find a Scotchman, and if in the attainment of that high pinnacle he has called into requisition that peculiar characteristic it is said he possesses to an abnormal degree namely, the faculty of keeping the sabbath and everything else he can get his hands on. (Laughter). And it is only another evidence of the push and pluck and perseverance that characterises that race.

The Irishman is equally as proud of his Killarney, and who can enjoy a joke, even at his own expense more than Pat? He has a large heart and a generous hand. It is true Ireland has her grievances to be redressed, and woes to be relieved, but, Gentlemen, I doubt that if the Irish had them all redressed or relieved he would still be quite contented for there seems to be implanted within his breat the love of combat, and if there were nobody else against whom he could turn he would turn his shillelagh against his brother Irish and renew the days of Donnybrook fair.

I have no doubt you are acquainted with Mr. William White the raconteur of Pembroke, called the King of Story-tellers. He says there were two friends, one a Frenchman and the other an Irishman. They dearly loved to get a joke on each other and on one seventeenth of March—a day not unknown to most Irishmen—Pat happened to be hurriedly wending his way down the street, as if on some particular business intent. The Frenchman happened to be out at the same hour, and he shouted "Hello Pat, where away so early in the morning?" Pat says, "Why, I am going to mass." "And way to mass at this hour of the day and this particular day of the week?" "Because this is St. Patrick's Day, the seventeenth of Ireland." "And who the devil is St. Patrick?" asked the Frenchman. Pat looked upon him with amazement, "You dunderhead," said he, "I would have you understand St. Patrick was the man who drove the snakes out of Ireland." "Well", replied the Frenchman, "he had little to do. If he had left the snakes and driven out the Irish, Ireland would be better off today." (Laughter).

However, Gentlemen, all those of you who like myself are of Irish extraction, will take little stock in that, for after all what would Ireland be without the Irish?

Now, the Englishman never wearies of expounding the beauties of England, and takes pardonable pride in his long line of ancestors, of fair women, and of brave men and of her colonial possessions. Some of these possessions it has been said have been requisitioned at the hands of the sword. So they have. That has been the experience of all other countries. But this can be said for the old Mother-land, that if she has been compelled to go forth in the interests of justice with the sword in one hand she has taken the Bible in the other, and she has conferred upon them the greatest amount of constitutional liberty ever known, and has made of them an integral part of the British Empire.

Gentlemen, while the English, Irish and Scotch may each be pardonably proud of their respective countries, we who are Canadians may also be proud of our young country, and its glories. For what can be grander from a scenic standpoint than our own Canadian Rocky Mountains and the miles and miles of waving grain, and our vast and fertile plains?

What better sight than our great chain of inland lakes, highways of commerce and communication, and our wide spreading timbers and forests? We have our boundless forest wealth, our teeming fisheries, and extensive manufacturing industries, and our thrifty, intelligent and God fearing people. We have all these and the future of our country cannot be over estimated.

This has been imprinted on the minds of the public men of our country and let us hope that no errors or omissions on their part shall impair or interfere with the great destiny that a kind Providence has undoubtedly marked out for us in the future. (Prolonged applause).

The President: I don't think I can add anything to what Dr. Roche has said, and I am going to call on Mr. Carl Riordon to propose the next toast to "Our Boys at the Front." This is the toast that is nearest to the heart of every one of us, and two of our members are going to reply to that; Lieutenant-Colonel

Jones and Captain John Acer, our late President. I take pleasure in presenting Mr. Riordon.

Mr. Carl Riordon: Mr. President and gentlemen: I cannot say, as the President did, that I am sorry that this toast was not left in worthier hands than mine or to a worthier tongue than mine, because he might have talked too much, and this is a toast that certainly requires but very little talking and a very few words. It is one that I think is nearest to all our thoughts, and I am sure that nearly every one in this room has it brought closer to him by having a relative, friend or associate amongst the "Boys at the Front", which include not only our own boys, but the boys of the other nations of the British Empire and the boys of other lands.

This war that we have gone into is a war that I suppose might be called the economical pressure of Russia at the Dardanelles crossed by the ambition of Germany at the same point, and I think it is perfectly true that we are certain the countries did not go into the war on account of the countries at war, but because—and I think you all feel the same way—but on account of the way in which the German army — the German nation attacked Europe.

It is significant, in the times of peace, as proposed by the loss of British lives, that the British Empire has not asked for anything. As a matter of fact, I believe it is pointed out that no one has said what is to be done with the German Colonies, but it was replied that it was not the United Kingdom that had taken them, but that they were taken by Australia and by South Africa, and as the United Kingdom did not take them they could not say what was to be done with them.

I don't know as there is anything more that I can say on this particular subject of the toast. In fact, as I said at the start, it seems to me that the least said about it the better. It is a thing to be thought of and felt of. It is not a toast to be drunk carelessly or in fun as it means more than any toast here tonight.

I propose, gentlemen, the toast to "The Boys at the Front" (applause).

Lieutenant Colonel Jones: Mr. Chairman and Gentlemen: About a year ago you listened to a few rambling remarks that I had to make at the last banquet of this Convention. At that time I touched briefly upon the duties of the individual and of the industry with respect to the war. The cause tonight gentlemen, is just the same as it was a year ago. Our duty tonight is just the same. Success deferred should not cause us to be cast down, it should not cause us to falter in the great cause which we all have so much at heart. We should look well at the question of final victory. We should consider what the duty of each man is, yes, and of each industry in respect to this final victory, and I believe that we should so conduct ourselves that when that final victory comes, we should be able, each one of us individually and as an industry to take proper credit and comfort out of that victory. It is true that success has not come perhaps as quickly as we expected it would, in August of 1914, but we must remember that nothing has occurred to shake us, and that a very great many things have occurred to arouse us since the war started. It is true also that with our race hard trials seem to be necessary before we come to final success and it has never been thus. We have started lightly into wars. Take the case of South Africa, and other wars. We have started in lightly, thinking we could overcome the enemy quickly and easily, yet I do not think we have ever had a campaign that we have finally won until we have had hard trials. Hard trial, therefore, is the tonic that our breed requires, and hard trial is the final thing which brings great success to us. Let us ever keep that in mind, and when thinking of the final victory let us keep in mind just what that victory means to us.

We all have a sacred duty to perform in this war individually, and as I have said before, as industries, and let us keep that before us.

Now, let us also remember when thinking of success deferred in connection with this war that our enemy prepared with frightful diligence to accomplish our overthrow. Just what did that overthrow mean? We speak in general terms of our overthrow. Our overthrow involves German success, Germpany's place in the sun; Germany's world dominance, and what does German world dominance mean? I submit, gentlemen, it means perhaps above all things, Germany's dominance in the matter of trade. Now, let us apply that dominance to the paper trade. That trade is what we



LIEUT.-COL. C. N. L. JONES, 227th Battalion.

here tonight are most interested in at the banquet of the Canadian Pulp and Paper Association. Well, gentlemen, Germany's dominance of trade throughout the world would affect our trade, our paper trade, very seriously indeed.

Suppose, for instance,—it is only a supposition after all—that Germany should be victorious. Have you ever applied that thought to the Canadian paper trade? What do you suppose would happen if Germany should suddenly become victorious and take over the paper trade of Canada? What do you think would happen to the common stock of your present prosperous companies? What do you think would happen to your present pulp concessions? What do you think the effect would be upon your trade and upon your business generally?

Well, gentlemen, it would be such a disastrous thing I do not think any of us could bear to contemplate it with any degree of equanimity. I know I could not so far as our company is concerned. But gentlemen, those are the things we must all think of in connection with the prosecution of this war. I believe that a certain amount of retrospect upon the conditions which have been with us during the year 1916 is good for us, and I think that a certain amount of comparison of those things that have been happening in Europe in the war zone and in the North American continent as far as the paper trade is concerned, will be good for all of us.

I understand that over one hundred paper mills have been destroyed in the war zone. Have you gentlemen thought what that means to the men over there, and what it means to us here? In many cases high explosives have been used to destroy and level these mills to the ground so that they could not be carried on even after the war. What does that entail to the owner? Many years of the utmost painstaking and careful planning and vast expenditures have been destroyed in an incredibly short time. All these things are destroyed in a moment owing to the malevolence of the war god. It is too vast a thing for us to contemplate sitting here in the midst of peace in respect to this country.

Gentlemen these are things which we should, I believe, think of in respect to our own country here.

However, gentlemen, it was not for this purpose that I have been brought to my feet. I have been asked to respond to the toast of "The Boys in the Trenches."

Now, let me say in the first place I do not believe anybody should respond to this toast except a man who has actually been at the front. I want to say here before you I have not been there, although I expect to start next month. I believe the only man who could really respond to this toast is what I would term a real soldier, that is, a man who has been fired over during the present war. But I would like to touch briefly upon the unit I have the honour to command.

When I addressed you last year I had an inkling I was to command one of the war battalions which was to be formed, and shortly after leaving the last Convention I was informed definitely that I was to recruit and organize such a battalion.

Well, gentlemen, since I had the pleasure of addressing you last I have brought into being, I have recruited and organized a Canadian Expeditionary Force Battalion, known as the 227th Battalion, and it has been recruited away up in Ontario. Now, those of us who live in Ontario at the present time, we know we are in Ontario, because among other reasons the Ontario Temperance Act went into effect, and that has gone very hard with some of us. They tell a story of two men who went into a certain town and they knew the Ontario Temperance Act was in effect, and they said to one of the local hack drivers "Can you take us to some place where we can get a drink", and he said, "Yes jump in"; and they got inside and away they started. When they had been driving along for about an hour and a half one of them put his head out of the window and said "Here, you have been driving us for an hour and a half and its a long while between drinks. What is the matter? Where are you taking us." The driver said "You asked me if I could take you where you could get a drink didn't you?" "Sure" was the answer. "Well" was the driver's answer "I am taking you." "Where are you taking us", he was asked? "I am taking you to Montreal."

A Member: Is that why you are here?

Lieut.-Col. Jones: You can imagine some of the trials we have to undergo in Ontario, and if a man is caught taking a dose of bromo seltzer in Ontario they look with envy on him, and think he has some thing hidden away.

But, gentlemen, I could talk for a long time about the battalion I have the honour to command. Every Commanding Officer, if he is any good at all, thinks his battalion is the best there is, and he would not be any good if he did not.

I am reminded somewhat of the story, in my effort to describe the glories of this battalion, of the English tourist in Scotland. There was the most beautiful sunset you could possibly imagine taking place, and he got quite excited about it, and looked at the sunset with all the colours of the spectrum in front of him, and he rushed up to one of the stolid Scotch inhabitants and he said: "Man look at the sunset? Isn't it the greatest sunset you ever saw?" And the Sotchman looked at it and said, "Well, that is no sich a bad sunset for sich a sma place."

The same with my battalion. We recruited it up away up in the North of Ontario, where there are more stumps than men as a matter of fact. It is a sparsely populated district, but it has already given six drafts, one full battalion, and my battalion is the second battalion, so that you see away up there they are doing their duty, and are sending the men. That is pretty nearly a full brigade which has come from that particular district. (Applause).

Now, gentlemen, what can I possibly say of the men in the trenches? I do not think any words that any speaker at any banquet can say can adequately describe those men or the work they are doing. Their deeds of daring, their deeds of courage, their deeds of manliness in every sweet music to us all. I know of nothing in the annals of time that affords a fitting comparison to the deeds that these men are doing every day. There never was such frightfulness in all time as these men have to contend with and to fight against, and never has such hardship been placed upon human beings as the hardships these men are bearing day in and day out in the trenches. What, therefore, can I say, in description of these brave deeds. Gentlemen, I believe that you have all read, that you have all considered sufficiently so that I may leave it to your own imagination. I do not believe I am competent not having been in the trenches myself, to thank you for these men. I do not believe in all modesty I am clothed with sufficient authority from them to speak for them. I do not believe any man can adequately answer this toast unless he has had his baptism of fire in this, the greatest war of all time, but I will clothe myself with sufficient authority to say a good old fashioned "Thank you" for them.

The President: Colonel Jones says he is not a real soldier. Well, we all know he will be a real soldier when he gets there, if, as he says, it requires getting there to make one. So we think he was quite the right man to reply to the toast.

The President: I am going to call on Captain John Acer, our past president, for the second response to this toast to-night. (Applause).

Captain Acer: Mr. Chairman and Gentlemen: When I was asked to respond to this toast to "The Boys at the Front"—like Colonel Jones I did not feel that it was proper that I should do so. I think it would be more fitting for a man like Captain Drury who has recently returned from the front badly wounded, to reply to this toast. Captain Drury is present and I think we all ought to be very proud of him. (Applause).

Voices: We are; we are.

Captain Acer: In a way perhaps I can reply to the boys at the front — in a sense.

The first question which we are always asked by returned officers is about recruiting — "How is recruiting going on?" The men coming back cannot conceive that recruiting is not going like it was a year or two years ago, and that the gaps are not likely to be filled at the front.

Last summer I was sent to the St. Maurice Valley for recruiting purposes, and I must say that the paper manufacturers and the managers of the paper industry could not have given me a better reception. In fact, they made me feel very proud of the paper trade.

I first went to Grand Mere, and Mr. Chahoon received me there with open arms. Mr. Chahoon and I are intimate friends, but it went even further than that. I was allowed to go down into the Laurentide mills and take any men that I pleased there. Not only that, but I received the very kind assistance of Mr. Chahoon, not only simply in the ordinary way, but the company gave me the most generous financial assistance when it was needed. (Applause).

From there I went to Shawinigan, and I was received there in the same way by Mr. Biermans, and I think it is only fair to say that the company—the Carbide Company, who are not in the paper trade exactly — treated me in the same manner. I was allowed to go down into their plant and take any man that I pleased, regardless of how badly it must hurt those companies.

From there I went to Three Rivers, and Mr. Whitaker, one of the Wayagamack Company received me there. He took the trouble to go around with me personally, not only to my own people there, but in other directions and did what he could to assist me wherever it was needed.

I think that is the kind of thing that the boys at the front would like to hear, and in that regard, I feel that I can reply for them. (Hear, hear).

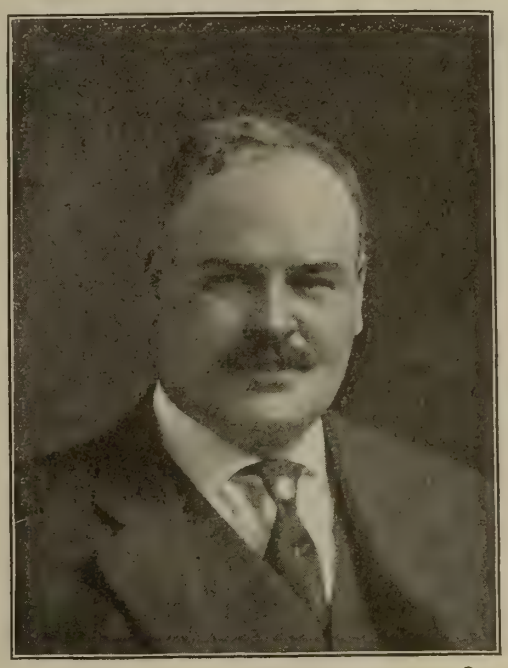
Mr. President: We have heard a good deal about the boys at the front, and there is one thing that we could do for them, and that is, to take up a collection. I have been looking around for the two biggest men of the paper trade, physically, so that they can separate you all from your money, and the ceiling is the limit, gentlemen.

I will ask Mr. Bothwell and Mr. Challes to pass around the hat to see how much they can get from this crowd. There is no need to be modest about this thing at all. I. O. U's will be taken in case you are short. We don't mind that at all. Cheques will also be received. Gentlemen, let us make this a good collection for the comfort of our boys at the front. (Applause).

(While the above mentioned collection was being taken, six Scottish pipers paraded around the tables in the banquet hall, in full regalia, and were received with great enthusiasm, a number of those present rising and joining in the march).

The President: You have all had enough Scotch now. I was just going to add to the responses to this toast of "The Boys at the Front" a short response by Captain Drury, returned from the front wounded and recovered. He is in a position to give you a good idea of the situation as it prevails today and will say a few words to us. (Cheers).

Captain Drury: I assure you, Mr. President and gentlemen, it gives me great pleasure to say a few words for the men at the front, and I think the very best compliment I can give them is to tell you gentlemen, members of this association, the conditions the men are going through on the front at the present time.



J. A. BOTHWELL, "Tax Collector".

As you all know, what they call the first system of trenches is the front line, the fire trench; the second line, the support trench, and the third line the reserve trench.

These trenches are occupied by generally one battalion on a frontage of about eight or nine hundred yards. In the first line trench they would have about two and a half companies, and in the second line one company and a reserve of half a company, but, of course, they would have a brigade and battalion reserve.

The conditions in the front in the winter are very severe. It is very rainy, and very wet, and the trenches from the east down to Loos are built up of parapets and paraboles, that is the parapet is the front part of the trench, and the parabole is the rear. These are built up by sand bags on account of the condition of the ground. The condition of the ground makes it very difficult to dig on account of the fact that you can only dig eighteen inches before you get water, and therefore you have to build up with sandbags for the protection of the men, both from the front and the rear. It is very important have protection from the rear because most of the German shells that explode

behind you have a back fire of seventy-five yards and since you have the parabole at your back part of the trench as high as the front, these shells explode and come back and hit there. If we did not have these our men would immediately say their own artillery was on them and that would not be very good for the morale of the troops. If this happened they would, of course, lose confidence in their artillery, and after all the artillery is the greatest support the infantry have in the front line trenches.

At this time of the year there is so much rain and water, the water comes down and undermines the ground underneath the sandbags, and the sandbags fall in, and you revet every trench with corrugated iron and planks, and hurdles, and even that is not sufficient to keep them in a dry state. Even if you have a perfect trench system it is impossible to keep in this trench. It undermines the tops of the trench, and the trenches fall in and it makes what they call Islands, of these trenches, on the front line trench you constantly have to patrol between the different points not connected up.

The men live, in most of the cases on the front from Ypres to Loos, in water up to their hips. They only have four days in there in the winter time and in many trenches they can only keep them in there for forty-eight hours. The men deserve the greatest credit in the world, and no one knows who has not been there and seen these hardships what the hardships really are.

Trench feet as it is called is a most serious proposition, but now they have protection from that, and if any man who has trench feet his platoon officer or company officer is held responsible for that man.

Of course, I could go on talking about the work in the trenches for many hours, but I am not here for that. I am called upon at a moment's notice to say a few words, and I am taken off my guard, but I have great pleasure in thanking the President and members of this association in these few words for the kind words that have been said about us.

For the officers, non-commissioned officers and men at the front I thank you. (Applause).

The President: Gentlemen, the next toast we have is the toast to "Our Allies." We thought a long time before we decided whom we would ask to propose this toast, and after considering the matter from every side we decided that Mr. Biermans, being born a Belgian, now a Canadian citizen, was the proper man to propose this toast.

Gentlemen, I have much pleasure in introducing Mr. Biermans, and asking him to propose the toast to "Our Allies." (Applause).

ADDRESS OF MR. H. BIERMANS:

Mr. Chairman and Gentlemen:

Born a citizen of a neutral country, Holland, I am proud to have the honor of proposing a toast to the nations allied against German militarism and political perversion.

From impressions gathered on the occasion of a recent visit, I believe that the greater and saner majority of my countrymen would solidly support the views I am about to express.

I shall do so in French, thus taking for granted a condition which is destined to prevail, to the mutual advantage of the two lingual groups recognized in this country, where the existence of a dominant language must not deprive all and every one from having the ability and privilege of speaking both English and French.

Mr. President and Gentlemen; I wish I had control of the necessary terms in which to salute the Allies, to proclaim their cause and affirm their ideal. That ideal consists in not separating their cause from that of humanity. The science which attacks humanity weakens the source of its own inspiration. Germany said: "I am my brother's keeper; it is my duty; I shall kill the one who refuses my guardianship." The Germans have put in practice the belief that proud and



HUBERT BIERMANS, Belgo-Canadian Paper Co.

brutal strength is sovereign in the affairs of this world. For them science has had for its final object the multiplication of means of oppression and destruction. These conclusions which clearly result from facts only too well known are detailed in all the German literature. And as literature is a reflection of the soul of a people this is the time to recall the beautiful words of an old French writer, Rabelais: "Science without conscience is but the ruin of thesoul."

The Allies only want the respect of the rights of the people, the affirmation and intensive application of the principles of International Law, of which the Germans go as far as to deny the existence as soon as they obstruct the designs of their egoism. We know to-day that it is only through the effect of superior strength that the Germans will cease to ignore the rights of the people. Quite on the contrary, the ideal sought by the Allies is that of free action and the de-

velopment of the different national aspirations. There has been a tendency to exaggerate the economic successes of Germany although they are incontestable. The first check to the Allies has brought a great people to preach the autocratic regime and decry democratic institutions, but to their credit be it said that it was only necessary for the British Lion to growl to rally his cubs from all parts of the world to array themselves in battle at his side.

It is not impossible to combine the advantages of democratic Government with those of an autocratic administration, to ally liberty with savoir-faire, order with economy.

During the present war the democracy of France, as in England, manifested a superb confidence in itself, and after forty years of preparation, Autocratic Germany will be vanquished by democracy.

The enraged valliance and the splendid tenacity of the French troops do honor to humanity and while the history of the war has not yet been written, the superiority of the great French captains over their Teutonic adversaries is apparent to all. The time has not yet come to point out the serious errors of these latter, but we know that they ceased to triumph as soon as they no longer enjoyed supremacy in numbers and material. That which in France has inspired the respect and admiration of foreigners, as is attested by a Swiss literateur, is the calm, the firmness, the serenity of the French, authorities and people. The people have forgotten their dissensions, they now form but one large family, they constitute a sacred unity before the enemy; they wait with a patience that nothing tires and with a confidence which time only increases, the hour when deliverance will sound. They know that this can only be obtained by a bloody price and through cruel sacrifice. They want victory. They will have it.

The British democracy counted on a land army of less than two hundred thousand men; they enrolled and equipped, under the voluntary system, five million men. And as if this were not yet enough, they have decreed conscription.

Past events have established that the great German Commander in Chief was far from foreseeing the development of hostilities on land. These events have demonstrated also that the English admiralty not only foresaw but were able to master the hostilities on sea. It is admitted and asserted that the marine power of Great Britain is the base on which reposes the defensive system of the Allies against Prussian domination.

The distinguished writer, Joseph Reinach, reveals to us two German versions of the battle of the Marne. To explain his defeat Moltke had six reasons: the fatigue of the armies of the right wing and the centre "very much worn out"; the mediocre re-victualing and the lack of munitions. In the third and fourth reason they counted on a more rapid fall of the fortresses of Liege, Namur and Mauberge, and the energetic sortie of the army of Anvers coinciding with the Battle of the Marne held back the army corps whose presence simply would have sufficed to assure a German victory and to "break down the whole line of French resistance." Mr. Reinach recounts in detail the operations of the Belgian army and concludes as follows: "The German plan of brusque attack having commenced to fail on the refusal of Belgium to open her country to the armies which had thrown themselves against us and the heroic resistance of this noble people. The German plan was based on a veritable timetable. It was figured out to the minute. From the German frontier, in front of Aix La Chapelle to the Oise, the French Frontier, would take six days. Therefore the passage of the Germans through Belgium in arms, stopped before Liege and before Namur, stopped on the Jette line, beaten on the 12th of August on the forest strip of Halen, conquerors on the 18th at Tirlemont and the 19th at Aerschot—dated for 16 days (August 4th to August 20th). The splendid effort of the Belgians then delayed by ten days the arrival of the German armies at the frontier, from where but eight short marches separated them from the advance fortifications of Paris.

Thus the Russians and the Belgians, no less than the English, were victors with us on the Marne."

This testimony of a French patriot, agreeing for this once with the apologists of the German Commander in Chief, demonstrates once more that the violation of the neutrality of Belgium was not only a political crime, but also a military error.

Allusion to the grand role of Russia compels me to emphasize with enthusiasm the generous abnegation, the sublime devotion which many times constrained them to powerfully intervene, even prematurely as far as their own interests were concerned, with the sole object of aiding their Allies.

The time, your time, passes; I would fear to take advantage of your indulgent attention. But how should I terminate without saluting Rumania and the Balkan peoples, whose present martyrdom will assure a glorious and prosperous future—Montenegro, Serbia, with her regenerated and avenging army. In saluting Italy, I would if my memory serves me well repeat to you as textually as possible an article which appeared recently in a Parisian periodical: "On the summit of the Alps Italy has valiantly combatted her hereditary enemy, the atrocious Hapsburg monarchy, hateful executioner who treated with the most cowardly brutality a people whose only crime was to wish for national unity.

To the Italian heart Istria, Trieste and Trent are what Alsace and Lorraine are to the French heart.

Gentlemen, Hail to the Allies and Confusion to the Huns.

The President: Before we go on with the response of Mr. Bonin, the French Consul, to the toast to "Our Allies," I have just been informed that we have in the gallery. Mr. Deviennes, one of the Belgo-Canadian men, whom I understand was in the retreat from Mons, and who undoubtedly could tell us a good deal about the conditions in the trenches.

If we had know he was here we would have made him reply to the toast to "The Boys at the Front," because, as you all agree, the Belgian boys at the front are almost as dear to us as our own boys.

However, he probably is just as glad because most of the soldiers would rather fight than speak, and I don't know as I blame him very much.

I will now call on Mr. Bonin, the French Consul, to reply to the toast to "Our Allies." Mr. Bonin:

ADDRESS OF THE HON. E. C. BONIN, CONSUL GENERAL OF FRANCE.

Mr. Chairman and Gentlemen:

Allow me to thank you for the honor conferred upon me by the Canadian Association of Manufacturers of Pulp and Paper by their invitation to me to attend their annual banquet and to reply with my colleagues to the toast which has just been proposed to the Allies in such eloquent and warm terms.

I am happy to reply to it in the name of my country which I have had the honor of representing in Canada for the past five years, in the name of France, because I have been able to note, since the beginning



M. BONIN, Consul General of France.

of this war, the services which your association have rendered and still render daily to the cause of the Allies.

The war after all is not fought only with cannon and munitions, but also by the moral influences which play a great role in the present conflict; newspapers, books, all the printed propaganda are arms also, and it is you, with your manufactories, it is your products which furnish the material for this war of thought.

Canada is at present the greatest supplier of this material, paper pulp, it is the Canadian forest which, transformed by your work and your industry, goes forth to carry the thought of the Allies and to glorify their acts over the whole surface of the world and fights in its own way the good fight of justice and civilization.

There is another reason for which I felt it my duty to attend the patriotic demonstration of this evening, it is because my country, France, is more closely than ever united with your people, the English and the Canadians, through the present war.

It is no longer only the entente cordiale which existed previous to 1914 between England and France, it is no longer only the historical souvenir which bound France to Canada, to-day it is a more intimate, a more profound fraternity which unites us the one to the other, ever since the blood of both our peoples have flowed for the same ideal on the same ground and in the same battles.

Yes, your brave soldiers of Langemarck, of Festubert, of Ypres and of Courcelette, who have made your army so glorious have not fallen in vain; by their heroic sacrifice they have consecrated the fraternity of our nations while at the same time making immortal the name of Canada. Honor then to them, and I am glad to be with you to-night to convey to you the respect, the appreciation and the thanks we all have for those who fought with us for civilization and justice. So let victory come, and may it come soon, when your brave country will triumph with the other Allies.—(Extra Applause).

Mr. President:

MR. CLARENCE I DE SOLA:

Mr. Chairman and Gentlemen:

It has been very kind of you to ask me to share in the very pleasing duty of replying to the toast of "Our Allies", and as the representative here of one of the allied nations, Belgium, (Cheers) we feel proud of the fact that we are all allied with Britain, allied with Canada, allied with those other nations, France, Italy, Russia and the other nations that are all now in this great war in order to teach those who have broken the laws of nations that international law cannot be defied in this world today without receiving its proper mede of punishment. (Hear, hear and cheers).

We are allied today in defence of right. (Hear, hear). We are allied today in order to punish wrong doing, in order to show that there are great moral laws which govern the better part of humanity today and that those who do not respect those laws will be forced to do so. (Applause).

Our alliance is an alliance not for aggressive purposes. This war was not started by our allies. This war was forced on us, but, having been forced on us, the nation that did so, will find how great a blunder it committed by the time this war is terminated.

We are allied today in a way which is costing us much in actual life, a war which is entailing an enormous expenditure of treasure in every form, but, great as our sacrifices have been, great as they are in every form, I am positive that all the nations that are allied with us today will continue this war, will continue to submit to ten times the losses, yes, even fifty times the losses we have sustained if we are obliged to do so, in order to do the thing for which this war is being fought, that is, the crushing of Prussian militarism.

In the past the comity of nations in Europe has been disturbed by the clanking of the Prussian sword, but we are going to put an end to this, and there will be no end to this war until the Prussian sword has been broken. (Cheers).

We are allies, I have said, but we are not only allies today. Belgium as been an ally in the past also of Britain, and of Canada and of all those nations that are in comity with Britain. We have not been in alliance with Britain, as the Germans tried to make out, for the purpose of aggression; we have never been in alliance for the purpose of warfare or strife, but we have been friends and allies of Canada in the past in those peaceful occupations which tend to promote union and good will among nations. Those of you who know anything of Belgium's relations with Canada in the past may know that the Belgians have helped to a considerable extent in the development of this Canada of ours. Belgian capital, Belgian enterprise and Belgian energy in alliance with Canadian capital, enterprise and energy. In the past many of our great public works here have been assisted through Belgian capital. Some of our canals, some of our railways owe a great deal of their financing to Belgian financiers. I do not know whether you remember the Soulanges canal, and the Trent canal but they were both assisted in their construction by Belgians, and I do not know whether you remember the Intercolonial was once re-tracked by a Belgian syndicate and that in the early days of the struggles of the Canadian Pacific Railway it was the taking up of a great many shares of that road in Belgium which assisted in bridging over those early struggles the road encountered, and you who are interested in the pulp and paper industries, you know that one of your great pulp and paper factories is the Belgo-Canadian works at Shawinigan Falls—an industry which owes its origin to Belgians, an industry which was founded with Belgian capital, and I am glad to see facing me at a neighbouring table Mr. Brossault who originated the idea of establishing these works, and who was the original founder of them—I am glad to see him here tonight and I am glad also to see that this toast was proposed by our good friend Mr. Biermans in such an able manner, who is at present at the head of those works.

I have only touched on a few of the ways in which Belgium has shown itself the ally of Canada in the past.

I would like to point out a little lesson we can learn from these facts, and it is that when this war is over we will be faced with a great many problems, problems in which the future of this country will be very much involved, and Canada has formed through its very war alliances with nations which, in the past, perhaps were not very much interested in Canada, but having spilled our blood on the common battle-field we will now be cemented together in a manner we never were before. We will remember this alliance. I believe this alliance will unite all the nations brought together in this war, will unite them afterwards in peace, and not only will we profit by this war in conquering our aggressive enemy, but that after the war we will win a still greater victory by bringing together these nations that are allies now in a more peaceful union for the development of one another, and of course in helping in the development of Canada.

I think our Government in Canada will follow up this idea. We have one of its Ministers here tonight, and I am sure it must be in their thoughts that this alliance with Belgium will be used in order that this country may derive full benefit from the co-operation of the Belgian industrial classes and of the Belgian agricultural classes in developing this country.

There is one little incident that occurs to me typical of the difference in the relations that have existed between this country and Belgium as contrasted with the relations between this country and Germany, and this occurred before war was declared.

You will all remember how when the preferential tariff was introduced it was necessary to denounce certain commercial treaties by Great Britain which had been made with some of the countries of Europe notably with Belgium and with Germany. Britain had a treaty with these countries by which they were entitled to the most favoured nation clause in any treaty in which Britain was involved or interested.

Now, in order to accept of the favoured nation clause from Canada it was necessary that Britain should denounce her treaties with Germany and Belgium; otherwise these countries would be entitled to



M. CLARENCE I. DE SOLA, Belgian Consul.

the asme preferential tariff that Canada wished to give to Britain alone.

It is very evident, and was only right, for the countries which formed the British Empire to have whatever tariff law they pleased between one another, and that outside nations had no right to dictate to the British Empire as to what tariff should prevail between Canada and England for instance, or between Canada and India.

When the treaties were denounced though, Belgium recognized the fact it would be an impertinence on her part to tell Canada whether she could give preference to England or not, and Belgium willingly and quickly

submitted to the denunciation of England's treaty with her without raising the slightest objection, and continued to trade with Canada as a good commercial friend.

But Germany immediately resented the attempt of Canada to show that she was more closely related to England than to Germany. It was all on a piece with that bullying policy that has been pursued by Germany in the past, and she attempted to coerce Canada, and she placed a high tariff on Canadian goods so as to try and bully Canada into giving way, and giving her the same treatment she was giving to her Mother country England. The man who was responsible for this action towards Canada was the German Consul at that time here, and when he approached the Belgian consul, his overtures were rejected with disdain. (Cheers). He persisted, though, in his course, with the result that a tariff war took place between Canada and Germany, and in the long run Germany was taught a lesson, and she was glad to withdraw from this tariff fight after having tried it for a few years and found her trade falling away almost to nothing. The man responsible for this treatment of Canada has recently been convicted by a tribunal in California of attempting to blow up the Welland Canal, and our munition factories, and to blow up munition factories in the United States, manufacturing munitions for us and for our allies.

That was the sort of representative Germany had out here and this was the way Germany worked, but we know her now. I hope that the contrast of the way in which Belgium acted in the past will be borne in mind when we come to future trade relations with Belgium after the war.

I might say this has been recognized already when, some years ago, a Canadian Government granted to Belgium her intermediate or the most favoured tariff she grants to any nation, thus showing she recognized Belgium's action at that time.

I have said that there is plenty of room for the cultivation of this alliance after the war is over, and I am sure that it will lead to splendid fruits, but I think I can voice the sentiments of all you Canadians and everybody here and everybody in the British Empire, and everybody in France, Russia, Italy, in Roumania, in Serbia, and Montenegro as well as Belgium when I say there will be no peace until we have accomplished the objects of this war, and although the Belgians suffer ten times more than they are rather than see this war end in anything but in the attainment of this things for which we are all fighting so earnestly. (Applause).

We are all fighting for the enforcement of the principles of international law, and the teaching of those nations that do not respect international law that laws are not mere scraps of paper, and that any nation that tries to violate our international laws will be forced to respect them. (Cheers).

The President: The next toast is the toast of "Our Guests" and Mr. McCarthy, of Price Brothers, is going to propose this toast. I will ask Mr. McCarthy to propose this toast. But before proposing the toast I have a very nice announcement to make. The Boys at the Front will know that we have had this banquet. Mr. Challes and Mr. Bothwell after deducting their commission announce that $521.00 was collected for the boys at the front. (Applause). Gentlemen, it is not a bit too much, and don't forget that in a week the Patriotic Fund will come to you and I may speak also of the Red Cross—the ones from Montreal. Toronto did her bit—something over three million dollars, and this $521.00 will look like thirty cents alongside of that.

The next toast gentlemen is the toast "To Our Guests" and Mr. McCarthy of Price Brothers is going to propose it. I take pleasure in introducing Mr. Mc Carthy:

Mr. McCarthy: Mr. President:—Honourable Ministers and Gentlemen:—

I have much pleasure in proposing the toast this evening "To the Health of Our Guests." It is very late, and I do not intend speaking at any great length. Our Guests, as you all know, come from the United States, and it is quite natural to expect that when they come here they are anxious to know what we are doing, and what we are thinking about, and what we are talking about.

Just one word—for our minds are on the war, and I want to tell our guests I am not going to go any further on that subject, for the simple reason that that worthy Irishman the Honourable Mr. Roche, of whom all Canada, including the Irish—of which I am one—is justly proud has told our guests just how we feel.

As regards the war and as regards our industries—they are all concerned in our thoughts. We are talking about, and thinking about and some of us are worrying about what is taking place at the present time, I refer to the shortage of labour. The shortage of labour is giving us considerable worry, and we fear that we will be short of raw material after the winter operations are over. We are worrying over supplies—over certain kinds of supplies, and we are talking about new industries, sound industries and not the wild-cat schemes. Somebody this morning spoke about co-operation, and some time ago I thought of co-operation, and these wild-cat schemes needed more than anything else the reconstruction of the old mills, the antiquated mills throughout the country, and with that in view I thought it were wise to throw out a standard form of prospectus for these old antiquated mills for the promoter of wild-cat schemes. Remember, I am not talking about sound schemes.

The name of the Company I have called "The Lemon Pulp and Paper Company."

$200,000.00
A NEW ISSUE
1,000,000 shares
(no par value)

THE LEMON PULP AND PAPER COMPANY

Security.

This issue is secured by the deposit, through the kindness of the Bondholders, of a fixed and specific Last Mortgage, Sick per cent, Sinking Spell Bonds.

Purpose of Issue.

The proceeds of the issue will be used for promoting and increasing salaries.

Description.

The Shares have no par value. It is up to the Public to fix a value. It is immaterial to the company what value is fixed, after the shares are sold.

Listing.

The stock is to be listed on the sidewalk.

Field of Operation.

We have franchises to operate in all the Cities and Towns of Canada, except City of Quebec—Quebec is our Headquarters.

Organization and Business.

This Company will be incorporated, if in the opinion of the Officers, it is thought advisable.

The Company does not sell. The selling is done by a "Closed Corporation" composed of the Inner Circle of the Officers.

Summarising from the Letter of the President:

1. This is an appeal to SLACKERS and others with funds.

2. After selling as much as we can of the Shares, the remainder will be raffled off.

3. The shares are secured by deposit of a quantity of Bonds in avoir-du-pois, largely in excess of present issue.

4. The present assets of the Company consist of: Mexican Ammunition Orders, Cancelled Cheques, Bills Payable, "no fund" Cheques, Cheques of the Company and defaulted Notes.

5. The Company obligates itself to have at all times, net quick liabilities of a sufficient amount to keep the Company out of Legal Entanglements.

6. The Shareholders will in time, become full owners of the concern. The Sinking Spell created with the Bonds will, it is expected, expire all the Bondholders before the expiration of the Bonds.

7. The Bonds that are drawn at Sinking Spells are to be kept alive, and no interest will be paid before maturity.

8. A Valuable Asset is our Selling Corporation. They are members of self apointed Public Purchasing Committees. The work of the Selling Organization during the first year of operation will consist of selling this issue.

9. As President, I have given away, 75 per cent of the issue for promotion, the balance I unhesitatingly offer to the Public, through Messrs. John Doe and Company, Bankers, of which firm I am a Silent Partner.

10. The authorities at Ottawa and Quebec, keep at all times closely in touch with us.

Legality.

All Legal matters pertaining to the issue, have been approved by the Officers. Our assurance is given that the Bonds of the Company, up as collateral, are no direct obligation on the Company.

WE RECOMMEND this Issue to our Friends.

This issue is LIMITED, during war time, to 200,000 shares owing to the high price of paper.

JOHN DOE & COMPANY,
Bankers.

Quebec, 1st January, 1917.

The President: Mr. Campbell has an announcement to make before Mr. Moore spaeks:

Mr. F. J. Campbell: In view of the fact our visitors are American friends I would like to make an announcement from one of our customers to this meeting. We are all doing, as you know, the best we can to support the cause of the Allies. We all regret that we are not like our friends at that table, in Khaki. The only redeeming feature is we who stay behind will do all we can in the way of giving, and last week I received a letter unsolicited from an American firm with whom we are doing business saying that they had been making money out of Canadian paper and they felt it was becoming to them to do something for the Allies, and quite unsolicited they sent me a cheque for one thonsand dollars which they asked me to use for the benefit of the Alliess. (Cheers).

By the President:—I think that will help the Tobacco Fund a great deal for the boys at the front.

By Mr. Campbell:—I think it is only fair to add that the firm in question is The National Paper and Bag Company of New York of which Mr. H. C. Lewis is the president.

The President: I am quite sure I express the feeling of the gentlemen here present when I ask you to convey to them our sincere thanks for this one thousand dollars.

I will now call upon Mr. Moore, Vice-President of The American Pulp and Paper Association. He told me what he was going to speak on, but I am afraid to say what it is, because you would think I have been drinking too much. But I will let Mr. Moore tell you about it, and I am sure that whatever he says will be of interest.

I now call upon Mr. Moore.

Mr. Frank L. Moore: Mr. President and Gentlemen: Like all human beings I am subject to temptation and when I received a letter from your worthy President asking me to speak to you tonight, couched in the subtle language of which he is a past master, to use a slang expression. "I fell for it," with the result that I have sat here and watched you gentlemen partake of the good things to eat and from the looks of the tables, the good things to drink, and I have been obliged to sit here in a famished condition and maintain a degree of sobriety which I assure you is as distasteful to me as it is unfamiliar to you. (Laughter).

This letter asking me to speak did not say to me I was to rub elbows here tonight with Ambassadors and Ministers and Parliamentarians, all the high-brows here in Canada, and in my embarrassment I feel like the old darkey who had just buried his fourth wife, and someone asking him how he felt said, "Oh, Massa, I feel as if I was in the hands of an all-wise and unscrupulous Providence."

However, the cordiality of your welcome is so pronounced that I am feeling at home somewhat, and my only wish is your loving cup will always be brimming full with no enemy to jog your elbow and make the cup spill over. (Hear, hear).

The hour is getting late, so the speech which I had prepared to make to you here tonight I am going to cut very short.

Voices: Go ahead.

By Mr. Moore: Your toast-master asked me to write him on what subject I would like to speak, and I wrote him and gave him the word which has been coined from the classics. He is evidently not familiar with the classics because he could not tell you what it was, but it has been in the make-up of all men from all ages all the way down the line. Shakespear applies it when he said in the ghost scene:

Is this a dagger which I see before me
The handle toward my hand; Come let me clutch thee.
I have thee not, and yet I see thee still;
Or is it a dagger of the mind.
Or is it some fair form all clothed in loveliness.

Kafoozleum.

Well and done. All you gentlemen have had it. Washington and Lincoln had it, I mean the word which I have described to you "Spizzerinktum". It is a condition of the mind.

By the President: That is the word I got.

By Mr. Moore: I will define it for you. It is a condition of the mind; a mental self-starting device that

enables you to get going without waiting for someone to come around and crank up your motor. (Laughter).

Now, gentlemen, that message from Garcia which Sir George Foster gave you this afternoon was filled with spizzerinktum. He has told you what you should do as a country, and as a nation. I was rather astounded at some of the figures which he gave you of your imports and exports. I cannot remember what they were, but suffice it to say that he said to you that which is absolutely true, and I said to Sir George after the luncheon to-day that I wished we had him over across the line or men like him, to come and deliver the message from Garcia which he gave you gentlemen here to-day. (Applause).

He told you how you would have to meet the taxes and the debts which this war is placing upon you. You would have to meet them by your exports exceeding your imports. You as a country here are rich in the material and natural resources which absolutely will control the paper making industry of the American continent. You have your material; and you have your magnificent water powers, and when I say to you gentlemen that you are doing to-day by increasing from year to year as you are, and when you go back to 1913 and your exports in that year were $6.-327,000, and on July 1st, 1916, they were $40,865,000, 87 per cent of which goes to the country across the line which I have the honor to-night to represent here, by representing the American Pulp and Paper Association here. And, gentlemen, I am proud of the fact that we have in such proximity to our borders a country so rich in natural resources which your country is just beginning to develop.

There were things said in the meeting this morning, in the reports I listened to with a great deal of interest, upon which I would like to comment, but the hour is so late that I will pass that over.

Voices: Go ahead.

By Mr. Moore: Mr. Wilson, speaking of your forests, and that is something in which I have been deeply interested, having for a great number of years been interested in the same thing in New York State — Mr. Wilson said that the prime thing for you to do if you want to preserve your forests, is to have an adequate system of fire protection, establish look-out stations, organize the men throughout your province, so that when they are called to fight a fire they may be there on the spot to stop it before it spreads over an immense area.

We will do more and conserve and perpetuate the natural resources and forests more than anything else that can be done. We have seen that across the line, and we know what it means. Our forest fire protective system is being perfected from year to year, and the more it costs, the less it is costing to the wealth and prosperity of the State.

Mr. Bates, speaking for the technical section made some very pertinent remarks when he said somewhere around here that you must do away with jealousies, that you must come out and all meet together, and you are doing that here in Canada, and I wish the paper manufacturers over across the line would organize so as to bring together such a representative gathering as are here to-night, where you have 98 per cent of the paper manufacturers of Canada represented in this association of yours. It means something.

Sir George Foster said this afternoon what it meant by co-operation, what you can gain by co-operation. If I should go back there and try to do what he said, I would be landed in jail. Mr. Biermans has just said that I ought to be. (Laughter). I am not sure but what he is right, but the only regret that I have is that Joe is here instead of over there, because if he was over there I am very sure that he would be with me. (Laughter).

But you all know that the path that leads to success is paved with many a knock-out drop. You are travelling that path to the organization of this great industry of yours in Canada here which is to-day in its infancy.. I say in its infancy because you with your almost limitless water powers and with your magnificent and immense forests are bound to be a



FRANK L. MOORE,
Vice-President American Paper and Pulp Association.

factor that is going to furnish the wood papers for the whole North American continent and I might say possibly for the whole world.

The value of association work has been shown in the past year, and while I was President of the American Paper and Pulp Association it was one of my main objects to have the co-operation of your association here, and to so conduct our work that you would feel that you were part of us. You are part of us—when as I have already said 87 per cent of your exports of paper, totalling over $40,000,000, go over across the line, and it was shown also last spring when, as we all know, it was pretty hard to obtain supplies for our mills and there was a question of whether the

mills were going to keep running or not on account of the war situation, it was taken up by your Canadian Association and referred to the American Pulp and Paper Association, with the result that a conference was called which was attended by Mr. Campion and Mr. Campbell, and one other gentleman here, with a committee from the American Paper and Pulp Association and a committee from the wire manufacturers. It was a very harmonious meeting, with the result that when it was over we found the situation was not really as serious as some of us had supposed. I think that those who were at that meeting will agree with me in saying that the information obtained there was worth all that the Association has cost you here and all that our Association has cost us over there, as members of the American Paper and Pulp Association.

The National Safety Council of The Pulp and Paper Manufacturers' division, or whatever they may call it, takes in the mills over there and here. Mr. Pounsford, of your Ontario Association, is the secretary of the Pulp and Paper section, and they are doing a great work in bettering the conditions of the laboring men in safeguarding dangerous parts of machinery, and while I do not believe that insurance companies, as yet, have appreciated or realized the value of those safeguards and have given us credit for it in our insurance premiums through this Council, it is bound to come, and we will receive recognition in the case of compensation and also in the saving of injuries and of life in our mills.

I said I was going to be brief but I have got started, and I don't know where I will stop. But we are going through a peculiar age, from the fact that the Government — and now I will speak of the Government across the line — is assuming more and more the control of business. It was only a short time ago that the Honorable James N. Wadsworth, the United States Senator from my own State said — I cannot give you his exact words, but to this effect — that unless the business man took more interest in public affairs, and in the legislative bodies, that it would be but a short time before individuals would not be able to conduct their own business themselves, honest though they might be.

Now, that is a lesson, gentlemen, and it was right along the lines of what Sir George Foster said this afternoon, that it was a message taken home to you business men, and I believe you business men here in Canada are taking more interest in public affairs and in what your legislative bodies are doing than we do down in the United States, and we need it over there. But what we need there you need here. My conception of Government is that it is a body that should make laws for our guidance and for the safeguarding of life and liberty, and when Governments say to us that we shall only charge such a price for any product, when the price can be controlled by the law of supply and demand, I say to you gentlemen that Governments are wrong. (Hear, hear).

The time for Government to step in and say as to what we shall charge is when it is put up to us that we have a combination and are charging extortionate prices, and they should not interfere when the prices are made by the law of supply and demand. (Applause).

In saying this, I think perhaps I should say that here you are going through a time in which the exigencies of the situation might demand that something of the kind be done. But when over with us on top of the income tax, they say that we shall pay a tax on capitalization and surplus of over eight per cent, I say to you they are trespassing upon personal rights, and personal liberties. They are going right back to the source of what is taxed to support Government as a whole, and when they take away from the profitableness of our business, how is government going to be supported?

I said to Sir George after his speech this afternoon I wished we had men like him to come over across the line and preach that message to us over there which he gave to you gentlemen here. We have some over there, but they are not coming out and giving the business man, like the gathering which you had here to-day, that message which Sir George gave you this afternoon. We want more like him. Men who can come out and fight and tell business men what they must do.

I would be ungrateful gentlemen, in this atmosphere of patriotism if I did not say a word to tell you how our hearts and our sympathies are going out to you in this great struggle for humanity. (Applause).

When I look at this honor roll here (indicating) and see the names of the men gone from your own industry to the front, men who have fought and died there, names many of them pronounceable and many unpronounceable, it shows to me that you have a great country, that you have men who have come here from all quarters of the globe and who have made their homes here, who have gone back into the forest and hewn out the towns and villages by the sweat of their brow and the brawn of their muscle, and then to think that they have taken up arms and gone overseas in order that the integrity of the flag which they have sworn to maintain will for ever waive over the country of a free people and their children and children's children may live in peace. (Applause).

Gentlemen, we bleed for you, and I am going to give you an illustration or two of how we over across the line are doing our mite in relief work and helping to do what you are doing. If statistics are right, we have sent over for the relief of Belgium and Serbia across the water between forty and fifty million dollars. (Applause). We have sent over there men who have gone into the trenches, some of them have fought there and died there somewhere in the neighborhood of fifty thousand of the best of our blood, of our youth, the same as you are sending from here. (Cheers). It was only a short time ago that I read in a magazine of what the women in Canada were doing. Thousands upon thousands in your shops and factories are doing the work that the men formerly did in order that their brothers, their husbands, and their sweethearts might go to the front. There is nothing nobler than that. And the country never took up arms in a nobler cause than you gentlemen have done when you took up arms to preserve the neutrality of Belgium that you had promised to preserve and are fighting for humanity. (Applause).

Take it right over in my own town of Watertown. It is a small city, but over three hundred women are working there every few days—two or three days a week—sewing and making bandages and clothing to be sent to the boys in the trenches. (Applause). Funds are being raised now to purchase and maintain an ambulance to be sent to the front, and last night right before I left home the very very last thing I

did was to sign a cheque contributing my mite toward that great cause. (Applause).

But, gentlemen, that is infinitesimal as to what it means when we sent the youth of that country, and outside of Canada one of the best friends I have in the world, sits right over there to-night, Mr. Stewart Lansing, whose son says he is going to France with that ambulance to put the spizzerinktum into it. (Laughter and applause).

I am speaking of these things, gentlemen, just to show you that in this great war which you are waging, regardless of all that has been said over there, and while I agree in the abstract with what our President has said about "Peace without victory," and I would take the stand which Mr. Balfour has taken, which Mr. Lloyd George has taken, and which Lincoln took in our own great civil war, when the message from the Brazilian Government to end the war in the name of humanity, that it must be fought to a finish, that peace should be with victory and not without victory. (Prolonged applause).

As was said by one whom I believe is the greatest statesman we ever had in the United States one and a half years ago, that this war and the war that the Allies are fighting is a war for freedom and the peace of our children and our children's children.

That, gentlemen, is what you are doing. We are trying to contribute our mite, and I trust that when the troubles which this war is bringing about are finally settled that we will have that peace which will ensure freedom to our children and to our children's childern.

Gentlemen, I thank you. (Prolonged applause).

The President: When I got Mr. Moore's letter with this word in it, a word which I will not try to pronounce even yet, I thought an accident had happened to the typewriter and that he had hit it all at once, but I guess the word is all right if it means all that he said; if it means supporting ambulances and getting Mr. Lansing's son and all the boys at the front, I think it is just the right thing. We will have it engrossed in our minutes and next year see if it has been a self-starter to the association.

The President: Before I call upon the Honorable Mr. Allard to propose the next toast I have an announcement to make.

I have been handed this paper specially showing a family by the name of Lafrance, whose six sons have enlisted. Address, Mrs. Mary Lafrance and Mr. Lafrance, 562 Wellington street, Ottawa, Ont. These people are in the pulp and paper business.

Also another family, that of J. D. Campbell, of the Campbell Lumber Company, Weymouth, N.S., whose six sons are at the front. One of them having been awarded the Military Cross, viz., Lieut. Colin G. P. Campbell. Mrs. Campbell, the mother of these boys is the aunt of ten more in their country's service, making six sons and eight nephews in all — army and navy — fourteen cousins.

I will now call upon the Honorable Mr. Allard to propose the toast of "The Pulp and Paper Industry."

Honorable Jules Allard: Mr. President, Honorable Minister, Members of the Pulp and Paper Association and Gentlemen: I have accepted with real pleasure the invitation to propose the toast of the Pulp and Paper Industry. I do this in a language with which I am not familiar.

Some Voices: Speak in French.

Hon. Mr. Allard: Relying on the intelligence of the people present, and hoping that they will forgive my rashness and allow me to read a few remarks which I intend to put before this large meeting.

The pulp and paper industry in this country and more particularly in the Provinces of Ontario and Quebec has made rapid strides; the unfortunate was now devastating Europe has contributed largely to increase the demand of this merchandise which our newspapers, as well as those of our neighbors, which are getting more and more numerous, require. We are all hoping and wishing for the triumph of our Allies, triumph which shall be followed by a lasting peace. I also hope that the demand for our pulp and paper will continue to increase after peace is obtained.



HON. JULES ALLARD,
Minister of Lands, Forests and Mines for Quebec.

Speaking for your industry in the Province of Quebec, which I know best, several factors have contributed to its success. The principal one I attribute to the intelligence and the wise administration of the directors of the different companies established in our Province, and to the ability and the deep knowledge of the officers employed by these companies.

We are not jealous of our neighbor nor of the other Provinces, on the contrary we are pleased with their success, but I cannot help saying, Mr. President, and I believe it is my duty to say that there is in the

Province of Quebec a possibility for a production double, triple, and even more than that which exists to-day.

Only about one-third of our timbered territory, not including Ugava, is under license, and the Government will always be ready to consider any serious demand for licenses to cut timber, if it is shown to us that the development of your industry requires it.

You know as well as I do that a very small proportion of our water powers is at present developed. The St. Maurice alone, when its storage, now being made is completed, which will be before twelve months, will furnish over 500,000 H.P., to say nothing of the other numerous rivers on which will be driven the timber necessary for the manufacture of paper in mills which will be supplied by these hydraulic powers, existing in large quantities on each of these rivers.

Not only have we the hydraulic power and the river necessary for the transport of timber to the mill, but we have also the raw material of a superior quality and in large quantities. I believe that if we know how to exploit in a judicious manner, and there is no reason why we should not, the forest now under license, if we preserve it against fire, and even if necessary re-forest, it will furnish perpetually the raw material for the manufacture of paper.

I may say to the credit of our licensees that the regulations enacted concerning the diameter established are well observed, which assures, it is said, a new growth every 25 or 30 years.

My Department, jointly with the licensees, has very seriously studied the means to be taken for the protection of our forest against fires. As a result of this study we have adopted the laws and regulations which we have thought the best, and I must say that we are ever disposed to consider seriously any suggestion which might be made and which will probably be made, at the meeting to be held to-morrow and the day after.

From the reports made each year it was found that the most frequent cause of forest fires was due to the burning of slash made by settlers. Of course, we could not for a moment think of preventing these settlers from burning their slash, for, however important the paper industry may be, that of agriculture is the most necessary and the one which calls for the most protection and the greatest encouragement on the part of the Legislators and of Governments. We have tried to establish periods when it would be allowed to burn this slash. We found that what would suit one year, would not suit the next, and what would suit one part of the Province would not suit another; we adopted the permit-system, leaving it to the discretion of the fire rangers and rural inspectors to determine in each case the precautions to be taken and the time most suitable to burn the slash. Thanks to the active and intelligent assistance of the St. Maurice Protective Association and also that of the Lower Ottawa Association we have obtained a result that the greatest enthusiast could have wished for. In the St. Maurice Region, for instance, during last season over 1,200 such permits were given, and there was not one single forest fire caused by settlers. I have reason to believe that the same result was obtained in the Lower Ottawa Region. These two associations cover nearly two-thirds of the territory under license, and I have reason to hope that the rest will before long be organized in the same way. You will permit me, I think, Mr. President, to congratulate and thank Mr. Ellwood Wilson, of the Laurentide Company, for all the good suggestions he made, and for the activity he has displayed in the organization of these associations, the result of which has been so remarkable.

I must also add that as a general rule the railway companies have made it a point to observe the regulations which have been enacted by the Government Railway Commission of Ottawa and by the Public Utility Commission of the Province of Quebec. It is to be hoped that the railways which are under the control of the Federal Government, and not subject to our regulations will adopt the measures of precautions enacted for the other railways. I said a minute ago, Mr. President, that not only should we operate our forests in a judicious manner, protect them against fire, but also that we should think seriously of reforesting them. To my personal knowledge at least two important companies, viz., the Laurentide and the Riordon, have commenced since a couple of years making on their own land reforestration on a fairly large scale. I had occasion during last summer to visit the work done by the Laurentide, and I was agreeably surprised at the result obtained. I may say that the Government is ever ready to study the conditions to be agreed upon with the licensees for the reforestration they might undertake on their territory.

We have at Berthier a nursery of considerable importance which permits us to furnish for a modest sum the plants which may be required for this purpose from now until such time as each company shall establish, as the Laurentide Company has done lately at Grand'Mere, its own plant. I would be very pleased to learn that the paper manufacturers will next summer honor our establishment with a visit. They will meet there an officer who will consider it his duty, and at the same time a pleasure, to furnish all information required.

It might have been wiser for me to-night to have followed the advice which I found in your excellent Journal, The Pulp and Paper Magazine, viz., "The easiest thing to do at a meeting is to sit still and listen to the programme—that the principal reason, or rather excuse for silence is the fear that they may give away some secret."

I am satisfied I have not revealed any secret, but I may have expressed wishes you might think I want to confine to this Province—but that thought is far from me, Mr. President. This judicious explanation, this preservation of the forest against fire, and this work of reforestation of our forest I wish it, and I want it, for our beautiful and grand country, Canada. Success in the Pulp and Paper Industry I wish for all Canada. This industry is undoubtedly the one which can contribute most to the development of agriculture in our country. The settler finds in your mills a ready market for the timber he cuts in his clearings—your lumbering camps can absorb all the hay, oats, and other products which he can dispose of, and when he is not engaged working on his farm, you can furnish him with profitable employment at the mill.

Gentlemen, let me ask you to rise and drink the health of the Pulp and Paper Industry in our country which we want still more extensive and more prosperous.

The President: We have listened with a great deal of pleasure to the speech of Mr. Allard, and his prom-

ises that the pulp and paper industry will be favorably considered by the Government.

I may say to Mr. Allard that the suggestion of Mr. Wilson there were several resolutions put and passed unanimously to-day thanking the Quebec Government for the stand they have taken in the preservation of the forest, and some other resolutions which we think will benefit the industry, and we will go to you Honorable Sir, feeling much more confident that these will be carried out.

Before calling on Mr. Chahoon to reply to this toast Mr. Moore the originator of this confounded word has something to say. I don't know what it is. It will be worth listening to any way. (Applause).

Mr. Moore: Mr. President and Gentlemen: All I have to say is this; That the American Pulp and Paper Association appreciate very much the invitation which you extended to them to be represented here to-night, and on their belief I want to extend to you one and all an invitation to be in New York City next week at the meeting of The American Pulp and Paper Association.

Your interests and ours are mutual. You want our markets and our coal, and we want your wood, and closer co-operation is what will lead to success and I trust you will all come down there and help us make this American meeting successful.

Chorus of Members: We're coming.

Mr. Chahoon.

Mr. Chairman:

Mr. Toastmaster, Gentlemen:

Of course, I have been unable to determine why your Committee selected a manufacturer, and not a publisher to reply to the toast on the industry, but when this invitation fell to me, I can assure you that I accepted the honor with alacrity. I did this, thinking that the experiences I have been through this past year at the hands of the different Governments on this continent, should at least fit me to say little.

Some of the members of our industry must feel that they have spent practically the entire year on Government work—first studying what constitutes a continuous process, as defined by the "Lord's Day Act"; then waiting on the Government at Washington, assisting them in their endeavors to find that the News Print Manufacturers' Association had not violated some obscure feature of the Sherman Anti-Trust Law; and more recently courting the Canadian Press through the Ottawa Government to find just what they would like to pay for their future supply of news print paper.

I would like to feel that we have accomplished enough in this work, and by these investigations to have gained a fairly "clean slate" for the future, so that we could begin again conducting our business on constructive and conservative lines,—but to be perfectly frank with you, I do not. I do feel, however, that we have demonstrated to the satisfaction of the Quebec Government, and through them to the Church, that we are not unnecessarily encroaching upon the religious rights of anyone. I am confident that the Federal Trade Commission at Washington can find no collusion on the part of the Association, and I also imagine that for the time being, at least, the Dominion Government has satisfied the cries of the wailing portion of the Canadian press,—but with all this, I realize, and want to make you men realize that we can never expect to enjoy the same uncriticized, uninterfered—with pursuit of our business, as other industries can, because we are dealing with a power that is greater than the Church, and greater than any Government that was ever established—the power of the Press. When the Press unites, there is no power on earth that can withstand it. When this happens, Governments and individuals are forced to acts which they undoubtedly regret—as an example—you men of Canada know, that by a majority vote, you defeated the proposed reciprocity bill between Canada and the U. S., but how many of you realize that it was only through concessions made to the Press of the United States, by the Republican Party, that this bill was ever allowed to pass the United States Senate and come up here for your your consideration and vote, and that these concessions were, that news print paper was to be put on the free list, and that this portion of the bill was to become operative when President Taft signed the bill, regardless of whether it was ratified by Canada or not. That bill now lies dead and buried, but to the shame of the Press of the United States, and to the humiliation of all who had anytihng to do with it, that bill carried to its death as selfish and rotten a rider, as was ever attached to any partisan legislation.

It is not my purpose here to criticize any of the Governments; they are all human, and being human are susceptible to all the ills of human nature. I feel that the Governments of Canada are earnestly endeavoring to develop all of their industries, and until recently, I believed that the news paper industry had come in for its full share of consideration. In the United States Government I am told we are blesed with some sixty-eight news paper publishers in Congress. How fair that Government is going to be with its legislation pertaining to our industry, time alone can tell. We may some day come to some sort of an understanding with these legislative publishers that may be mutually satisfactory, but as long as there is that number in Congress, and many more waiting around on the outside for an opportunity to tell the Government how they feel on certain matters, I fear we will look upon any working arrangement we may have with them like "Brer Fox" in that ancient story told on Colonel Bob Ingersol. You remember? The Colonel happened in on one of the dinners at the Lamb's Club and was asked to make a few remarks. When he was midway with one of his stories, someone interrupted him, the Colonel was annoyed and stopped. The following year the Dinner Committee was anxious to both atone for the seeming rudeness of the year before and also to persuade the Colonel to be one of their regular dinner speakers, so they went to him with their apologies and promised that if he would consent to come, they would agree that nothing of the sort would happen again. The Colonel accepted their apologies and with that understanding agreed to come. When the Colonel was just "warming up" to his speech someone again broke in on him. Turning to the intruder, Colonel Ingersol said: "Once upon a time, years and years ago, a committee of all animals and all the birds came together and agreed that forever after they would all live in peace and harmony together. Shortly afterwards 'Brer Fox' and 'Sis Hen' were out strolling over the meadows, when they heard from over the distant hills a pack of hounds. Brer Fox was noticeably nervous and asked Sis Hen if he could be excused and run on home. Shame, says Sis Hen, don't you know of that agreement we have, that all the animals will live together in peace and harmony. Yes, says Brer Fox, I know about that agreement, but what makes me nervous is

the thought that perhaps some damn fool in that pack hasn't heard about that agreement."

Just so with the publishers, some day they may agree to live in peace and harmony with us,—but as long as there are sixty-eight of them in Congress, I fear we will alway feel as Brer Fox did.

At the time the Canadian Government first felt compelled to explain to us what they would be reluctantly forced to do to us, in case we failed to meet the wishes of the P. P. Association (a word of explaination may be necessary here—the P. P. Association means the Pampered Press Association), I was talking of our position with a man of wide business experience, and he remarked that he never realized before that the news paper manufacturing industry had this fearful busines hazard to contend with. I had to admit to him that I never realized it myself before, for the very good reason that although this hazard has always been with us, it has lain practically dormant all of these years. The fact of the matter is, the newspaper publishers have always been able to obtain from us their raw material at practically our mill costs; we have contributed to them whatever equity we had in our vast timber holdings and mighty water powers free. It never before, here in Canada, has been to their interest to reveal to us and the world their mighty strength, and not seeing, I am ashamed to say we have failed to realize it, and therefore to do what we could in our small way to guard against it.

When I came to Canada fifteen years ago, Laurentide's competitors were the Eddy Company and the Canada Paper Co.; both of these Companies were as much, if not more interested in the manufacture of other grades of paper as they were in the manufacture of news. Since that time I have seen this industry grow through all its stages, until now—from a point of view of size, of tonnage turned out per day, of trees cut down and consumed, of power used and wasted —it is one of Canada's largest industries, and Canada is fast achieving the distinction of being the largest paper producing country in the world; but, gentlemen, while Canada is achieving this distinction, we are achieving the unenviable distinction of managing and operating an industry that I imagine returns less per dollar invested, than any of Canada's other industries. I have always wanted to have an accurate history of our industry written and distributed to the bankers, to the brokers and to the investing public the world over. I now wish we had had this written and sent it to some of the Governments. We should all know and be made to realize the conditions in the past life of our industry that led up to the formation of the International Paper Company. We all know that at the time of the formation of this large Company, the individual concerns that flocked into it to save themselves from bankruptcy, claimed to control 90% of the news print tonnage that was manufactured east of the Mississippi River. It is conservative to say that these same Companies owned or controlled a like proportion of the standing pulpwood timber in the United States east of the Mississippi River, and that some of them extended well up into Canada. Whatever may be said to the contrary, we know that these Companies, either directly or through the International Paper Company, never have made a dollar out of their business and we also know that the proverbial "hen's teeth" are thicker than the patches of pulpwood timber that these Companies have left standing in the United States: therefore, this industry has practically denuded the United States of its wonderful supply of pulpwood; has given of its huge and very valuable water powers free of charge, and has returned to the industry—what?—securities that depreciated in value up to the time of this war boom almost to a point of extinction. Now, what would a history of the industry in Canada show—We all know, it is necessary to become personal.

I realize that I am putting these conditions to you in a very blunt manner, and that a person has no right to complain in public, as I am complaining, unless he has some plausible excuse, or partial remedy for the deplorable conditions. There is no remedy for the power of the Press—like the darky that's born with a caul, we have got to grin and bear that, but it seems to me that we can accomplish much to help us out of our recent difficulties in two ways: first, by as close an association of our different interests—business, technical and political, as the laws of the land will permit; and second, by a more close-mouthed conduct of our individual businesses.

As a member of the Executive Committee of your Association, I feel that the industry has benefitted much by the information that the Association has gathered, and I feel that from this and the work now in hand, such as the standardized cost keeping methods, contract forms and trade conditions, and a careful study of the natural laws that govern the industry,—that much of the demoralizing conditions of the past can be legitimately prevented.

I come to the second manner in which I feel that we can accomplish good results—(a more close-mouthed and unselfish conduct of our individual business)—with my apologies, because I feel that I perhaps have been the chief offender. I fear there is a tendency on the part of some of us to be more interested in the speculative features of our respective businesses, than in putting them on a sound and solid business basis. I fear that many of our present difficulties are attributable to our stock market vanities. Long before we could see any increases in mill nets on products sold, we heard that the International Paper Company would make this coming year a million dollars a month; that pulps and papers of all kinds would sell at fabulous margins of profit; that the pulp and paper industry would "out-Herod Herod," and what has been the result? Most everybody has believed it. The Lord's Day Act that has been on the statute books of Canada for eight years was resurrected—why shouldn't it have been? If we were making millions every time we turned around, why should we run the mills at all? The railroads, the newspapers, the coal companies, everyone, became embued with the idea that we were the "idle rich," waiting to be "touched", and we have been and to an extent in our news paper business, that our expenses and increased costs have gone up faster than our increased selling prices. It was only last week that I heard that our wise and sagacious Premier, Sir Lomer Gouin, had heard of all this and actually believed it, and was even then "whetting" his stumpage "knife" for our 1920 tariffs. Now, what have we gained? A little cheap notoriety and a devil of a lot of trouble. The truth of the matter is we men haven't quite as much sense as a hen. A hen doesn't cackle until after she lays her egg, while we start down town cackling as soon as we begin thinking of laying one, and by the time the egg really arrives, the publisher has it scrambled and eaten. I for one am tired of it and want to go on record as wanting to climb aboard

the no-talk wagon as of January, 1917, and band ourselves together so firmly through intelligent understanding of our industry, and confidence in each other, that nothing but the devil and the united efforts of the publishers can make us deviate one iota from our intentions to overcome our handicaps, to conquer our weaknesses and place our industry in a respectable position among the industries of the world. (Prolonged applause).

The President: I will now call upon Mr. Gage.

Mr. Gage: Replying to the toast of Our Industry, I feel somewhat embarrassed in following an old timer like Mr. Chahoon. I am sure that you have all listened to his address with a great deal of interest, and as we have but a very short time I will reply as briefly as possible.

We hear a great deal about the prosperity of the paper industry — why shouldn't we be prosperous, with such a demand for paper at high prices. It has proven that paper is an absolute necessity in a civilized country, nearly as much so as the meals we require from day to day. Just think of not being able to buy a daily paper—and it may come to this, if the mills and publishers are unable to come together. There is manufactured in Canada 1,800 tons of news per day, and only about one-fifth is consumed here, this is one of the sections that enjoys a very large export trade. Nearly all of the product manufactured by the other mills is sold in Canada. These mills have been able to manufacture nearly all of the grades imported into Canada previous to the war, and with the additions and improvements they are making, should be able to hold this business. The demand for goods made in Canada is growing every day.

Canada has enormous supplies of wood pulp and excellent water power and should, in a few years, produce the bulk of news print used on this continent. This will naturally increase the demand for all other grades of paper. Unless we encourage the planting of trees suitable for pulp, there will come a time when our supply will be exhausted.

When thinking of pulp we naturally associate it with the forest, and fire is its worst enemy. Mr. Robert Black, Secretary of the Canadian Forestry Association, lecturing in Toronto on "Fight to save the Forests" stated that the Canadian Government is permitting the burning of enough timber to double the annual pensions of a large number of returned soldiers.

These are rather startling figures, and this Association should do everything within its power to lessen this great loss. We cannot expect to keep up the pace of the past year and there, no doubt will come a time of reaction, and I hope it is a long way off. However, the mills should be all in good shape to stand a period of slackening in business.

This is a good time for the promoter to start interesting propositions for new mills and I hope investors will go carefully into facts and figures under which they are to manufacture, as it is not many years ago several investors had some bitter experiences in following promoters in paper industry in Canada.

The meetings of the sections have been a great benefit to the mills. There was a time when we would hardly meet our competitor, and we hesitated about interchanging ideas simply because there was a fear of giving away business secrets.

I am pleased to say that our ideas now are greatly broadened, and it is surprising the interest that is taken in our Section, which has helped to improve conditions generally.

I have no doubts that our Association will make great progress under our energetic President Mr. Smith.

The Music.

An account of the banquet would be incomplete without a reference to the music. While they partook of the excellent and bountious repast, the banquetters listened with great pleasure to some very fine music. Mr. Berliner, leader of the Ritz orchestra, voluntarily added several pieces to those provided. The vocal numbers by Sergeant Beauchamp and Mr. Tom Bissett were thoroughly appreciated. The frequent rendering by the "congregation" of the selection "For He's a Jolly Good Fellow," was assisted by Professor Swall at the piano.

The most striking and unusual musical number was furnished by the bagpipes, led by the Scotch



F. H. GAGE, Georgetown Coated Paper Mills.

giant, Pipe Major Alex Gray. After making several circuits around the room they retired, but were brought back. Many of those present joined in the procession. No doubt the rousing music of the pipes helped to loosen up some of the $521 contributed to the soldiers.

BOOK PAPERS TO STANDARD SUBSTANCE WEIGHTS.

Information among book paper manufacturers is to the effect that the manufacture of book papers to standard substance weights will be put into effect as early in the new year as is possible. The plan of the mills, it is said, calls for the adoption of a list of standard sizes and weights, the fixing of a basis at 50-lbs. for both machine finished and supercalender papers and the making of a uniform differential for all papers lighter than 50 lb. It is understood that paper jobbers approve generally of the principle of manufacturing to standard weights, but would prefer to have the minimum basis of weight remain as it now is, namely, 50 lbs. for supercalender papers and 45 lbs. for machine finished.

It will, of course, be the aim of the manufacturers to scale down to the minimum the number of stock sizes and weights, this with the idea of greatly reducing the stocks necessary to be carried by both mill and jobber.

PULP AND PAPER NEWS

At the annual meeting of the Victoria Paper and Twine Co., Limited, held in Toronto recently, a most satisfactory report on the operations of the past year was presented. Charles F. Hubbs, of New York, was re-elected president; William H. Howe, of Buffalo, Vice-President; H. J. Severance, Buffalo, Treasurer; and Charles V. Syrett, Secretary and Managing Director. Mr. Syrett recently returned from an extended trip to the mills in Quebec, and reports the outlook for business for the coming year is exceptionally promising.

An extension is being erected to the factory of Staunton's, Limited, wall paper manufacturers, 944 Yonge street, Toronto. The addition will cost about ten thousand dollars.

A charter has been granted to the Curtis Company, Limited, with headquarters in Windsor, Ont., and a capital stock of one hundred and forty thousand dollars to design and produce advertising of all kinds, engraving, stationery and printed matter. The incorporators are F. A. Curtis, C. C. Hubbell, C. A. Parker and W. C. Judd, of Detroit, and C. H. Johnson, of Windsor.

The annual meeting of the Garden City Paper Mills Co., Limited, was held in St. Catharines last week and an encouraging report was presented for the past year. All the old officers of the company were re-elected.

The Toronto Junk Dealers Association has been formed into a corporation without share capital and among the objects of the organization are to promote the consideration and discussion of all questions concerning the junk business, to watch over and protect the interest of persons engaged in the trade and to promote or oppose legislation affecting the business generally. All the leading junk dealers of the city are members of the new association.

The Journal Publishing Co., of Ottawa, Limited, has been granted a provincial charter and the capital stock is four hundred thousand dollars. The company is empowered to publish newspapers and to do a general printing, lithographing and bookbinding business.

The Whyte-Campbell Lumber Co., Limited, of Montreal, has obtained a federal charter and has a share capital of forty thousand dollars. The company is authorized to manufacture and deal in lumber, timber and pulp wood.

John Martin, of the John Martin Paper Co., Winnipeg, was among those who attended the annual meeting of the American Paper Jobbers Association held this week in New York. Mr. Martin says that he hopes to gather additional information in reference to association work and he feels convinced that, in a very short time, the wholesalers in the Dominion will see the need of forming a similar organization. He says that it is not a matter of "bucking the mills," but co-operating with them and, at the same time securing their rights and placing the jobber in his legitimate place. With the heavy investment carried by every wholesale paper firm Mr. Martin thinks there is no doubt that they deserve protection and that the mills will be agreeable to the protection asked. Mr. Martin states that business is keeping up splendidly in the west which has enjoyed a very nice crop with exceptionally good prices and the general feeling is one of optimism. Collections were never better and all appear to be anxious to pay up past indebtedness and are taking advantage of every discount possible on new purchases.

The engagement is announced of Miss Margaret Isabel Logie, eldest daughter of James Logie, paper mills representative, Toronto, to John Wilson Arnold, of Washington, D.C., formerly of Toronto. The wedding will take place in Toronto on February 21st.

Among the charters granted the past week were the following: Beaver Valley Publishing Co., Limited, with headquarters at Thornbury, Ont., and a capital stock of $40,000; The Porcupine Pulp and Lumber Co., Limited, with head office in Toronto and a capital of $10,000; Law Books, Limited, with a capital of $40,000 and head offices in Toronto.

The Ontario Government, through A. T. Wilgress, King's Printer, is calling for tenders for the supply of printing paper required by the province for the next six months. The time for receiving bids closes on February 9th.

At a meeting of the Bruce Press Association, held last week in Walkerton, Ont., problems arising out of the high cost of news print were discussed. Most of the members favored doing away with ready-print and giving more space to local news.

Mr. T. A. Weldon, Vice-President of the Provincial Paper Mills Co., Ltd.; Mr. G. Carruthers, President of the Interlake Tissue Paper Mills Co., Ltd.; Mr. Kent, Managing Director, and Mr. William Anderson, Superintendent of the Kinleith Paper Mills Co., Ltd., were some of the gentlemen from St. Catharines and District, who attended at the meeting of the Technical Section of the Pulp and Paper Manufacturers' Association which was recently held at Montreal.

The Kinleith Paper Co., of St. Catharines, granted a bonus to their employees who had served them faithfully for one year or more in the form of a week's salary to those who had been in their employ for one year, and two weeks' salary to those who had served them for two years or more.

Friends of Mr. D. Daverin will be glad to hear that his daughter Dorothy, who was operated on last week for appendicitis at the Wellandra Hospital, St. Catharines, is improving rapidly.

The new sulphite plant of the Ontario Paper Co. was in full swing this week, when the first cooking was put in on Thursday evening, the occasion was looked upon with great interest, and glad to relate the result was very successful.

A very sad drowning accident occured at the Montrose Division of the Provincial Paper Mill Co., Ltd., Thorold, on Saturday, 3rd February, when Andrew Walker, while cutting ice on the overflow sluice which leads into the tailrace, lost his footing and fell into the water which carried him down through the tailrace and out into the level of the canal. Owing to the swiftness of the current he was carried under the ice before any help could be procured and up to the present, although the water has been lowered to allow the ice to break and float off, no trace of him has as yet been found. His home is at Owen Sound, Ont., where he leaves to mourn his loss a wife and two children.

At the annual meeting of the Lincoln Paper Mills Co., held this week at Merritton, Ont., a most encouraging report was presented on the operations for the past year and good progress was reported on the construction of the new fifty ton sulphite plant of the company which will be in operation early this summer. W. D. Woodruff was re-elected President and General Manager; A. S. Woodruff, Vice-President and W. M. Shea, secretary-treasurer.

F. A. Ritchie, of Ritchie and Ramsay, coated paper manufacturers, Toronto, has returned from an extended trip among the West India Islands.

The annual meeting of the Kinleith Paper Co., Limited, was held a few days ago. During the past year the plant was very busy and considerable improvements have been made. Two washers and a new stack of supercalenders have been added, while plans are under way for an extension to the finishing room. The addition will be 30 x 50 feet. W. J. Gage was re-elected President; W. P. Gundy, Vice-President; H. F. E. Kent, Managing Director, and G. H. Jefferson, Secretary-Treasurer. William Anderson is the efficient superintendent of the mill.

W. D. Woodruff, President of the Lincoln Paper Mills Co., Merritton, left this week to spend a few weeks at Jekyll Island, off the coast of Georgia.

At the annual meeting of W. J. Gage and Co., manufacturing stationers and envelope makers, Toronto, business was reported to be exceptionally good in all lines particularly during the last six months. W. J. Gage was re-elected President; W. P. Gundy, Vice-President and General Manager; A. G. Parker, Secretary; H. H. Love, Treasurer, and H. F. E. Kent, superintendent. All th eemployees of the firm as well as those of the Kinleith Paper Co., who have been in the service for over a year, were given a bonus varying according to the length of employment and responsibility of duties while the heads of departments are permitted to acquire stock on very favorable terms. The profit-sharing plan, which was inaugurated sixteen years ago, has worked out advantageously to the company and its employees. The annual dinner of the employees of W. J. Gage and Co., was held recently and was a very successful and enjoyable event.

It is expected that the fourth machine, which has been installed in the plant of the Toronto Paper Manufacturing Company at Cornwall, Ont., will be in operation next week. The machine is 82 inches wide. The output of the mill will at an early date be brought up to about thirty tons a day in book, bond writing, ledger and envelope papers.

The successful tenderer for the right to cut pulp wood on the Black Sturgeon river and other territory adjacent thereto in the district of Thunder Bay, has been awarded by the Ontario Government to Sam Marks of Nipigon, who offered a bonus of seventy cents per cord, in addition to the usual fees of forty cents per cord for spruce and twenty cents per cord for other pulp woods. There were a large number of tenderers and much interest was aroused in the result. On the estimate of the pulp wood on the limit, which is approximately one thousand square miles in extent, and located about eighty miles north-east of Port Arthur, the Ontario Government will receive by the time the limit is all cut over, the sum of $3,500,000. The successful bidder must erect a pulp mill of a capacity of not less than one hundred and fifty tons a day which must keep at least three hundred hands employed. Two hundred thousand dollars must be expended the first year, three hundred and fifty thousand dollars the second year, and four hundred and fifty thousand the third year, making an outlay of one million dollars for equipment and mill. The figure is the highest ever received for a pulp wood limit by the Ontario Government. The right to cut timber on the Pic River concession in the Thunder Bay district consisting of 1,400 square miles, which was awarded a few weeks ago to J. J. Carrick, M.P., of Port Arthur, resulted in a bonus of fifty cents on each cord of pulp wood. The tender of Mr. Marks on the Black Sturgeon limit is twenty cents higher per cord, showing the growing value of pulp wood areas. It was thought that the tender of the Port Arthur Pulp and Paper Co. for the Black Sturgeon rights would be successful, but their figure was too low. The Port Arthur Pulp and Paper Co. are about to erect a hundred and fifty ton sulphite mill at Port Arthur and have received a free grant of one hundred acres of land from that city.

The Howard Smith Paper Mills, of Montreal, are now making their Chaldean Vellum to the standard size and weight of twenty-one by thirty-three, sixty pounds per ream of five hundred sheets. This is done in order to facilitate manufacturing and to give better service.

A federal charter has been granted to the Manufacturers' Press, Limited, Toronto, with a share capital of one hundred and fifty thousand dollars. Among the incorporators are Eldon Moir, D. L. McDonald, and John Campbell. The company is empowered to carry on the business of publishers, printers and book sellers and to manufacture and deal in paper, paper materials and paper substitutes.

The soda pulp mill of the Canada Paper Co. at Windsor Mills, Que., is being modernized. The old floors have been removed and replaced with floors of steel and concrete. The output of the mill has been increased by fifty per cent and a further increase will shortly be made. The machine and finishing rooms of the Windsor mill have been extended by some 128 feet, making 14,000 feet of extra floor space. The finishing room is being carefully laid out with a view to increased efficiency and wider supercalenders are being added to the plant. The company report that during 1916 they have pursued their usual policy of improving their plant in order to attain the highest efficiency and maximum of production.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The Monroe Binder Board Company, of Kalamazoo, Mich., has authorized in increase in capital from $500,000 to $1,000,000. The new capitalization will consist of $65,000 of seven per cent preferred stock and $935,000 common stock; $100,000 will be retained as treasury stock for future issue. The officers chosen from the ensuing year are: L. W. Leathers, president; Dr. S. C. Knapp, vice-president; E. C. Betz, secretary; Don Leathers, treasurer.

J. P. Burke, of Franklin, N. H., has been elected president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers to fill the unexpired term of John H. Malin, of Fort Edward, N. Y., who resigned as president in December.

The Mead Pulp and Paper Company, of Dayton, Ohio, began work of installing a new Fourdrinier paper machine last week in its large addition which has just been completed at the Peerless mill. The machine will be used for the manufacture of the high grade book paper. This addition will give the plant a capacity of more than forty tons of book paper per day.

At the annual stockholders meeting of the Grandfather Falls Company, held at Merrill, Wis. The same directors and officers were elected at last year. They are as follows: President, L. N. Anson; Vice-president, John O'Day; Secretary and treasurer, George A. Foster; Manager, W. J. Sullivan, the officers, together with the following constitute the board of directors, E. S. King, P. F. Hanf and J. N. Cotter.

Bird & Son of East Walpole, Mass., has received the contract for roofing the big paper mill of the Kalamazoo Vegetable Parchment Company. The work will be done by a local contractor.

The Kenyon Paper Company has been chartered at Pittston, Pa., with a capital of $300,000 to manufacture pulp newsprint and higher grade papers. John C. Kenyon and R. Mc A. Lloyd of New York City are promoting the venture. The abandoned plant of the old Forest Catle Brewery has been purchased and the buildings are being remodeled. The machinery has been purchased and operations will start on June 1st.

The La Salle Paper Co., of Chicago, Ill., has filed an application for an Illinois Charter with a capital stock of $10,000. The incorporators are: Charles L. Cobb, Don C. Wray and John S. Miller, Jr. The company will have offices at 187 North Dearborn Street. Frank B. Jessup has left the Butler Paper Company to become associated with the H. C. Allen Paper Company. Mr. Jessup is very well and favorably known among the mills of the West through his former connection with the Watersliet Paper Company of Watersliet, Mich., and prior to that with the Bogart Paper Company of Kalamazoo, Mich. His connection now with the new Chicago house makes him a valued member of his concern.

The Tennessee Paper and Bag Company of Memphis, dealers in wrapping paper, paper bags, paper boxes and paper specialties have moved into quarters at 127 and 129 South Front street.

Contracts made by the Pulp Wood Company of Appleton, Wis., to furnish pulp wood to the Green Bay Paper and Fibre Company, of Green Bay, are said to be in restraint of trade and therefore void by W. L. Evans, who acted as referee for Judge Henry Grass, of Brown County Circuit Court, in a suit instituted by the Pulp Wood Company to recover approximately $25,000 from the Green Bay litigation for several years and was one of the most bitterly fought actions tried by parties in the Fox River Valley. Leading pulp and paper dealers belong to the contending parties. Because of the issue involved in the case, the department of justice sent a representative to Green Bay to obtain copies of the testimony presented to the referee.

The Directors of the Union Bag and Paper Corporation have voted an extra 2 per cent dividend payable February 15th. The following announcement was made in connection with the dividend. "Stockholders in the old Union Bag & Paper Company will observe that this dividend is payable only to stockholders in the new corporation, so that in order to receive it they must exchange their certificates for certificates in the new corporation at the office of the Empire Trust Company on or before January 31st."

RELIEF PROPOSED FOR PAPER MAKERS UNDER CONTRACT WITH U. S.

These is at least one man of an official capacity in Washington who appreciates the present difficult position of the paper maker who made a long term contract with the Government before the war. Mr. Edgerton, purchasing agent for the Post Office Department very sensibly wishes to keep alive the firms that have conscientiously supplied his department with paper, and on whom the department relies for present and future supplies. We can readily believe that if these mills get the relief and support proposed by Mr. Edgerton, that they will be glad to continue the service of their country to the best of their ability.

Mr. Edgerton proposes the following legislation:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in view of the present high prices, due to the European war, of all paper and other materials entering into the production of envelopes, postal cards, and money-order blanks, which prices are greatly in excess of those prevailing at the time the existing four-year contracts of the Post Office Department for these supplies were made, the Postmaster General is hereby authorized, in his discretion from time to time, to fix prices at or in excess of the contract price or prices to be paid the contractors for postal-card paper, blanks, blank books, engraved and printed matter for the money order service, official and registry envelopes, stamped envelopes and newspaper wrappers and envelopes for the departments of the Government: Provided, however, that any increase or increases over the contract prices herein authorized shall not be sufficient to give to the contractor or contractors any net profit in the supplies furnished by them under the pending contracts."

The Markets

CANADIAN MARKETS.

TORONTO, Feb. 6th.

The news print question at the time of writing is still unsettled so far as price is concerned although it is reported that the figure suggested by Sir Thomas White—two and a half cents—will be agreed upon before many days elapse. It is rumored that a few contracts have been renewed on this basis but the news cannot be confirmed. The news print manufacturers are hoping that, if the price is arbitrarily fixed by Sir Thomas White he will issue, at the same time, a proclamation to the effect that the step has been taken solely as a war measure. Such an announcement would serve to allay any fear of the interference on the part of the federal authorities with vested interests and restore confidence in safeguarding foreign capital, millions of which are invested in pulp and paper propositions in the Dominion.

The American Newspaper Publishers' Association announcement is that there is a war time shortage of 450,000 tons this year in news print. If these figures are correct it is believed that the shortage will be enhanced by the break between Germany and the United States. Many extras are being issued and thousands of additional copies of the metropolitan dailies sold. This creates a much bigger demand for print paper than in times of peace. It is felt that prices may go higher owing to the exciting situation across the border. The future while viewed with alarm by the publishers so far as supplies are concerned is not so disturbing to the mills, for the utmost optimism prevails with respect to a high price level. As European sulphite is likely to be shut off owing to the submarine tactics of Germany, quotations for all kinds of pulp may "knock the wisest predictions bally west" as one buyer puts it. It was thought by many paper and pulp manufacturers that quotations had about attained their highest notch, but the unexpected events of the last few days have upset all calculations and the market may again be turned upside down. The future is full of interesting speculation and one man's guess is as good as another's.

The large daily newspapers are beginning to raise their price, the first step in this direction being taken by the Ottawa evening papers which have been advanced to two cents. Winnipeg papers have followed suit and one of them has also made substantial increase in advertising rates. It is announced that the subscription rates have been raised "owning to the tremendous and unprecedented advance in the cost of white paper, inks, metal, labor and all that enters into the production of a newspaper."

Book and writing mills are busy and some of them have not been taking any orders for several weeks, being sold up so far ahead. The price of envelopes and papetries have been advanced by manufacturing stationers from seventy-five per cent up. One leading envelope and papetry manufacturer stated this week that the paper, for which he formerly paid four and a half cents was now costing him nine and a half, that box board was up one hundred per cent, glue one hundred per cent and wages were all the time increasing while help was very scarce. Naturally prices for the finished product had to be fixed accordingly.

There is little or no change in the sulphite and mechanical pulp situation and prices rule the same as they have been doing for some weeks. Ground wood is, however, firmer then a few days ago.

All departments of the pulp and paper trade were ably reviewed by the diffirent sections, the Canadian Pulp and Paper Association at the recent annual meeting which makes any extended references at this juncture a mere repetition. The key note of all the reports was that mills in every line were running to full capacity, had considerably more orders than ever known before and that there were no signs of a re-action in sight.

The annual meetings of all pulp and paper companies and jobbing houses, which have been held this year, reveal a record business for the past twelve months and every indication seems to point to 1917 as a period of unparalleled prosperity notwithstanding some disturbing elements in the way of shortage of raw materials, scarcity of labor and increasing costs of production generally.

No wonder there is a shortage of labor in some paper mills when it is considered that over fourteen hundred men have gone to the front from this industry alone, not to speak of the hundreds of woodsmen and axemen, who are in the forestry and construction battalions. One of the greatest tributes paid to the Canadian trade was that of Frank L. Moore, Vice-president of the American Pulp and Paper Association, who said recently that Canada was so rich in raw material that it would enable her to control the pulp and paper business of the North American continent. Another matter of importance is the announcement made at the late annual meeting of the Canadian Association by Hon. Jules Allard, Minister of Lands, Forests and Mines, for Quebec, who said that only one third of the forest lands in that province was under license and the government would always consider serious schemes to develop the manufacture of pulp and paper and, if sufficient conservation were employ-

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SULPHITE COOKS wanted. State experience; age; married or single. Applications will be treated confidential. Apply Box 138 Pulp and Paper Magazine, 45 St. Alexander St. Montreal.

FOR SALE.—Ten welded steel tanks 10ft. diameter 2ft. 6in. deep. No. 10 gauge, open top. Apply Jenckes, St. Catharines.

MACHINE TENDER, back tender and third hand for for board machine wanted. Permanent positions. Apply, stating experience to Box 140, Pulp & Paper Magazine, 35-45 St. Alexander St., Montreal, Que.

MECHANIC DRAUGHTSMAN with several years practical experience in pulp and paper mills, wants steady position. Apply Box 139, Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal, Que.

SUPERINTENDENT OR ASSISTANT. — Twenty years practical experience, United Kingdom and United States, nearly all grades, Fourdrinier and Cylinder, also ground wood. Thechnical education, Chemistry and Papermaking. Mechanical ability. Apply "Practical", Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal, Que. Feb. 1, 8, 15

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ed, the supply of raw material would be perpetual.

In the rag and paper stock arena there has been a decided drop in books and ledgers while other lines are marking time. The railway embargoes are causing trouble in deliveries. Roofing rags are weak and cotton rags very quiet.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as	5½c
News (rolls), at mill, in carload lots	$3.00 up
News (sheets), at mill, in carload lots, smaller lots higher	$3.75
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 14½c
Writings	10c up
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap.	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	1.90
Heavy ledger stock	3.40
Soft ledger and writings	1.60
No. 1 magazine	1.85
No. 1 book stock	1.75
No. 1 manila envelope cuttings	2.60
No. 1 print manila	1.40
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.70
Tailor rags	1.70

NEW YORK MARKETS.

New York, N. Y., February 3rd.

Practically all of the markets have been in an unesttled state for the past few days, since the receipt of the last note from Germany. The uncertainty of the next move has seemed to put a temporary stop on many activities. From the headlines in the daily papers, the impression has been given out that this country is liable to be involved in the way. Judging from the way the trade has been talking, everyone seems to be wary, fearing to make a move one way or the other. The tendency of several of the raw material markets to weaken has been checked. This, however, makes little difference for, in the case of foreign goods, importers are "sitting tight," as one salesman expressed. They feel that if Germany should actually carry out here threat to "almost every ship on the ocean", it would materially increase the value of the stock already on dock.

Ground wood has gained added strength and there is now no doubt that it will continue in this condition throughout the winter. Some talk is still heard regarding the stock which came in recently from Sweden, but, as was stated last week, this is having no affect on the market nor is it likely to have any in the near future. The severely cold spell during the past week has affected production to some extent—all of which tends to tighten the hold of ground wood on the market. Reports from the mills are that there is comparatively little stock available for immediate shipment, for the grinders have contracted ahead for some time and are now doing all in their power to take care of their obligations,—to say nothing of thinking of dickering with transient orders. Consumption of ground wood has not diminished, which is significant that the demand for this material will not lose any of its strength for some time to come. The suggestion has been ventured that, if foreign shipping becomes tied up because of the German situation, and chemical pulp is forced up still higher by this reason, the tendency to economize by substituting ground wood will be even greater than it has been at any period of the past year. However, this can have but little actual affect on the market, for with the grinders working as well as is possible, and their production already taken, it will merely mean that the paper manufacturer who is not cared for, will find himself "up against it."

It is in chemical pulps where the effect of the German note the United States has been most visibly affected. While it would be unfair to say that this market had weakened during the past few weeks, it is known that the buying interest had materially lessened and one report of a sale at a shaded price was current. The German note altered the situation at once. Importers who had stock on dock, refused to consider any offers for their goods, believing that the situation would soon materialize to the extent where further importations would be impossible, or that they would not be attempted because of the unusual risk. Conditions are uncertain at the present time and are dependent upon the outcome of the diplomatic overtures which the United States will now make with

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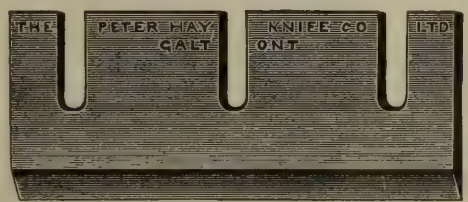
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Germany. It is a matter of interest, though of no importance, that Germany has actually declared wood pulp to be contraband of war. When this news became confirmed by the trade, it was not treated with any great amount of consideration. It is known that Germany is now using large quantities of Swedish pulp and, while it seems to be true that Germany has already "held up" one or two Scandinavian pulp boats, it is not believed that this will continue much longer. As a matter of fact, say some of the importers. Germany would be spiting herself without hurting her enemies. For, it is certain that Sweden would retaliate against any such measures and would probably curtail her supplies to the Teutons.

The domestic mills are working at capacity, and report that they have very little stock to offer, practically the entire production having been already contracted for. Acting in sympathy with the foreign pulp, domestic sulphites have gained some in strength. The case of krafts is worthy of particular note. At no time has there been a decrease in the demand for this commodity. Its consumption has been beyond any previous records and the indications are that it will continue in this fashion for some time.

Buying in rags is reported to be very moderate. According to the dealers, it is apparent that the mills are as cautious as they can be to avert any possible recurrence of the flurry of March, 1916. The rag men assert that they are all holding firmly to their quotations and, that while offerings are being freely made, none have been accepted at what might be called unusual shading. The confidence that the mills must soon come out into the market, because of the belief that they have not very much stock on hand, seems to be universal with the dealers who are "waiting low." It is understood that several dealers have been keeping considerable stock in storage. Good white shirt cuttings are still holding to about 10c; old white rags are quoted as high as 6c; street soiled whites, at 3¼c; house soiled whites, at 4c; thirds and blues, at 3½c; black stockings, at about 3c.

Bagging continues firm, with a slight upward tendency noted. This is caused chiefly by the fact that no foreign stock is coming in. A fair inquiry is reported from manufacturers and dealers are confident that the market will improve within the next few weeks. Gunny is selling at about 3¼c; bright bagging, at 3¼c.

Unsteady buying seems to be affecting old waste papers to some extent—that is, it has given it an uncertain air, although dealers are holding fairly well to prices. In fact, there are no efforts being made to dispose of stock, except at regular market quotations.

Some dealers claim to have foreseen this spasm of uncertainty, but believe that it cannot endure for any length of time. Now that there is a likelihood of having more trouble getting sulphite from abroad, it will undoubtedly react in favor of waste papers—so the dealers reckon. In any event, the high prices of pulps and the tendency of rags to go up is bound, it is thought, to keep waste papers looking upward. Hard white shavings continue in good demand and are, perhaps, stronger than any of the other grades. They are being held for prices ranging from 5½ to 7c, according to quality. Soft shavings, are quoted at 5¼c and higher; old magazines, at 2c and higher; ledger stock, at 3½c; old manilas, 1c and over 1¾c; old krafts, at about 3¾c. Old newspapers are fairly strong and in good demand. From the prices, it will be seen that the tendency is decidedly upward: overissue news, 1¼c and higher; mixed papers, 80c to 90c per hundred pounds.

Controversy is still in progress regarding the present state of the paper market. The jobbers are as loud as ever in their statements that they are over stocked and that they will not buy until more reasonable prices are quoted. At the same time, the mills are making no effort to force their goods. They are holding to prices and contenting themselves with taking care of old business. Material easing has been reported in news print. Apparently, the mills are more calm than they have been in some time—and the same may be said of the consumers. Various announcements have been made of lots of news print which are being offered for sale. A "free lance" makes the statement that some of the larger publishers who had been overzealous in getting stock, now find they have surpluses which they can spare and which are being offered on the market. The opinion is that this is only a temporary easing. Conditions in krafts and manilas continue firm, with a good demand still current. These lines seem to be among the most favored in the industry.

In fibers, little interest is being shown. Tissues are being held firmly by the manufacturers. Many jobbers state that they have lots to offer at less than mill prices. Boards are firm, with prices as high as ever.

New York Quotations.

(These are a nominal range of prices).

Ground Wood, f.o.b. Mill	$40.00
Foreign bleached sulphite, ex-dock, New York	10c and higher
Foreign easy bleaching sulphite, ex-dock, New York	6c and higher
Domestic bleached sulphite, f.o.b. pulp mill	8¼c and higher
Foreign unbleached sulphite, ex-dock, New York	5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic bleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Easy bleaching, f.o.b. pulp mill	6c and higher
Kraft pulp, f.o.b. pulp mill	6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5½c and higher
Foreign unbleached soda pulp, ex-dock, New York	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite,	12c and way up
Ledgers papers	13c and way up
News, contracts, f.o.b. mill	$3.10
News, spot lots	5c
Book, super,	9c and higher
Book, coated,	8c and higher
Tissues, good sulphite, bleached, per ream	$1.30
Tissues, ground wood, manila, per ream	$1.30
Kraft	9c and higher
Manila	7c and higher
News board, per ton, f.o.b. New York	$75.00
Straw board, per ton, f.o.b. New York	$65.00
Chip board, per ton, f.o.b. New York	$70.00

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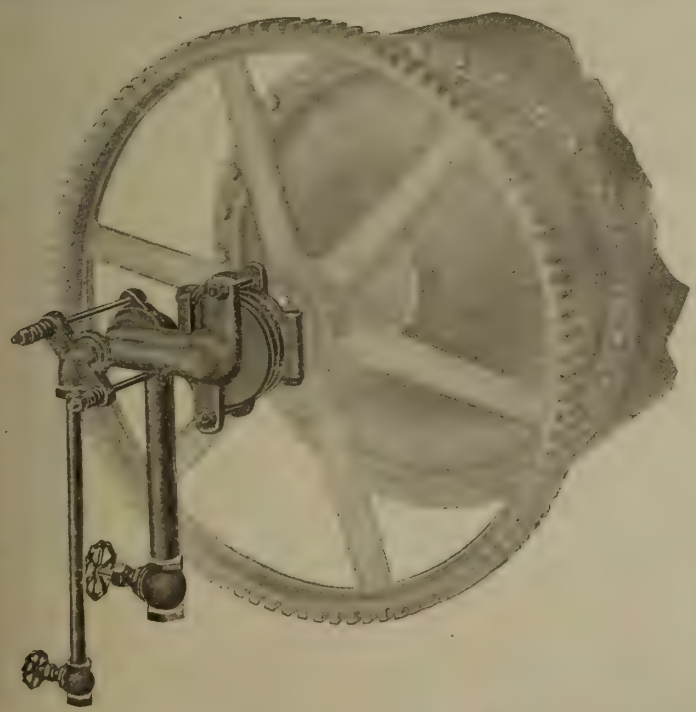
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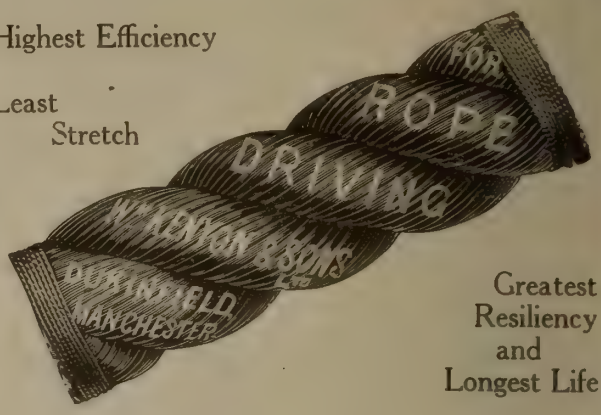
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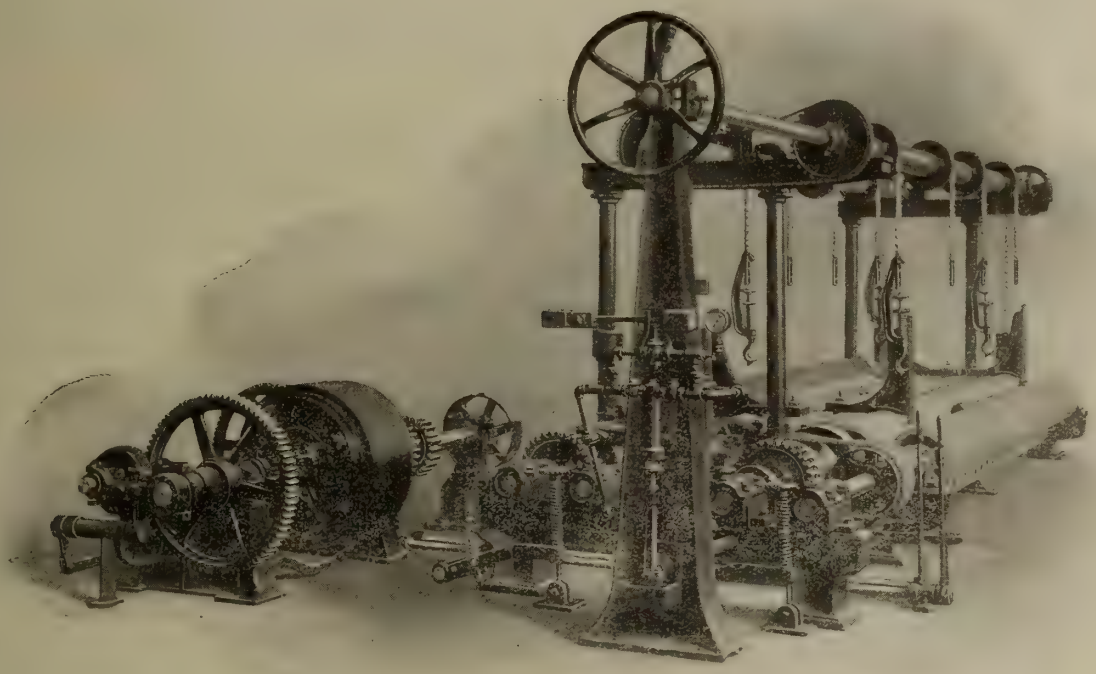
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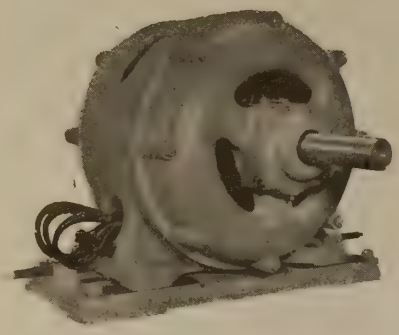
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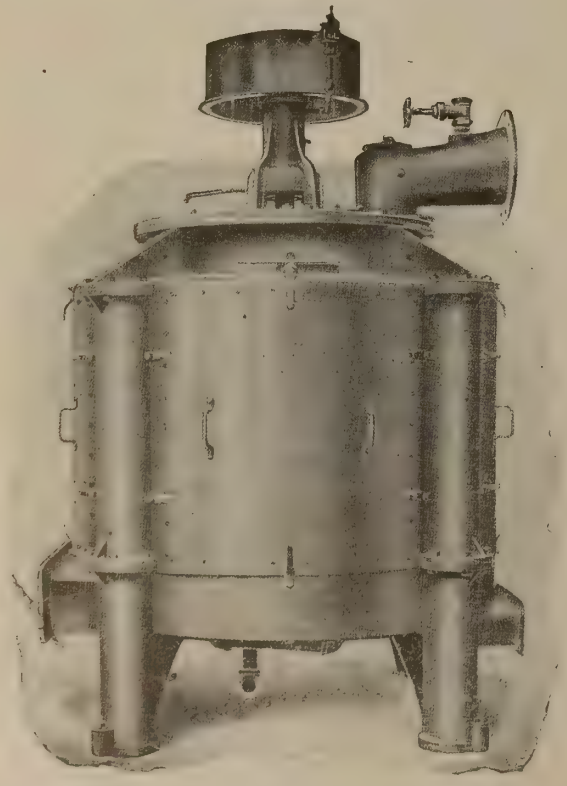
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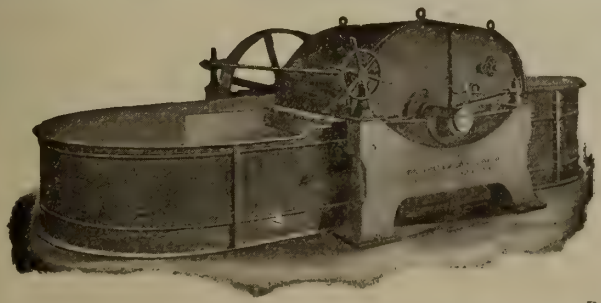
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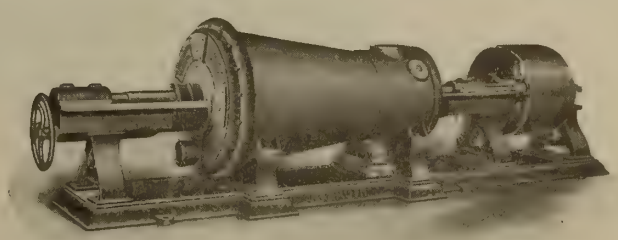
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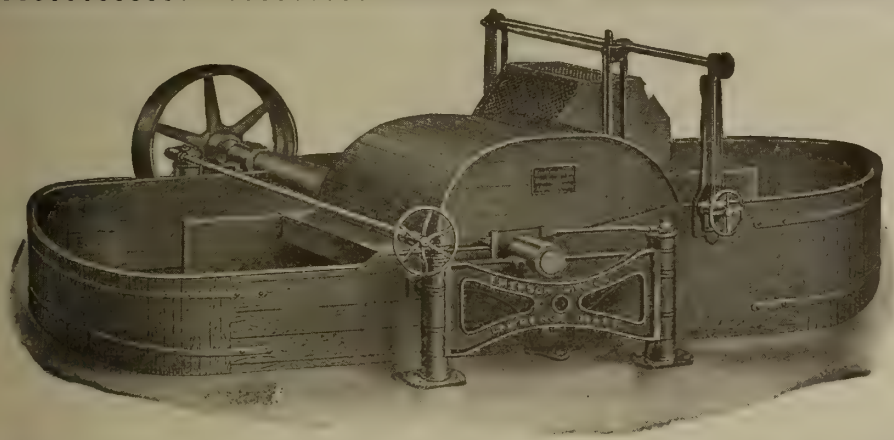
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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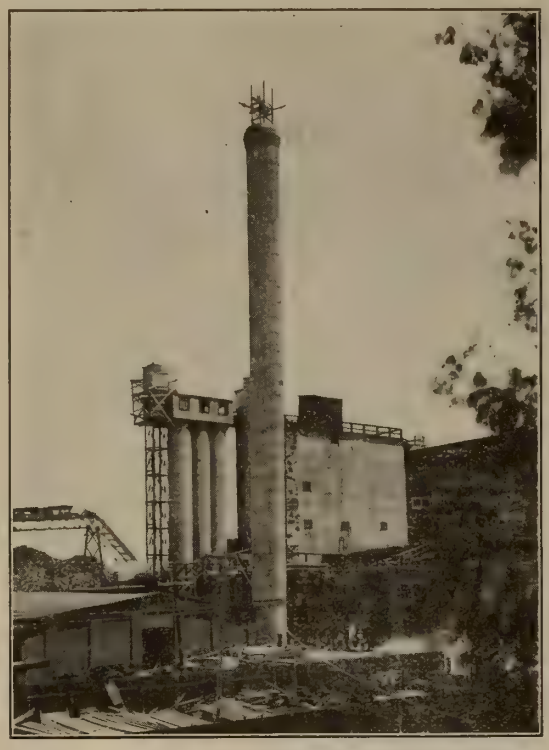
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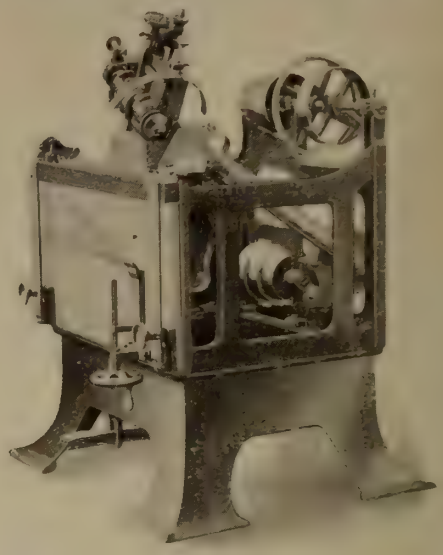
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EDITORIAL

SOME STILL SLEEP.

At the banquet of the American Paper and Pulp Association, Dr. Nehemiah Boynton explained the reason for the drowsy influence of a sermon that is read. He stated that the same words when used in conversation would have no such effect. The cause therefore must lie in the paper. There must be in paper a soporific element. In view of the prevalence of insomnia, Dr. Boynton proposed to organize a company to extract and market this powerful soporific.

While Dr. Boynton's proposition was made as a joke and was greatly enjoyed as such, there is a suggestion that his imagination may not have been stretched very much. If there ever was an industry with a tendency to sleep, it is the pulp and paper industry. We recall an instance, where a chemical engineer was called in to investigate conditions in a certain mill. A preliminary report showed that 17 per cent of the profits went down the river. Did the manager wake up and get busy? No. He discharged the human alarm clock and slumbered on.

Some people have done remarkable things in their sleep, but accidents to somnambulists are likewise numerous. Some papermakers, figuratively asleep, have done fairly well, perhaps because of an inherited instinct for the business, or because there were no puzzling turns in their particular line. But the paper maker who sleeps on his job now and is satisfied so long as raw materials come in at one end and a product comes out at the other will wake up some day to find that he is about a lap behind.

There are two pillars that need to be added to some mills, others need only one of them, namely, intelligence and education. This remark applies to the whole mill and the higher up the person the greater the need. We believe the era is beginning when public education will be more serviceable and more widely attainable. There are places where a more intelligent and better educated lot of workmen would be of no great benefit because the management would be unable to appreciate it. The paper and pulp industry, right now, needs scientific technical direction and this to be successful requires intelligent trained officials as well as better educated workmen.

CAPITALIZING CHARACTER.

The quality that costs the most is character. This is true whether one has reference to the spiritual or material. Each costs much to develope. To have a fine character, spiritually, means the spending of much patience, self-control, unselfishness, love, faith, self-sacrifice. This is the coin that buys the character of a firm as well as of an individual. A firm needs character to weather the storms when the going is rough and to clear the rocks when it is smooth sailing. A firm needs character to keep its product up to the mark when competition is keen and a little more profit might be obtained by cutting the quality. Character is also needed when the product is in such demand that one is tempted to be a bit careless of standards, knowing that "most anything will go."

The goods have character, too. There is probably no industry when this is so true as in the paper industry. One picks up a piece of bleached sulphite and its whiteness and purity almost speak. A piece of kraft pulp or paper—Brown? Yes,—but how strong and reliable it is! Then here is a piece of ledger paper, good rag stock. It has a sturdy, substantial feel, as if it were expecting some weighty words and ready to hold them for generations. Then again we have a sheet of note paper, just a little pink, to take off the coldness of a dead white. It has a finish that feels like a soft skin and almost speaks the tender words we read.

From the pile of letters on our desk a green messenger says, "See this thing I want to sell you," a golden-rod invoice shouts, "Hurry up and send me a check," while a linen finish, natural tint says, "Pardon me for intruding." Of course, we read in the paper the character of the user. It also bears the character of the maker. This is particularly so as regards strength, cleanness, formation and purity of color.

The character of the product reflects that of the mill organization, from the President down. It depends first on the executive whether the attitude of the men is "will that get by?" or "can we make it better?" It is not possible now to give the intimate personality to paper that was frequently stamped on hand made papers, but it is possible for a mill to in-

spire through its product the feeling that every effort has been made to produce a perfect article. To get this endeavor on the part of the workmen is not only possible, but it is being done. Its accomplishment means that the qualities of Christian character must be real forces in the make-up of each person in the mill.

The organization of such a body of workers presents a great problem as well as a large opportunity to the management of any mill. The payment of good wages is not the only obligation of a mill. A great trouble is that many people consider an obligation when they should be thinking of an opportunity. Many mills are now giving their employees much besides wages. They provide wash rooms, reading rooms, in some cases even club houses. The management has caught the idea of service which is the expression of character that is understood in all languages. And when the management serves and the employees serve, then the mill really serves, and an organization that is bound together by the common idea of service is sure to be strong.

It is gratifying to note the increasing number of pulp and paper mills that are determined to make their character count, to make it count in reliability and service. And in so doing, character will also count in profits.

FOREST PRODUCTS LEADS MANUFACTURES.

According to the postal census conducted by the Government last year, food products led all other departments of the country's activities in the value of the output with a total of $377,000,000. In a measure, however, that does not come under the category of manufactured goods. If the findings are confined to purely manufactured goods then the forests of the Dominion led in the value of the output. Timber, lumber, and manufactures thereof, including paper and printing, show a total valuation of $197,000,000, divided into $123,000,000 for timber and lumber, and $74,000,000 for paper and printing. Textiles are valued at $144,000,000, and iron and steel products at $119,000,000, leather and its finished products $71,000,000, liquors and beverages $35,000,000.

Much more is heard, for example, about our steel manufacturing than about our lumber and paper output. In a stock market sense infinitely more publicity is given to the doings of steel manufactures than to the activities of the paper makers, yet our forests and the products thereof are the biggest manufacturing assets we possess.

The Pulp and Paper Magazine has claimed all along that Canada is going to be the world's pulp and paper manufacturing centre, and the latest Government census bears out this contention in so far as Canada is concerned.

PAPER MAKERS HELP THEIR COUNTRY.

The Honor Roll, which was the very appropriate souvenir of the banquet of Canadian Pulp and Paper Association and is being sent to the home of each man on the list, contains the names of some 1,400 loyal men who have enlisted with the colors. This is a large percentage of the men in these industries. Still more men are going, but the mills make no complaint. They are going right along, doing the best they can, often in the face of great discouragement, largely on account of the labor situation.

Besides giving men, the mills are giving money. Among those mentioned in the Montreal contributors to the Red Cross and Patriotic Fund are Rolland Paper Co., Howard Smith, Paper Mills Co., J. C. Wilson Co., Riordon Pulp and Paper Co., and The Laurentide Co., whose subscriptions total more than $10,000. If these are average amounts, a large sum will be donated by the whole industry.

THE ROLL OF HONOUR.

A roll of honour, 24 x 36 inches, printed in five colors, was prepared as a souvenir for each one who attended the banquet of the Canadian Pulp and Paper Association. Anyone who was present and did not get a copy, or who left his on a table, should write to the secretary, as there were enough for each person to have one. Besides those given out at the banquet, each man who has enlisted from the industry, or his family, will receive a copy of the Roll of Honour.

LIEUT. KENNETH A. CAMPBELL KILLED.

Lieut. Kenneth Archibald Campbell, a member of the Campbell Lumber Co., Weymouth, N.S., was killed in action on January 23. He was the first of the Barcoldine line in the Black Watch since Napoleon's war in the Peninsula. He went over in August 1916 and in September joined the Black Watch on the Somme front.

Lieut. Campbell is one of the six sons of Mrs. D. Campbell referred to by President Smith at the Pulp and Paper Association banquet. All six have joined the colors in defense of the Empire. One of the boys, Colin P. Campbell won the military cross in the drive of last July. He was wounded four times.

DAILY PAPERS GAIN IN NUMBER.

Although it had been estimated by some people that as many as 800 newspapers in the United States had to suspend publication during 1916 because of inability to meet the high cost of production, the year's record as compiled by the 1917 American Newspaper Annual and Directory does not show it.

Indeed, it shows a surprisingly different result—that there are 347 more publications in the United States than there were at the beginning of 1916.

Canada suffered a falling off of 68.

The net result in the United States and Canada is that 1917 started with 279 more publications than did the previous year.

Of this gain, the daily papers of the United States furnished 20.

Canada's daily papers stayed stationary in number.

Some Problems For Canada When Peace Comes

BY THE RT. HON. SIR GEORGE E. FOSTER, K.C.M.G., M.P.

Minister of Trade and Commerce

(Speech delivered at the luncheon of the Canadian Pulp and Paper Association at the Ritz-Carlton Hotel, Montreal, January 31st, 1917).

The President: I have much pleasure to-day in introducing to you one whom I feel sure needs but very little introduction, namely, Sir George E. Foster, who has just returned from the Old Country.

Sir George, before he left Canada for Europe said that he would make an address at this luncheon on "Import Business," if at all possible, and notwithstanding that he has only returned on Monday last, he has kept his promise like the honorable man that he is.

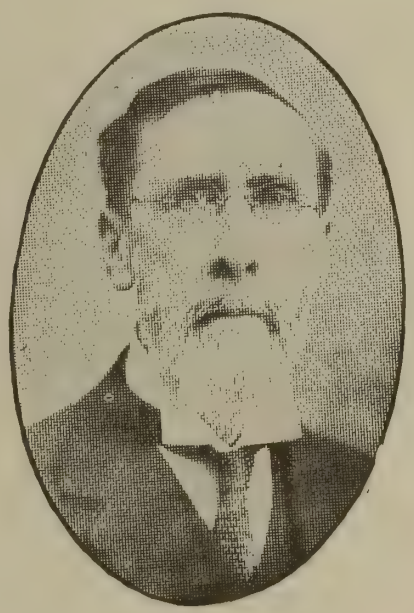
He will make us a speech to-day on the Export and Import conditions of Canada and the conditions of Europe to-day. (Applause).

Sir George E. Foster: Mr. President, Members of The Canadian Pulp and Paper Association and Gentlemen: It is the fact that I made a promise on the spur of the moment, with a good deal of time intervening between that and the period of its fulfillment. Promises are often very much more easily made when you do not take into account what may happen between the time you make the promise and the time you go to the fulfillment of that promise. However, there has always been a cardinal principle with me in my lifetime, to fulfill my promises on the public platform (hear, hear). I always have thought that that is the very least a speaker can do, to make his appearance when the people take the trouble to make their appearances, and that there is little short of criminality in disappointing an audience. Now, we can assume that sometimes an audience might not be very much disappointed if the speaker did not come (laughter), but the speaker dare not admit that, so we will leave that part as it goes.

I believe I am expected to speak about Trade after the War, and particularly export trade.

Well, I do not know that I have very much to say on that subject which would be new to you people who are continually engaged in the processes of production, a large part of which, as I understand it, goes outside the country of Canada. You are all practical men, men that are in business, captains of the industries so to speak, while I am an outsider, an onlooker, and I cannot be supposed to know nearly as much of commercial conditions as those who are in it, from a practical point of view, but there is a wonderful institution in human effort and endeavor. I mean a wonderful factor in it, and it may be briefly explained by two sentences: The first is that a man who expresses his opinion deepens his conviction in that opinion, and consequently is benefitted himself; and the other is, that hearing an opinion with which he is in sympathy expressed as believed in by another, also aids him and helps him to maintain his belief, and, worked out on the line of that principle is this: That ever since the world began it has been line upon line, precept upon precept; here a little; there a little; not because any man had a particular monopoly of the knowledge, but for the great purpose of stimulating and strengthening each other by the expression of feelings together, or sympathetically viewed by those to whom the speaker talks. So, though I am not a captain of industry as you are, there are some things that an outsider sees and may say which may be useful in its way and at different times.

When anyone asks me or when I ask anyone else, what are to be the trade currents, and activities after the war, a question is asked which is very difficult to answer, because we are not many of us gifted with the prophetic instinct, and most of us who have lived some time are wise enough not to attempt prophecy



SIR GEORGE E. FOSTER

until that event for which the prophecy is made, has very nearly transpired, when we may be considered safe to pass some remarks upon it.

It is, therefore, impossible for anybody to say with definiteness what the trade currents and activities will be after the war ceases. In the first place the war has not ceased. When the war commenced it was the genral supposition that if it lasted for six months it would be a very long war under modern conditions, and most of the people expected to see the war end in three or four months.

W are now going on toward the end of the third year of the war, and no man that I have ever met has been able to form or willing to express a definite idea as to how much longer this war may last. Therefore, gentlemen, it is impossible for us to tell; it is almost impossible for us to guess what will be the condition of the world, and of the nations engaged in the war when the war ceases. Two years and a half of this

war has accomplished the wonderful feat of the destruction of property and of life, and of accumulated finances — the most wonderful that has ever been known in the history of the world. Nearly three years of that has passed, and the world still struggles on under the burden, and is still going along. If it lasts another year, and still a year to the end of that, no man can tell what the condition of the world will be at the end of that time; nor how far its vital resources may have been weakened and impaired, or even actually destroyed. A man who has suffered from illness for three years and has had the drain upon his physical powers cannot tell what the effect will be if that illness were to continue in increased ratio for another year or another two years, and it is about the same with the world of nations. So that no man can give a definite idea at all as to what may be the trade conditions or the prospects of trade when this cruel war is over.

All is confused, and dislocated at the present time, and will remain so until the end of the war. Everything has to bend to the cause of the belligerents, and the necessity of the war, and normal business must be crowded out when it is necessary to crowd it out, in order that war business may be carried on to the limit of its necessity, but there are some things that are plain to see, and those are the ones I think upon which we can form some bases of consideration, and even of planning to a certain extent.

It is plain to see that the war will cease some of these days. That must be. It is a matter of necessity. It is plain to see that when it ceases there will be in the first place a very wide resumption of trade and productive activities along lines which are not being pursued now, and there will be almost an equal degree of shutting up and restrictions of lines of productions of businesses which are now necessitated by the war, so that on one hand you will cut off an almost incalculable amount of production and of business energy, and on the other hand you have got to readjust and bring back to normal conditions — to peace conditions — the activities and production which will balance, and even possibly over-reach the other. It is plain to see that when the war ceases there will be a tremendous readjustment all the world over—it will take place all over the world, whether nations are belligerent or are not, but it will more especially take place in and amongst the belligerent nations themselves. The difficulties that will surround that adjustment, the adaptation of labor and of capital, and of machinery and of productive energy in every respect, will be tremendous, and will furnish a problem which will tax the ingenuity and capabilities of every captain of industry and of every soldier who serves under that captain.

Now, to-day, it is the war we are to carry through (cheers). But in no country that I know of amongst the allied powers at least, is it allowed that the work of the war takes the whole of the mental and thoughtful and consideration of the people who are engaged in it. There is no country to-day which is making a greater effort, and co-operating more in respect to war production, than Great Britain, and there is no country to-day in which there is a larger amount of business thought and business consideration being given to what is going to take place when the war ceases and when peace commences.

I think that Canada is following in the same direction; not to the extent that she should, but she is following in that direction. Surely the business men of Canada are not simply drawing a hood over their eyes; they have all they can do for the present with war work, and therefore they are not considering at all what is to happen when the war ceases. They are not doing that. The temptation is to do that. The impulse is to do that, because men when they are devoted to their occupation like to give their whole energy to that, and not to burden themselves with something which may have to take place months, or even years hereafter, and I am convinced that in the Dominion of Canada the business men are not failing entirely to give consideration as to what will probably happen, and as to what will have to be done when the war ceases, and this tremendous amount of activity devoted to war purposes ceases to be devoted for that, and comes to ask on what point as an objective or objectives it is to work after the war is closed.

Then there will be this other thing which is as certain as that life goes on. Country after country has been threshed over by the flails of war, homes, houses, factories, cities, country sides, every part of these countries has been marched over and threshed over, and are to-day lying waste, but when war ceases, all those homes will have to be re-built; all those cities will have to be re-constructed; all those factories will haee to be replaced; all that constituted life and the abodes and shelters of life, and all those activities have got to be reconstructed, rebuilt, replaced and renewed. You may ask where the money will come from in Belgium, in Poland, in Serbia, and in a part of France. It is idle to ask that question. The people will be there; and the money some way will be forthcoming. (Cheers and applause). And the way will be found and quickly found to rebuild those countries. That is as certain as that you are here to-day. It is equally certain that these countries will be reconstructed and rebuilt. This opens up the field for wondrous co-operation, and for wondrous activity and Canada ought to be in that field, for two reasons. We fight for the Belgians cause, because the Belgian cause is our own; we fight for the Serbian cause because the Serbian cause is our own; ar we going to give up all our ideals, all our principles, all our actions, when war ceases, and refuse to lend a helping hand to reconstruct the countries for whose very existence we have helped to fight and in fighting for which many of our sons have died? That is what I want to drop into your minds, and I wish I could drop it in so that it would never get out. There are two sides to this matter; the side on which you make profit, and the side on which you do your part to rebuild the world. The man who forgets those things in his business is forgeting the best side of his business. He is confusing matters of materiality, and is learning the spiritual things which are some of the best factors and elements in properly constituted business life. So that not only is there a field for profit for business activity in reconstruction, but there is a call to go on doing the duty you have commenced in fighting for the cause of these people by helping to reconstruct and build up these countries after the war.

Then there is the third opening in this great field of future endeavor. After this war is over, no matter what countries are belligerents, there will take place,

I believe, a movement for development and extension which is probably inconceivable at the present time. An awful price to pay! But what this war has done, one of those bright things that mixes a little play upon the dark side of war such as the world has never seen is that it has absolutely taken men up out of their crusts; out of their customs; out of their generation's ways of thinking and acting, and has shaken them loose mentally, morally and physically. I firmly believe, gentlemen, that there never will have been such a reconstruction of ideas, of methods, of energies, and of activities in the world as will be seen in the ten years which succeed this war. You see classes forgotten, class distinction wiped out. Master and man are fighting side by side. One is no longer the master; the other is no longer the man. You have two men, and the virtue of their manhood is all that distinguishes them in the class. You can carry that out to the business activities and all other activities. The world has been shaken loose from the crust of old traditions, and society from top to bottom, socially, and intellectually, and spiritually, and in a business sense, will be modelled on different lines and will "carry on" from different bases and methods and opinions.

So, then, let us take Russia for instance.

After this war is over — Russia with its almost illimitable resources, a country far from being undeveloped, and with manhood power of 175,000,000 men to develop it. Russia after the war, will embark upon a period of extension and development which will be, I believe, unheard of and unthought of up to the present time. It is thus that the extension and development will take place in a great many of those nations, and in the undeveloped portions of the British Empire, with a great degree of opening for the activities of Canadian production and of Canadian business energy. Those, gentlemen, are things that you can bank upon. There are prospects and conditions and openings in future fields which will employ all the surplus energy and surplus productions in the fields of business for the best that is in Canada, and Canada will take advantage of it. (Hear, hear).

We will dismiss that with the idea that what I have said shows us that there will be no lack of opportunities when the war closes. Opportunity is the only thing that is absolutely necessary, but it is no good unless you fit yourselves for taking advantage of the opportunities.

I leave that for what it is worth, to pass on to another thought.

Canada is particularly well situated in geographical location to take advantage of these openings. Why? Because, sir, there is no country in the world of like dimensions which has larger natural resources than this great Dominion of Canada. That is a big word to say, but I do not say it simply because it sounds well. I say it because I have travelled over this country — almost every yard of it. I have examined probably as minutely as most men now in public life from year to year, and from decade to decade, and from the last trip that I have made in Canada with anything like that in view, I have widened by knowledge of the openings and the prospects of the almost illimitable resources that lie within the bounds of this great country.

Now, another good thought is that we have a mighty heritage, and it ought to make every man tremble when he views that heritage, and then take the reasonable view that he is proceeding to the measure of his ability ofr that heritage. That is the responsibility, not only for this country's development, certainly not for its rapid disappearance, but for its business development, and that is, it seems to me, conservation. (Hear!,hear). So that he makes what is a reasonable duty out of it in his day and generation, and leaves it better and richer for the generations that come after him. That is the spirit he should have, and which he should engraft into his sons and daughters and keep it for their sons and their daughters, down through every generation the generations which will make this country of Canada in the future one of the greatest countries of the world. Will he learn that lesson? The war has opened our eyes, and the war has made you and you see that there are bigger things in this life than a profit of ten per cent on your business capital invested, or a corresponding bank account, and your credit, and when you have left your bank account and have closed your office doors and have thrown your business to the winds, and have started on a long and perilous journey, and you have met difficulties every mile of the way, and at the end faced absolutely certain death—why? Not to make profit on your goods, not to build up a few garments of material worth, but because you had a soul, and a mind, and ideals, and a sense of right, and everything else was trash when it was pitted against that. Have you not learned that lesson? France is learning. Belgium has learned it. Britain is learning it. The Overseas Dominions are learning it, and I take it before this war is over that that is the lesson which will have embedded itself very deeply on the hearts and in the minds of all of the people in the British Empire. You cannot go outside of that. That must not be lost. This spirit of reasoning must be encouraged and we must learn to appreciate between that and the other side which is for the betterment and the advancement and the development of the country; and finally that in the times of peace we should put these same principles in operation and control ourselves in a business way, and do the same fine patriotic men's work for humanity and so drop the operation of this constant selfishness and wastefulness and suspicion that comes to us, and that we are to guard ourselves against every interest of our own, and learn the lesson that all interests are co-related, and that every man is a brother of every other man, every honest business is a brother of every other honest business, and that the whole family is complete when there is good will, co-ordination and the intelligent co-operation between the different forms of different activity.

Now, may be I am doing a little too much along the line of preaching, but it won't hurt you not the least bit. (Laughter). If I could make the tabloid a little more concentrated and give it with ten thousand times more force, I would do it, and I would not carry away any lowering of conscience that I had done you a wrong, or imperilled your existence.

Now let us come back to where we are. Now is the time when it will be a practical duty for business-men in this country to do their best to develop the resources of this country, and develop them wisely. Why? We don't know enough about the burden of war in Canada. You chaps around this table have had a square meal at this luncheon, and have had anything you wanted; you don't know anything about what it is to feel hollow inside because you could not get what you wanted. There is not a home in Canada

that bears the imprint of the cannon ball; there is not a foot of Canadian soil desecrated by an enemy. We are living in this great country, doing our duty here on a international frontier which is from three to four thousand miles long, while from three to four thousand miles from here, they are fighting continuously, and we are living here in perfect peace.

Contrast yourselves with the Belgian; with the Pole; with the Serb and with the French, and the others that are fighting near the front and thank God that you have been able to do your bit and to do your duty under such circumstances as have kept us intact and our great land untouched, but is there no thank offering to be placed on the alter for such conditions as that? Be sure you don't forget that, and when the Red Cross calls, lay a portion of your thank offering on the alter for its services, and when the Patriotic Fund calls, do the same, and when the call for help for any of those that been harrassed and hounded by the war, come to you, lay a portion of your thanks offering there. Then don't forget that we have got a country that has been preserved by these people for us, and deserves our utmost thanks and devotion, and your duty to your country is the best thank offering you can make.

The burdens of the war are not upon you as yet, but they will be placed upon you, and you will feel them. You cannot have the dance without you pay the piper, and you cannot have the war, and the glory of it, and the honor of it, without paying your share of the expenses of it, and the taxes, debts and obligations, future liabilities, are rolling up upon this little country of ours, with its population of less than eight millions, not yet realized nor realizable by us, but they have all got to be worked out. Don't let yourselves be chloroformed by looking at the trade returns. I had in my hand yesterday the latest returns prepared by my own Department. It is the trade of nineteen hundred and sixteen as compared with previous years. In brief it runs this way: Our imports last year were three hundred millions greater than the year before, and amounted to seven hundred and sixty-six million dollars; our exports were four hundred and seventy-seven millions greater than last year and amounted altogether to over one billion dollars. The greatest trade that ever Canada experienced, and the balance of trade is in our favor amounting to three hundred and twenty-five million dollars.

But don't be chloroformed by these figures. They are temporary. They are an actual revelation of facts, but they are revelations of temporary facts. Four hundred and forty millions of these exports were munitions of war mainly. When war ceases the accounts will change, and the immense exports of munitions will no longer figure to our distinguishment. We have got to do something else, in the way of production, and the only way we can pay our bills, carry our interest, meet our obligations, and keep our national work going is by protecting the production and still more production of the Dominion. That is a patriotic duty.

But I must hurry on. You can produce for your own country, and have it consumed here, and the more you produce for your own country and the more you consume here, the less you have to import, and it is of the greatest moment that for the years to come we import as little as possible consistent with our necessities, and to make the most we possibly can for our necessities in our own country, but by the trade you continue to contribute to, by the activities you put into the making of necessities for your own country, and which are disseminated and bought and sold in your own country, and doing all that is necessary, still we will add to the debt to the outside world which we had when war commenced, three-quarters of the debt we will have when war ends. We have got to carry that burden; pay these obligations as they mature, and there is only one way to do it, and that is, to make things that outside people will buy and pay you for, and to be thrify, economical and reasonably prudent in the conduct of our own lives and living expenses, and in the operation of the country's affairs themselves. It is only by producing for export, and by saving at home that we can make the money that is necessary to pay our obligations; carry our debts, and provide for the national work of our country (applause). So, it is a patriotic duty to produce and it is a patriotic duty to conserve, and it is a patriotic duty to produce more than for our own people, and to produce for the outside markets that which they will buy and pay for and which will bring in the returns which are absolutely necessary if we are going to keep ourselves solvent.

Now, I just leave that idea exactly as it is, but if we are going into the business of exporting, let us go into it with the appreciation of what it all means. We are young fellows in Canada; we have only eight millions of people, and we are going to live for a great many years in this country, and we make a mistake if we only look upon business as being an appurtenance of the individual or company to which the individual belongs, for the lifetime of your individuality or the lifetime of your company. We must have visions in this matter. It will take us generations to build up the export trade of Canada, but it will be built up as it must be built up if we are going to be a great nation, and we must not enter into it, with the idea that the individual prosperity is going to make an important success and make it immediately, or that the country is suddenly going to launch out in a great export trade. We must go on with the idea that it must be business an dthat it will take a long time to build the temple and that every year we, who are the workmen, can build some part of it that will eventually make it an indestructible stronghold which will endure for the benefit and permanence of Canadian nationality for all time to come. Don't get the idea that we can take an aeroplane and fly into the midst of an important export business, or that it can be accomplished without making a united effort for its success.

I just want to add three things, and I will mention them only and let you carry them with you to be worked out. The first is, that in order to have a great business of production, you must have an intelligent unit for the nation and educate the people. Uneducated people will never make a success of production and trade in the present era of the world's existence. The first thing for us to do is to come back to our homes and our schools, and our communities, and concern ourselves for a system of education for the people as a whole and to make them intelligent and enable them to adopt the mines of education best suited to the needs of the current times, and not to the days of the Greeks and the Romans and Philosophers who lived in a shady nook and taught their desciples in the open air. We have in these times a problem which the schools alone can help us to solve and we must adapt the sciences to that problem. But that does not mean that when we establish the schools, our work is done, but that system must be made expansive and

also kept modern in every way and up to the times. It is such a temptation to, having built the mould, lie down in it, and think that your work is done, when what you want to do and what you ought to do is to smash that mould and build a new and a better one, for the exigencies of the times. For instance, for a proper school system for the general education, and for intelligent and economical production, you need to call science to the aid of every productive industry. Are we doing that? Have we commenced it? I think we have done some of it, but we are not doing what we must do or what we can do.

The Government has lately taken this matter up from a new point of view and we have lauched a system for co-ordinating and stimulating and enlarging the alliance between the productive industries and the scientific resources. We have done this, not that the Government may have a feather in its cap; it does not add a cent to the Minister's salaries; it does not add anything to the salaries of the officers of the Government. It was done for the good of the production industry of this country and for you who are manufacturers in any line of industry. The Government looks to you for sympathy and financial aid to back it up and in getting into this industrial life the best researchers and the best researches that we can possibly get in this country; so that is one problem that is involving waste and economy and which involves the substitution of articles now thought to be of little value for those that are becoming scarce and of great value; which is continually on the lookout for something which may help the processes of production and finding them and giving them for useful purposes, and in this you can be of help because it is an adjunct of your own particular industry and work.

If we, as a country, are to become economical and intelligent producers, we have got to become educated up to that standard and have got to keep up the good work.

While there are a lot of other things I would like to speak of, there is just one more that I will mention in particular. Some of you men are big producers. You say, "I am quite able to walk in my own path; I don't want any particular help; I will pay for it when I want it; I don't want any particular co-operation; I am big enough to walk alone; I will attend my own industry in foreign countries." Well, there are some who can do that and do it well, and if there is one lesson that is being learned by this war and which will be accentuated after the war is over, it is that we have to have more intelligent co-operation in furnishing ordinary methods of mutual protection for the productive industries of Canada and in carrying out sales in foreign countries; we have to have a more intelligent organization and more efficient co-operation, if we are going to do the best for our country. I have stated that in a calm way, and I have just stated, it, and I cannot state anything more important if I would labor for hours and hours before you people.

The idea that Tom Jones with his little factory can go into Russia and do an export business with all that he has to meet in that country and do it through some intermediary or travelling salesman, will work out to utter unsuccess and utter failure. Some, however, may be able to represent themselves in foreign countries and do it thoroughly, but the lessons all teach us that if we as a nation are going into the foreign trade, we must combine; we must co-ordinate; we must organize; we must co-operate all the way through. You are the men who know what that means and you are the men to work that out and my duty is done when I simply point out the facts, and you will readily see that that is the truth and that those are the facts that we will have to take cognizance of, and which we will have to learn.

You have had the idea—and sometimes I have had it myself—that the German Government was the main thing that was behind and was the cause of the immense German development in production and trade for the last twenty-five years before the war. Study the system, and you will come to a different conclusion. You will come to this conclusion that the German did not sit back and put up a howl to the Government to find trade for him, and help him get and corrall it. Nine-tenths of their success in sending their trade to the remotest parts of the world in ever increasing streams during the last fifteen years of its commercial and productive activity was engineered by and founded by the businesses and productive interests themselves and through their far-sighted system of methods, co-operation, co-ordination and working together that they brought about this result, and no Government in the world—not even as good as Government in the world—not even as good as Government as you have in Ottawa today (laughter)—can get this trade. You are the ones who will do the biggest part of the business.

We can help. We are trying to help all we can, but it is the business men themselves who must work out the problems and bring it to a successful ending.

Now, I have tired you by keeping you too long (cries of "No, no"). but I will say just one more thing. I have to go myself. That was my excuse. I tried to put it off on you, but I am the sinner myself and have to get away.

If there is anything in what I have said that Canadian business is based upon her immense natural resources,—and there is everything in it—the corrolarly of that is absolutely plain. Don't kill the goose that lays the golden egg. These resources are many of them wasteable resources; that is, you cannot replace them after they are taken away. And in Canada in the past; in Canada now and in Canada in the future how much has been and will be allowed to go to waste and has been absolutely unnecessarily destroyed and eaten up, when science and knowledge and methods and organization would have made the material go twice as far as it has gone? (applause). That is, you have got to conserve these resources as well as work them.

There is no reason in the world, why in Canada for every bushel of wheat and pound of product that was taken from our farms the farms should not have been left in a better condition than it was before. Is there now? It is just a question of intelligible farming — of profitable farming. It is in knowing our resources to make them more valuable as time goes on, and the proper system of culture applied.

This applies also to our fisheries; it applies also to our forests. Now , I have struck a phase which you people understand — the forests. People living in Canada thousands of years from now will want wood and the products of wood just as badly as you do now. In a sense you are drawing the blood of every one of a

future generation in Canada when you misuse the forest resources of the country. Resources which are Canada's, and not yours, and during the period of trusteeship and occupancy the lesson is this — that no tree should be taken out of our forests where it wsa not provided that another tree was growing to take its place (hear; hear; and applause). Not one ton of pulp wood would be taken off the land of this country unless there was another ton coming to maturity to take its place in due time. It can all be done. Germany nearly every continental country in Europe has proved that. It can all be done and no intelligent man in the industry today can dispute that it can be done if forestry and forestry work is prosecuted under proper conditions and by proper conservation and preservation, using the things which are necessary for the present generation, but leaving it just as it was before.

So it is with our fisheries. For every fish taken out of our waters there is no reason why even three or four fish should not have been placed in the streams and be growing to maturity and under proper methods such will be the case, and I think we are taking the proper methods, and I think we will work them out. It is our wasteable resources that are in peril. The only thing you can do is to use them rationally. A man may own a coal mine in this country in fee simple. It may be the only coal mine in Canada, and it may be that the future generations of Canada ought to have and would like to have what comes from that coal mine — or a portion of it — a coal mine taking in all the coal resources of Canada, and I say that the man who owns that coal mine today has no more right to sell that coal mine, or to take out every pound of coal and export it than he has to smother all the future generations of Canada. Not a bit more right. It is by accident that he may have the nominal ownership of it, but it is a reserve bank of the country, and he has to use it in that sense, and if he does not use it in that way, he ought to be made to use it in that way, and if he does not use it in that way — or in some such way — the Government will very shortly compel him to so use it.

That is the only salvation for us. We have got these resources and we must look at the national aspect of them, as well as at the present personal aspect of business and of profit.

I think I have administered all the tabloid that is necessary today, and I thank you for your attention, (prolonged applause).

Mr. Chahoon: Mr. President and Gentlemen: I wish we could express to Sir George Foster our appreciation of his speech, but we cannot do that. He has given us a great deal to take home with us to remember and to think over this coming year.

I want to move a vote of thanks for his coming here and giving us this opportunity of hearing his speech (applause).

The President: It is moved by Mr. Chahoon and seconded by Mr. Taylor that it is the expression of this meeting that it give a vote of thanks to Sir George for his speech here today. I am sure that it is not necessary to put that question, but I would like you to show Sir George how unanimous it is.

(THE MOTION WAS CARRIED UNANIMOUSLY, AND WITH PROLONGED APPLAUSE.)

FOUR NEW OFFICERS FOR CANADIAN PULP AND PAPER ASSOCIATION.

At the annual meeting of the Canadian Pulp and Paper Association C. Howard Smith of the Howard Smith Paper Mills Co., was elected president. Mr. Smith, who was vice-president last year and acting president during Capt. Acer's absence, has been very energetic in the interest of the association.

F. H. Anson of the Abitibi Power and Paper Co. is the new vice-president, an able representative from the news print makers.



C. HOWARD SMITH,
President of Canadian Pulp and Paper Association for 1917.

A. L. Dawe, formerly of the Federal Paper Co., is the secretary-treasurer. The Association has laid out a program of constructive statistical work that will keep Mr. Dawe busy and will be of great benefit to the whole industry.

The executive committee consists of the officers mentioned, and the chairmen of the various sections. F. J. Campbell of the Canadian Paper Co., takes the place of I. H. Weldon as chairman of the Book and Writing Section, with R. S. Waldie of the Toronto Paper Manufacturing Co. as vice-chairman.

Important changes in the by-laws and dues of the association were also voted on at the meeting.

E. H. Backus, President of the Minnesota and Ontario Paper Company, at Fort Frances, Ont., stated recently to Western Canadian publishers that the increasing inaccessibility of pulp limits from the mills is making paper dearer.

Forestry and Forest Wood Products for Pulp

By MARTIN L. GRIFFIN,
Oxford Paper Co., Rumford, Maine.

Studies in efficiency have come to be the rule, and no longer the exception. Society, with its rapid growth in population, science and industry, is obligated to pass along a record of worthy achievements and to use nature's resources in a way which shall not impoverish the future. These resources possess, in some degree, an intrinsic and a relative value. The minerals of the earth, containing gold, silver, copper, iron, also coal and petroleum, possess a great direct value in themselves. The taking of these from the earth depletes the supply, but exerts no influence on climate, rainfall, stream flowage, or the healthfulness of the locality. How different in value are the resources of the earth's surface, the forest, lake and stream and the harvest of agriculture. These possess not only intrinsic values, but often their related values are much greater. Cities are built upon the banks of rivers for their immediate beauty and utility, but their value in water power to commerce is greater. Our forests possess great wealth in the value of their woods, but if these same forests conserve rainfall and stream flowage, and their destruction causes floods, drought and desert places, what additional value must we give them? There is therefore a much greater obligation laid by society upon those who control the wealth of our forests and streams. Governments recognize these extensive rights on rivers. One community cannot pollute or withdraw the water to the injury of another. What compensation therefore should be made by those interests which take the forests for the value of their wood, regardless of the consequences?

Two propositions are of paramount importance in this connection. First—The planting, cultivation and harvesting of the wood should receive the same serious attention as the staple crops in agriculture. Second—This harvest of forest growth should be studied and handled with a higher degree of intelligence and efficiency than it has been, with a view to obtaining its whole value.

Raw products, whether natural or manufactured, can be greatly enhanced in value by sorting, grading and standardizing. This process of refinement classifies materials which are, to a greater degree, alike in form and composition; any subsequent treatment of the classified grades can be taken up with greater economy and improved results. Values are lost because of impurities, for lack of intelligent means of refinement. The same is true when impurities are dominant. Old mines have been reworked on a profitable basis. Culm bankks have been worked over, and furnaces adapted to burn these small sizes of anthracite with great savings. We are still pursuing the ultimate values in coal and crude petroleum by more scientific treatment. In our effort to secure the greatest values from the forest trees, we may draw some inspiration from the efficient development of the great packing house corporations, when, practically every part of the animal carcass is converted into useful products.

The harvesting of wood products must soon be viewed in the light of present conditions. In the early days of the use of wood for pulp, the mills were located near the supply, or on the rivers tributary to them. It was sufficient to cut the tree and float the log to the mill, where slabbing or rossing, and other wasteful methods were employed to prepare the wood for the pulping process. It has been taken for granted that there was no way to lessen stumpage losses and to make a more economical use of the smaller sizes and limbs, and top of the tree. Losses in rossing, sawdust and screenings of both chips and pulp at the mill have been taken as a matter of course. The obtaining of the wood supply and its preparation have been treated as a part of the management of the mill, as if it required no special training or experience. With the receding supply and the increase in size of the mills, they have been forced to delegate a part of this work to contractors. The day of the small wood pulp mill is giving place to the large corporation organized with various important divisions, one of which must be forestry and the harvesting of wood products. To begin with, these corporations must acquire an existing stand of timber and perhaps a contiguous territory for reforesting and proceed at once with a rational treatment of them to perpetuate the supply. These limits should be selected, so far as possible, in large areas, suited to a natural and rapid growth of the species desired, and with a view to economy in treatment and cost of transportation of the products. To the cost of harvesting the present stand, must be added a sum which will reproduce an equal quantity of wood in due course. Systematic forestry must soon become the foundation stone of our great print paper industry; there is no escape from it, and there is no more opportune time to begin to prepare for it. Let it be fully understood that this undertaking must be placed in the hands of men trained and experienced in it. It will require as high a degree of intelligence and skill as it takes to operate the pulp and paper mill. The mill superintendent is no more fitted for forestry than a trained forester is fitted to beat stock or run a paper machine.

Having now indicated the importance of systematic forestry, and how the subject should be viewed as a permanent source of supply of wood products, we will pass on to the second phase of the subject: The harvest of the forest growth in products of wood.

These products will be manufactured at the forest source, only to such an extent as to be able to grade, classify and prepare or pack for economical transportation to the mill or market. The machinery and appliances to do this work must, generally speaking, be of the light temporary, "knock down" type, which can be moved from place to place, or in some cases partially abandoned.

The small portable saw mill is a convenient illustration. Roads and sources of power should have a good degree of permanency.

At this point let us discuss the unit basis of values for wood products other than dimension lumber. What

shall be the rational and practical unit of measurement for wood products to be made into pulp and paper. We would not think of buying and selling paper by the cubic foot, but it would be much more rational than the practice of buying the raw material of varying quality by the cord. The cord unit has come down to us as the measure of fire wood when wood had very little other use. The factors influencing the volume of solid wood in the cord have been known and discussed for many years, but custom is so strong and the fact that wood has usually been cut in dimensions to be corded up, and that no better standard has been made available, the cord unit has persisted. We shall come to see that, with the exception of wood for ground pulp, the chip form of wood and a unit of volume and weight are more rational instruments for valuing and dealing in wood for pulp and paper making.

In the discussion of the ultimate economical wood products to be derived from forest growth, we will limit ourselves to those species commonly used for pulp and paper. Our endeavor will be to put as little labor as possible into the products and to carry the processes only so far as to utilize, classify and standardize products of wood from the tree, and to put them into merchantable shape for transportation. We shall attempt to make those products which lie normally close to nature at their source and are adapted to further processing in well established industries.

First and foremost the two main products will be either clean wood in suitable wood pulp; or second, clean chips of recognized quality for transportation and manufacture into chemical pulp. Only the large size parts of the tree can be used for the first product while all parts, including tops and limbs, so far as they can be handled economically, may be converted into chips for the other principal product.

Many important advantages and economics will be secured, both to the producer and user of wood for chemical pulp by this conversion. Mechanically, this chip product is graded and standardized. A unit either of volume or weight, or volume and weight may be established easily, so that the purchaser may know definitely what quantity he is buying. The chip form of wood permits of artificial drying, when desirable, to save transportation costs. It has been proven practicable to compress chips into the same volume that the wood occupied in the cord dimension, and bale it securely.

In order to deal effectively with the parts of the tree of small dimensions, after it has been felled and its branches stripped of twigs and foliage, light portable saws and conveyors should follow on the heels of the choppers, and cut up the branches into small blocks a few inches in length. At the delivery end of the conveyor, the sawdust should be separated from the wood, while the blocks would pass directly to a wet tumbler to remove the bark. Thence, it would pass to a light chipper and be reduced to chip form, and finally dried and baled for shipment. The continuous tumbler, or barking drum, should be used for removing the bark from all cases of wood, and, where the bark contains valuable soluble extractive matter as tannin, the water should be strained and pumped around until a high degree of concentration of the valuable extract has been reached, when it may be piped to an evaporator and brought to commercial strength. This feature of the process may be made continuous.

It has been proven that the bark can be used in conjunction with a strong coarse fibre to make a wood board suitable for many uses. After coming from the tumbler, it may be pressed into bundles or brought to its final state at once. The latter is much more practicable where the plant has some degree of permanency, as the material in crude form will not bear much expense, and whatever labor and expense is put upon it should not be lost in the process to its final form.

The sawdust resulting from the sawing and chipping should be gathered, and screened to graded sizes, and given such treatment as will fit it for the many uses to which it is adapted. Among such uses are, the manufacture of artificial wood and plastic compositions, the manufacture of blasting powders, in the clay-working industries for making porous tiles, as a packing material, and for wood flour and pulp. The machinery for screening, drying and grinding is very simple.

Finally, the sawdust should be compressed and baled securely, in burlap, for shipment.

Slivers and shreds from the various processes should be collected and pulped up by a mechanical wet process, and mixed with the bark pulp in the process of making box lumber.

In our treatment of forest trees suitable for the pulp and paper industry, we have accounted for the entire tree, except the roots, twigs and foliage. From it, we have shown practical products of wood ready for the pulp grinder and digesters, box lumber from bark and slivers, various sawdust products and merchantable tannin extract, and how all of these may be packed for transportation.

Regarding the source of power for these operations, plans should include a source of electrical power which will be found very practical. Where steam is required for drying and evaporating, a steam plant of size suitable for the work to be performed may be installed to furnish power. Whether coal or waste wood shall be used as fuel will depend upon the cost of coal and the value of the wood products sacrificed to furnish fuel. I believe however, that values in these waste wood products can be created which will considerably exceed their fuel value when compared with coal.

The history of the manufacture of pulp and paper from wood is practically all comprised within the last thirty years. We have witnessed a phenomenal growth in the manufacture and uses to which paper may be put. We have observed the saw mill giving place to the pulp mill, and the receding and vanishing boundaries of the forests disappearing altogether. Persistent search has been made for other sources of raw materials as substitutes for wood and a good quality of paper can be made from the waste of several plants of annual growth, but none of these can compete in any sense with wood as a source of paper pulp.

Insurance is protection against that day of doom which will one day overtake us. We recognize that "preparedness" is insurance of government, and national existence; conservation and efficiency the safeguards of our natural resources; compensation for the individual against accident and loss of life. In these prosperous times we should insure to ourselves the great and lasting benefits the forests and streams give us, by energetic and prompt action toward reforestation and a more rational and efficient harvesting of the wood. There will be no more opportune time than the present to begin this great work.

MEETING OF THE CANADIAN PULP AND PAPER ASSOCIATION, HELD IN THE VICE-REGAL SUITE, RITZ-CARLTON HOTEL, MONTREAL, WEDNESDAY MORNING, JANUARY 31, 1917, AT 10.30 A.M.

(Continued from February 1st issue).

Following report on TRAFFIC MATTERS, Mr. Huff added the following remarks: I might say just a word in closing as to the impossibility of releasing equipment. I do not think that the pulp and paper industry of to-day are responsible to any degree for the existing car shortage, but every little helps or harms, and I think that every mill and every shipper and every consignee should make it a point to release his equipment as quickly as possible, no matter how much free time he has at his disposal. If a mill, or shipper, or consignee has forty-eight or seventy-two free hours, if he could unload in twelve hours, it is to his interest and the interests of the public in general to release his equipment in twelve hours, and thus getting away from the onus of any responsibility for this condition of affairs. I don't think there are any mills that are deliberately delaying cars, either inbound or outbound, but I hope they will impress upon their yard staff in every case the absolute gravity of the situation. (Applause).

The President: I am sure it is to everybody's interest to take the remarks of Mr. Huff very much to heart.

Mr. T. J. Stevenson: Before we leave Mr. Huff's report, would you allow me to say a word?

The President: Go ahead.

Mr. Stevenson: I think the car question is such a vastly important one at the moment, and, from what Mr. Huff says, for the future, that it would be in the interest of the Association to have the President appoint a Committee of, say, three, to look into Mr. Huff's report, and ascertain what steps can be taken by the Association in bettering the car service for our important industry.

This is a question that has become a serious factor with every mill owner in the country, and I think it is of sufficient importance to warrant the appointment of a committee to dig deeply into the question and make a report as to what steps the Association should take.

The President: I think that is something that should be taken up by the incoming executive, and I would suggest that they look into the matter as soon as they take office. Will that be satisfactory, Mr. Stevenson?

Mr. Stevenson: Quite satisfactory, Mr. President.

(To be continued in our next issue).

REPORT OF NEWS SECTION.

By A. G. CAMPION, Chairman.

Mr. President and Gentlemen:

In attempting to make a report on the News Division for this meeting, I find it somewhat hard to have it contain anything new, because bulletins of current events have been made and sent to each Member of our Section during the current year; therefore this report can hardly be anything more than a review.

The condition of the Newsprint Manufacturers seems to be unchanged regarding increased business. Every Mill appears to be overfilled with tonnage, and orders and contracts are having to be turned down because of our inability to fill them. In almost every instance in the renewing of contracts for 1917, we have had to restrict the tonnage to last year's basis, being unable to consider the extra tonnage invariably asked for by the individual publishers.

I figure our Canadian production of News Print, east of the Rockies, is about 2,000 tons per day, say 620,000 tons yearly. The Canadian consumption is about 390 tons per day, or 120,000 tons per year. The Canadian consumption is therefore about 19% of the total Canadian production. Roll news business in Canada represents about 95%, and the sheet business about 5% of the Canadian consumption.

The foregoing figures show a tonnage of 500,000 tons per year to be exported. Of this, I figure about 420,000 tons, equalling 84%, goes into the United States market, leaving about 80,000 tons per year, or 16% of the surplus for export to overseas markets.

The range of prices has been exceedingly irregular and unsatisfactory during the past year, which was an abnormal year from all angles of the news print industry. The markets were I think the most erratic in probably the past thirty years, more so than during the periods of either the South African or Spanish American Campaigns.

Costs of raw materials and all supplies increased in such proportions as to have made the year 1916 a very unsatisfactory and unprofitable one for the News Print Manufacturers.

In the early months of the year, we had complaints from several members as to the opening of cars at U.S. border points, evidently for the purpose of taking samples by Customs Officials. This sampling was very carelessly done, and resulted in considerable damage to the rolls sampled, also much paper sustained weather damage because of the door-ways of cars being unprotected when being reclosed. The Association took this up with the Customs Officials at various points, which resulted in the practice being generally discontinued.

In the months of May and June a series of meetings between Canadian Paper Manufacturers, United States Paper Manufacturers and United States Machine Wire Manufacturers were held, in connection with the acute shortage of Fourdrinier Wires at Canadian Mills. These Conferences resulted in a very generous assurance being given by the Wire Manufacturers that they would do their utmost to provide the Canadian Paper Manufacturers with sufficient Wires necessary to keep their mills going, and if possible to avoid any shut down.

In the month of May it was necessary to obtain opinion as to the actual basis of value at which news print paper is assessable for duty into the United States market. The best authorities obtainable gave their opinion that the proper basis of value is the current wholesale market value for domestic consumption of the commodity in the country from which it is exported, and at the time of exportation, irrespective of any contracts current at such time. It was also regarded that a carload constituted a wholesale quantity; a 5 ton lot would probably represent a wholesale quantity; lesser quantities could not be considered as wholesale.

In July we had some correspondence with the Department of Trade and Commerce, regarding the possibility of extending our export business in British Dominions Overseas. This matter could not be pursued to any satisfactory conclusion, because of the inability of Canadian Newsprint Manufacturers to

supply any additional tonnage for such Overseas business, every mill being more than overfilled with their current obligations in Canada, United States and other markets.

In August we had occasion to draw the attention of our Members that hard sized papers, for box-linings, for scribblers and counter check books; light and heavy weight printings, half-tone papers, etc., were being shipped and described as news print. The attention of our Members was specially drawn to the necessity of properly describing these different grades of paper.

On September 8th, the United States Congress passed the Income Tax Bill, which provided for a change in the Tariff Laws on news print paper, to the effect that so long as news print paper is sold in Canada at less than 5 cents per pound, there will be no duty into the United States. Such law became effective immediately.

On October 6th, Sir Thomas White, Minister of Finance, called the Newsprint Manufacturers to wait upon him at Ottawa, and to confer with the Canadian Publishers regarding prices of news print paper to Canadian consumers on their 1917 contracts. The manufacturers and the publishers each named a committee to represent them at further conferences. Meetings have been held at various times since then, and the Government's attitude in the matter is probably now known to us all.

Regarding the outlook for 1917, I feel that every mill is going to be very fully occupied, notwithstanding there is almost certain to be a considerable curtailment in the consumption of paper on this Continent, when the 1917 contracts become effective.

I feel that the activities of the association during the past year have been of great benefit, and I would urge every member to give the various divisions with which they are associated, their undivided support during the ensuing year. By so doing, I am sure that the association can extend its field of usefulness very materially.

Respectfully submitted,

A. G. CAMPION.

REPORT OF BOOK AND WRITING SECTION.

Mr. President and Gentlemen:

The book and writing section has been working under very similar conditions to those of the other sections of this Association.

During the past twelve months, the mills engaged in the manufacture of book and writing paper have been extremely busy, and have experienced difficulty in satisfactorily serving the requirements of the trade. We have, however, met with splendid co-operation from our customers, who have realized the abnormal conditions and met us fairly in both prices and deliveries. We have had a few complaints from the smaller buyers of paper who have not kept themselves posted on the conditions at this time.

The problem of obtaining supplies of raw materials, the shortage of coal, the various embargoes which made our transportation so uncertain and our labor which has been very changeable, have all been very trying.

During the past year we have adopted Trade Customs covering the sale of our product, which have been of great service to ourselves as well as the Jobbing Trade.

We have approved of the plan proposed for the revision of the classification of imports among the different grades of paper included in this section. This matter is now receiving the consideration of the Minister of Finance.

All the members of this section have become shareholders of the Export Association of Canada, and through a committee are obtaining and tabulating all inquiries from foreign markets such as might be handed to the different mills. This information, we think, will be of benefit at a time when any of the mills are able to export any of their surplus.

Owing to the congested condition of the foundries and machine shops, making the delivery of machinery, very uncertain and to the abnormal prices of machinery, the mills have been discouraged from installing additional equipment. The only increased production which I can report that we will have in the near future is one 84-in. machine, with a capacity of about twelve tons daily.

The prospects of the sale of our product for the coming year appears very encouraging, as our customers, both publishers and printers, report that their requirements for 1917 will be far greater than in the past year. This is also true of the publishers of catalogues.

Respectfully submitted,

I. H. WELDON, Chairman.

(To be continued).

NEW WAYAGAMACK HEAD.

After the annual meeting on Tuesday of the Wayagamack Pulp and Paper Co. it was announced that Mr. J. N. Greenshields, K.C., had retired from the presidency. He is succeeded by Mr. C. R. Whitehead, formerly vice-president, Mr. J. W. Pyke was elected first vice-president and Alex. Pringle second vice-president.

Mr. Greenshields remains on the board as a director. He was the founder of the enterprise and courageously stood by it in its early days when the difficulties were many and the prospect of reward anything but what it is today. The new financial group which bought into the company last year apparently agreed, on the desirability of a resident president. Mr. Whitehead, residing at Three Rivers and having a technical knowledge of paper making, was, therefore, the natural choice of the board. The board as elected yesterday is:

President, C. R. Whitehead; first vice-president, J. W. Pyke; second vice-president, Alex. Pringle; J. N. Greenshields, K.C.; G. H. Duggan, Hugh Mackay, Sir William Price, Alex. McLaren and Henning Helin.

SOME FINE PAPERS.

The editor received last week a book containing samples of the fine book papers made by the Ticonderoga Paper Company. This mill was recently acquired by the Riordon Pulp and Paper Co. From the quality of the samples we wish the mill were on this side of the line. The book is made up of four sheets each of several weights in white, natural and India tints, showing their principal grades and finishes.

The first sheet of each set is printed as a demonstration and the other three are to be torn out and used as test sheets. Larger sizes will be sent on request. If seeing is believing one has every chance to see just what can be done with Ticonderoga book papers and a proper selection made for each job on the basis of an actual test.

Annual Convention of The American Paper and Pulp Association

(Special to Pulp and Paper Magazine by R. W. Jolly).

New York, February 9th.

"Confidence"—"Determination" was the key note of the pronounced success of the fortieth annual convention of the American Paper and Pulp Association held in this city during the past few days. Never before in the forty years of annual gathering were so many paper men gathered together at one time in that great old hostelery—The Waldorf-Astoria.

Presidents — Vice-Presidents — Treasurers—Secretaries—and even superintendents of paper and pulp mills were there this year. From early Monday morning until late Thursday afternoon they swarmed the lobby—a big percentage of them endeavoring to secure accommodations at the hotel in order that they may, like the bicycle fans in the famous six day races at the Madison Square Garden, be on the spot at all hours and never see the light of day. Few were successful but many were not. Editor Stephenson was foresighted enough to anticipate the rush and though he did not arrive until Thursday morning he was comfortably cared for. However, Ex-editor Campbell, who, by the way has just been appointed secretary to Carl Riordon, president of the Riordon Pulp and Paper Company expected to walk into New York and immediately secure A-1 accommodations — I mean sleeping. After telephoning a dozen or more hotels the best he could do was the "St. Denis" — A commercial travellers "place" once renowned — but long since. When informed of his selection, I, your correspondent, took the matter in hand. Maury Freeman, Secretary of the Mechanical and Chemical Pulp Division, was the first one I saw. "Maury", says I, "you live in the city and have a room here and I want it for our mutual friend Roy Campbell who has got to put up at the St. Denis." Freeman would never hear of a good friend staying at that place so willingly agreed to trolley home that night.

Many such stories could be told, but to get back to the convention.

The round table, or divisional meetings began Monday morning when the Wall Paper Manufacturers' Association and the Glassine and Greaseproof paper men convened at ten o'clock. Several interesting papers were read at these meetings, but the most important happening was the resolution to make a separate organization of the Glassine and Greaseproof men. This, however, was not effected, and future attempts to create such a section into a definite division was placed in the hands of Secretary Naylor for endorsement.

The Crepe Tissue manufacturers also held a meeting on Monday to discuss the advisability of forming a separate section. No action, however, was taken.

The convention really began on Tuesday when the Board Division held forth. This was followed by the annual meeting of the Glazed and Fancy Paper Manufacturers' Association and the Tissue Manufacturers Division. E. H. Naylor was re-elected secretary of this division for another year and quite a number of vital matters to the industry were discussed.

The Technical Association convened at ten o'clock Tuesday morning but the meeting was adjourned until the afternoon because so many of the members could not be present on account of the weather conditions.

Other meetings on Tuesday were: The Gummed Paper Manufactures, The Paper and Pulp Section of the National Council, The Converters Division of the Tissue Paper Manufacturers Association and the Traffic Advisory Board.

The largest and most successful meeting of the convention was held Wednesday morning by the members of the Mechanical and Chemical Pulp Division. Several very interesting papers were read at this meeting and subjects of most vital interest to paper manufacturers were discussed; after which Frank L. Moore, ex-president of the parent association and president of several paper corporations of northern New York, was elected chairman and Maury L. Freeman re-elected Secretary.

Another interesting divisional meeting was held Wednesday afternoon by the Wrapping Paper Manufacturers' Association. Reports were read by the executive committee which treated with the many problems that must be overcome by the members and the advance that has been made during the past year.

The following members were elected to serve as the executive committee during the ensuing year: George W. Sisson, Jr., president of the Racquette River Paper Company, Potsdam, N. Y.; Henry W. Stokes, president of the York Haven Paper Company, York Haven, Pa.; L. E. Nash, of Port Edwards, Wis.; W. L. Davis, of the Dells Paper and Pulp Company, Eau Claire, Wis. H. H. Bishop was re-elected secretary-treasurer and A. J. Stewartson his assistant.

Many problems that are facing the fine paper manufacturers were thrashed out at the annual meeting on the same day of the Writing Paper Division. Reports submitted reflected the growth of the industry during 1916.

James G. Taylor, president of the Taylor-Logan Company, paper makers, of Holyoke, Mass., was re-elected president of the Writing Paper Division. The other officers for the ensuing year who were elected are: Franklin Weston, president of the Bryan Weston Company, was elected first vice-president in place of W. Z. Stuart, treasurer and general manager of the Neenah Paper Company, of Neenah, Wis.; Norman W. Wilson, of the Hammermill Paper Company, Erie, Pa., was re-elected second vice-president, while E. H. Naylor was re-elected secretary-treasurer of the association. Mr. Naylor has served as secretary-treasurer of the association since the foundation of the organization several years ago.

Along with Mr. Taylor, Mr. Weston and Mr. Wilson, R. F. McElwain, vice-president of the Crocker-McElwain Paper Company, of Holyoke, Mass.; Albert C. Gilbert, treasurer of the Gilbert, treasurer of the Gilbert Paper Company, of Menasha, Wis.; Thomas Becket, president of the Becket Paper Company, of Hamilton, Ohio, and E. R. Ayer are to serve on the executive committee of the association.

The Technical Association held its general session on Wednesday at which Arthur B, Daniels, president of the American Pulp and Paper Association made the address of welcome. After Secretary T. J. Keenan made his report the following business was conducted:

Report of executive committee by W. G. MacNaughton, vice-president.

Report of the secretary-treasurer by Thomas J. Keenan.

Appointment of auditing committee.

Appointment of nominating committee for officers to serve during the ensuing year.

Appointment of other committees.

W. G. MacNaughton presided at the afternoon session of this section when papers were presented by A. B. Green, of D. S. Warren & Co., Cumberland Mills, Maine; Professors Alfred H. White and John D. Rue, both of the University of Michigan, Ann Harbor, Mich.; Otto Schutz, of the Badische Company, N.Y.; Otto Kress, Sidney D. Lunak and Philip Silverstein, of the Forest Products Laboratory, Madison, Wis.

Members of the Technical Section held their final session Thursday morning at 10 o'clock in the Astor Gallery and continuing until late in the afternoon. The following officers were elected: President, William G. MacNaughton, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; vice-president, H. P. Carruth, American Writing Paper Company, Holyoke, Mass.; secretary-treasurer, Thomas J. Keenan, Paper, Inc., New York.

Executive Committee—W. G. MacNaughton, H. P. Carruth, Ernst Mahler, Henry F. Obermanns, Henry E. Fletcher.

The following papers were read:

Cotton Rope for Power Transmission. By J. Melville Alison, of William Kenyon & Sons, Ltd., Manchester, England.

Electric Motor Application to Pulp and Paper Machinery. By W. W. Cronkhite, of the General Electric Company, Schenectady, N. Y.

Further Studies on a Numerical Expression for Color as Given by the Ives Tint Photometer. By Otto Kress and G. C. MacNaughton, of the Forest Products Laboratory, Madison, Wis.

A Method of Analyzing Sulphur Gases. By Robert B. Wolf, of the Spanish River Pulp and Paper Mills, Limited, Sault Ste. Marie, Ont., Canada.

Baled Pulp Wood Chips. By Rolf Thelen, of the Forest Products Laboratory, Madison, Wis.

Forestry Work of Ranger School Students in the Adirondacks. By Dr. Hugh P. Baker, dean of the New York State College of Forestry at Syracuse University.

The general business meeting of the American Pulp and Paper Association was held in the Myrtle Room of the Waldorf at two o'clock Thursday afternoon. When the report of the nominating committee was read and included the names of Arthur B. Daniels, president; Frank L. Moore and L. M. Alexander, vice-president, beside the choice of Alexander D. Naylor, secretary and treasurer, the members greeted the choice with much applause and immediately agreed to the selection.

The following is the program of the meeting:

1.—Call of meeting.

2.—Reading of minutes.

3.—Annual report of president.

4.—Annual report of treasurer.

5.—Cost accounting—B. A. Franklin.

6.—National Industrial Conference Board — C. A. Crocker.

7.—Newlands Committee—Hon. C. E. Moore.

8.—Dyestuffs and Anti-dumping Legislation. Foreign Trade—Dr. E. E. Pratt.

9.—Wire Situation—Frank L. Moore.

10.—Paper and Pulp Section, National Safety Council—S. F. Shattuck.

11.—Introduction of Ground Wood Pulp in Paper Making in the United States—Hon. Warner Miller.

12.—Report of the committee on resolutions.

13.—Report of nominating committee.

14.—Miscellaneous business.

15.—Adjournment.

Quite a number of the delegates to the convention stated to me that the Government would not be able to effect a distribution of paper according to the needs of the publishers, but that the distribution would be governed by what users of paper would be willing to pay for it.

Frank L. Moore, former President of the association, said such a plan would not work as long as some publishers had contracts to which they would hold the makers of paper.

"Then, again," he said, "it is against the Anti-Trust law for dealers to get together and talk of fixing prices. That would be a combination under the Federal law and they would put us in jail."

There is a strong sentiment in the convention for a duty on paper imported. Arthur B. Daniels, President of the association, addressing the annual business session, said that there should be established a nonpartisan commission to protect the paper industry in the United States. He said a committtee of the association had been working with the Federal Trade Commission on a plan for stabilizing the industry.

"I think we will all agree," he said, "that the paper industry has allowed itself to be abused in the past. The manufacturer has allowed himself to be placed on an unsound economic basis. But recently, in view of manufacturers looking more particularly into costs and having a better opportunity to realize what they have lost in the past, he has come to learn that his business must be conducted with a thorough knowledge of all conditions."

Thus ended the convention as far as business was concerned and everybody immediately proceeded to forget business and think of pleasure. A half hour after the final session hardly a manufacturer could be found. Some had to journey up town to "tidy" up, other down town some to Brooklyn and some to Jersey but promptly at the stroke of seven they were all back at the hotel clad in their glad rags and primed to the top notch for a good meal and drinks to be followed by good after dinner speeches—and Secretary Naylor did himself justice this year in giving each of the thousand present more pleasure and enjoyment than they could secure for many times the $10 they paid for their plates.

The National Paper Trades Association, which held its convention in conjunction with the Paper and Pulp Association, re-elected these officers: President, Thomas L. Smith of Louisville; Vice-President in charge of the fine paper division, George Olmstead of Chicago; Vice-President in charge of coarse paper division, H. E. Platt of Philadelphia; Treasurer, R. P. Andrews of Washington, and Secretary, W. C. Ridgway of New York.

W. J. Gage of W. J. Gage and Company and the Kinleith Paper Co., Toronto, has gone to California to spend a few weeks.

A Real Expert on The Canadian News Print Situation

By A. G. CAMPION.

Belgo-Canadian Pulp and Paper Company.

After a series of conferences between the manufacturers and publishers, the Minister of Finance was informed that the contending interests had found it impossible to reach an agreement, and the matter is therefore in his hands. He has informed the manufacturers that three courses are open to him.

One is to place an embargo on paper to the United States.

A second is for the government to take over and operate the mills.

The third is to fix a maximum price at which paper may be sold in this country.

Mr. Campion's Views.

A. G. Campion, of the Belgo-Canadian Pulp and Paper Co., Ltd., and chairman of the news section of the Pulp and Paper Association, with whom the negotiations were conducted on behalf of the manufacturers, in discussing the situation with the Financial Post, said that he considered the imposition of an embargo as a very dangerous and suicidal weapon to use in that connection.

"What would be likely to happen?" he asked.

"The United States might at once retaliate by putting on an embargo on coal and many other articles. Are you aware that not one of the paper manufacturers of Canada has more than four days' supply of coal ahead. Their supply is secured in the United States and such retaliatory measures as I have suggested might mean the shutting down of every paper mill in this country."

With regard to government operation of the plants, Mr. Campion said that paper making was a highly specialized industry, and with the present high cost of labor and materials, he did not look forward with any degree of optimism to the likelihood of relief being secured by the adoption of that course. The effect upon industry generally would be highly injurious in Mr. Campion's opinion.

"Foreign capital would look askance at Canada if the government developed the habit of interfering with the industries of the country. The paper industry would not be the only one to suffer."

The third course, and the one which it is believed will be followed by the Minister of Finance, is the fixing of a maximum price for the sale of paper in this country.

A War Measure Purely.

"We have asked the Minister," said Mr. Campion, "if he finally decides to fix a price, to at the same time, issue a public statement to the effect that the action has been taken solely as a war measure. Our object in making this request is to prevent the government's action from being misinterpreted in the great

"We are not crossing such bridges until we come to them," said Mr. Campion, "but this is a matter of which, naturally, some thought has been given. I may fix $5.00 a day as the maximum salary that I will pay any particular employee, but have I any power to compel him to work for me?"

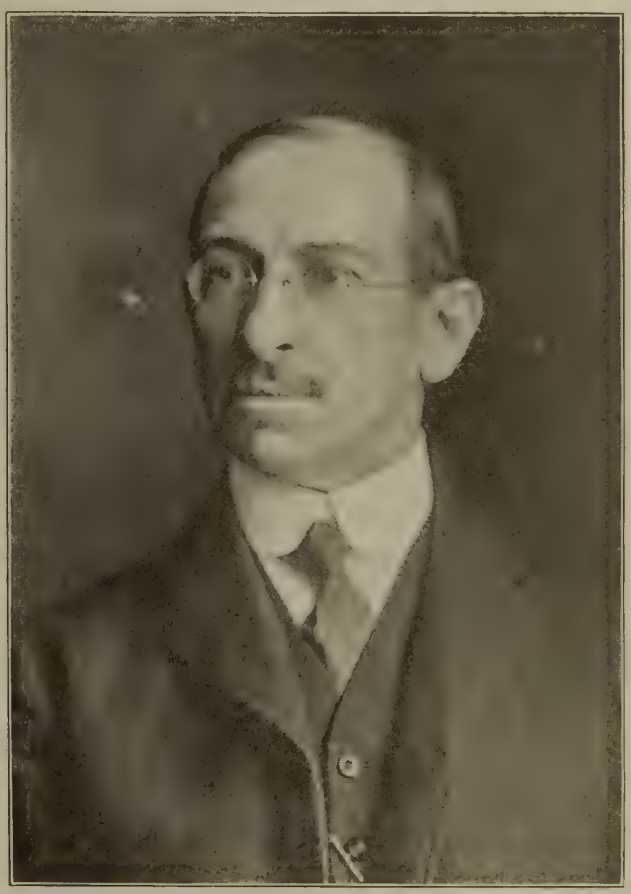
achievement of Canadian industry. We want it made clear to the world that the proposed dictatorship is due purely to war conditions, and is not likely to become a regular thing. If that is done the harmful effect upon the foreign investor as well as the foreign consumer of Canadian news print will be minimized."

Mr. Campion remarked that the paper manufacturers would hardly think of questioning the power of the government to fix a maximum price for their product, but the question of how far they can go in forcing them to supply the demands of the newspapers is another matter.

How Far Can They Go.

That the attitude of the manufacturers towards the publishers, was not one of hostility, was indicated, said Mr. Campion, "by our offer to guarantee them their usual supply of paper.

We said: You need not worry about getting paper, but in view of the present abnormal conditions, do not ask us to quote prices too far in advance. Wages are



A. G. CAMPION

constantly advancing; and the price of various necessary materials has advanced from one hundred to four hundred per cent. On some lines of goods used in our business we cannot get a price. We can place the order, but the price that we will be required to pay, will be the ruling market price at the time of delivery. How can we quote a year's price for paper under such conditions?

Mr. Campion said that the manufacturers finally suggested that a price be agreed upon at three months' intervals during the year, but the publishers refused to entertain the idea.

A Wide Difference.

"The publishers refused to pay more than $5.00 a ton in advance of last year's prices, whereas the manufacturers considered that a fairer advance would be nearer $20 a ton."

Mr. Campion regretted that the publishers of Canada had considered it necessary to approach the government for relief before they consulted the manufacturers. Such a course was not altogether conducive to harmonious relations between sellers and consumers.

"The present situation is only temporary," said Mr. Campion, "and the law of supply and demand will continue to operate after the war as well as during the war."

Hysterical Charges.

With reference to the hysterical charges made against the Canadian paper manufacturers, by the United States papers, Mr. Campion said that Canada only supplied 20 per cent. of the news print used in the United States.

"How can we fix the price over there? Their own manufacturers supply the other 80 per cent and consequently the market price is fixed the other side of the line.

"Did anyone come to the relief of the manufacturers when prices were cut to the bone. The company that I am connected with is losing money on every ton of news print that it is producing at the present time; because news is sold on contracts extending over one, two or three years, and our wages have been increased thirty per cent the past year, and we are now confronted with another ten per cent increase. Not only have wages increased, but the labor is only about 60 per cent efficient, as compared with ante-bellum conditions. We are not crawling under the bed, seeking relief from outside sources, but we are carrying out our contracts as business men should do."

Mr. Campion remarked that the buyers of paper securities at the peak of the market a few months ago were probably pretty well disillusionized by this time. The fabulous claims that were so alluringly set forth in the prospectuses of promoters of vivid imagination, but little or no knowledge of the paper industry, are being appreciated at more nearly their true value, but a lot of mischief has been done in the meantime."

WAYAGAMACK PULP & PAPER CO.

The annual statement of the Wayagamack Pulp and Paper Co. for the fiscal year ended November 30, 1916, shows that the company had record breaking earnings and that it is taking advantage of the fat period in its line of business to whip the finances of the company into the strongest possible shape.

This may be judged from the fact that out of the net profits before bond interest and depreciation of $979,362, a total of $914,632 has been appropriated, a very substantial sum going into reserves, leaving $64,730 to be added to the balance of profit and loss, which with the balance from the proceding year, makes a total of $679,280.

As the previous statement was for a period of seventeen months, the latest figures do not offer the usual opportunity for comparison, but some indication of the growth of the business in the past year may be obtained from the fact that the net profits for the seventeen month period were $394,989 under the total for the twelve months of the last fiscal year, and they are more than double, or $575,459 greater than for the twelve months ended in 1914.

Out of the year's profits the management has not only set aside a sum of $154,638 for depreciation for the past year, but has allotted a further sum of $450,000 for depreciation covering three years up to November 30, 1915, which covers the existence of the company. Bond interest took $210,000 and $10,000 was set aside for the proportion of discount on bonds.

Trade Inquiries

We announce a number of inquiries for Canadian goods which Mr. R. B. Dunwoody, Secretary of the Association of Chambers of Commerce of the United Kingdom, has collected and compiled for the Canadian Government Trade Commission. These inquiries as published in the Weekly Bulletin have been renumbered to form part of the general inquiries in order that there may be no confusion in answering questions. Mr. Dunwoody has prepared lists of firms in seventy towns of the United Kingdom. Each number represents a firm which has expressed a willingness to purchase Canadian goods.

The names of the firms making these inquiries, with their addresses, can be obtained only by those especially interested in the respective commodities upon application to: "The Inquiries Branch, The Department of Trade and Commerce, Ottawa," or The Secretary of the Canadian Manufacturers' Association, Toronto.

Please Quote the Reference Number when Requesting Addresses.

Aberdeen.

20. Pulp for paper, wood.

Birkenhead.

38. Asbestos aircell paper.

Bolton.

60. Cardboard and bronze powder.

Brighton.

69. Grease-proof paper, krafts, m.g. sulphite, white and colored tissue, white printing.

Bristol.

87. Kraft paper, etc.

91. Paper for wrapping and bag making, cardboard and pulpboard for box making.

98. Strawboards for cardboard boxes.

Bury.

109. Wood pulp.

Dundee.

123. Canadian flax, wood pulp, binder twines.

Exeter.

126. Paper, pulp, etc.

Glasgow.

133. Cardboards, leather boards, strawboards and wood-pulp boards.

134. Corrugated paper (for packing).

141. Gray wood--pulp boards 21 by 30, also in rolls 10⅛-inch, 8⅛-inch, 6¾-inch wide; caliper, .016|.018; rolled on 5-inch paper shells with 2½-inch arc; quantity usually ordered 100 tons, mostly rolls. White coated and yellow coated box boards, folding or bending quality. If a coated board cannot be supplied a lined board with a good surface would be considered. The board is wanted with a white manila back if possible.

14⅝ x 22¾: 86 pounds.
17½ x 22½: 88 pounds.
17¼ x 29 : 112 pounds.
19¾ x 21 : 97 pounds.
17½ x 30½: 130 pounds.

Gloucester.

148. Wood-pulp boards, wood discs.

Grimsby.

150. Wood-pulp (50,000 hot ground mechanical and 12,000 tons strong chemical).

Hull.

167. Kraft, grease-proof paper and newspaper on reels.

168. Kraft paper, brown, various weights and sizes, for wrapping papers.

Leeds.

189. Paper (cheap S.C. and M.F. Kraft browns, white, glazed and tinted printings), dry colors for printing.

190. Plain papers for printing, white and tinted, S.C. and M.F. in reels and sheets.

191. Papers: Wood pulp and pulp middles (300 or 400 tons a year).

204. Wood-pulp boards, 20-inch by 34½-inch, about 410 sheets to the cwt.; deal and batten ends or similar timber at low price for making cases; wire nails, 1½-inch by 13 g. and 1⅛-inch by 15g.

205. Wood-pulp boards, 60's to 200's mostly; box boards (enamel and white lined), etc.

Leicester.

209. Paper for packing hosiery; Twines: bleached and brown, course and fine; hosiery yarns, cotton, cotton and wool, and straw board. .

Nottingham.

273. Boards for folding and collapsible boxes.

Warrington.

304. Wood pulp boards, paper and cardboard.

London.

357. Paper: Brown wrapping "unglazed nature," 24-inch by 36-inch, 32 pounds per ream of 500 sheets, cream laid foolscap fly, 8½ pounds-ream).

358. Paper: Printing and wrapping, cardboard for box-making, boot and leather-goods trade.

359. Paper: Packing, printing, tissues, and cardboard; twines made of hemp, flax, jute and cotton for parcelling; hessians.

360. Paper: Tissue, in sheets; news and glazed printing, in sheets or reels substanced; boards: Box, woodpulp and brown.

361. Paper: Wrapping paper and pulp boards; timber; soft woods, box boards, poles, sleepers and pit props; Pulp; chemical and mechanical.

362. Paper for fruit wrapping for Australia, maple sugar, mythylic alcohol, wood for moulding, graphite.

363. Paper: Kraft wrapping and imitation.

364. Paper, kraft packing, natural or dyed in various weights.

365. Papers, news and M.F. boards.

383. Wood-pulp: Chemical and mechanical.

384. Wood-pulp: Sulphite soda and mechanical.

385. Wood-pulp.

386. Wood-pulp: Sulphite, sulphate and mechanical (agency).

387. Wood-pulp for paper-making.

388. Wood wool, compressed fibreware, lawn mowers, enamelled flower vases, garden tools and cultivators, sprayers.

FURTHER INQUIRIES.

In addition to this list of trade inquiries from Great Britain, the "Pulp and Paper Magazine" has received a number of letters from English firms who want to get in touch with Canadian producers. These letters are from parties with an established business who want Canadian pulp and paper for their trade and want to make permanent connections. It seems to us that this is a good opportunity for Canadian firms to enlarge their export trade, which will be so essential after the war. Any inquiries addressed to this magazine will be forwarded to the proper parties.—Editor.

News-Print Conference at Chicago

The Publishers' View of the Matter.

Editor, Pulp and Paper Magazine:

I herewith enclose a statement prepared by myself in connection with the Chicago Conference between Publishers and Manufacturers held recently and especially in connection with a statement made by Mr. Alexander Smith at that conference.

We will appreciate your giving consideration to the other side of the question as well.

Yours very truly,

A. G. McINTYRE.

The meeting held in Chicago on January 26th, as reported in Bulletin No. 3595, was of the greatest possible interest for paper manfacturers and users.

At the invitation of the manufacturers, through Geo. H. Mead, over one hundred publishers met them, prepared to discuss whether the present prices were justifiable, or whether concessions should be made.

Many statements were made by manufacturers of a general nature with this in view. They, however, lacked convincing effect with publishers because nothing definite or detailed was offered.

Publishers everywhere know that paper manufacturing costs, together with other manufacturing costs, have increased enormously. Advancing costs of wood, wires, felts, labor and practically everything entering into paper are known and appreciated by all concerned.

Many isolated instances were cited, such as the peculiar trouble in supplying wood to the Minnesota and Ontario Power Company's mills; the difficulty of gettaing coal for the International Paper Company's mills; the high cost of sulphite for the Brompton Pulp and Paper Company and West End Mills, and many other such cases. Individual mills are of course face to face with their problems which, in many cases, are very acute. Such isolated statements, however, and generalities would of course not convince the man paying the bill that the general standard of price now established is justified by these costs. If, however, any particular mill can show that they are actually facing a double wood cost, without doubt every customer of that mill will be prepared to add that price to the cost of his paper.

The general tone of this conference was of course one of conciliation and co-operation. There was however no attempt on the part of the manufacturers to justify or explain the biased statements which have been circulated against publishers systematically through the various trade papers, devoted to the pulp and paper industry. Many of these journals have not put out an issue in the last three months that has not attacked publishers in an unwarranted fashion, the purport being to attempt to prove in this manner that the newspapers are getting their just dues, because they dared to defend their rights in past years.

Publishers at this conference, as well as elsewhere, have refrained from unjust criticism of manufacturers, not even taking the opportunity in many cases to question statements made by manufacturers, the truth of which might well be questioned, in some cases,

A Banker's View.

A the conference held in Chicago on January 26, Mr. Alexander Smith of Peabody-Houghteling and Co., Chicago bankers, and vice-president and leading spirit of the Abitibi Power and Paper Company, Iroquois Falls, Ontario, read a very well prepared statement on a banker's view of pulp and paper mill investments in general, attempting to argue that all pulp and paper mill investments have been very unsatisfactory and did not give a sufficient return to the investor.

He argued that money invested in pulp and paper mills should be turned over at least once every two and one half years to make investment comparable with others of a similar character. A banker of Mr. Smith's reputation could not possibly fall into the error of making such a statement unless he was interested in the financing of such mills and would receive back this money. Investment in public necessities, such as newsprint manufacturing plants, are not considered by bankers of reputation to be required to be turned over in two and one half years. How many textile power companies, apartment houses, office buildings, etc., turn over their capital once every two and one half years? None. No permanent works, similar to pulp and paper mills, which are today all built of concrete and brick—practically everlasting materials—are ever figured to turn over the money in two and one half years. These are all long term, safe, permanent investments, which are never figured better than to return the capital in twenty years, in addition to the interest in the meantime; yet Mr. Smith wants to turn this capital over once every two and one half years to make it appear that paper mills are poor investments.

He further states that few, or no mills have ever set up a sufficient reserve to take care of flood, forest fire, etc., claiming that these items are not insurable. On the contrary, they are. Timber limits may now be insured. Flood insurance is also available. Further than this, the timber limits of most mills such as the Abitibi, which Mr. Smith represents, are not owned by them, but by the government, from whom they obtain a license to cut timber, and who co-operate with these companies in fire ranging and protecting this timber. He would have people believe that he has millions of dollars tied up in timber lands tributary to his mill, instead of which he obtained from the Government of the Province of Ontario, by paying a cash deposit of about $16,000, the right to cut this timber land, which he now controls, for a long period of years.

He is of course obliged to see that his mill be provided permanently with wood, just the same as a gas works must be provided with coal, or a steel works with ore, yet we have plants erected at a cost of millions, making these products, who always figure that interest with a profit of ten or fifteen per cent addition, is a good return on the money. On the contrary, every banker throughout the country considers a pulp and paper mill development, with the necessary elements, the very highest class of investment, and one which gives the best possible protection to such investment.

Returns in the past on properly organized companies have always been good. The company which Mr. Smith controls is one of the newest companies in Canada, yet the promoters of that company have already made fortunes from it. The common stock which was passed around at the time of its organization in the most lavish manner by the organizers among themselves is now quoted at $75 a share and hard to obtain at that price. The prospective earnings of this company are enormous. Mr. Smith's own statement in a prospectus issued by his company, is that their past operating profits have been $15.83 a ton, which according to another prospectus issued by his firm shows that this is a profit after setting aside all necessary reserves to make the operation permanently successful.

It is true that his firm has one of the lowest manufacturing costs on the continent and cannot be taken as a criterion for all paper manufacturing companies. It is however equally true that the "lame ducks" in paper manufacturing should not be taken as a standard, for example, it was brought out by Mr. Dodge of the International that the largest paper manufacturing company of the Dominion of Canada has not only not paid dividends, but had also failed to pay interest on its bonds. This was of course the Spanish River Pulp and Paper Mills, which was one of a number of the financial fiascos of Garney P. Grant of the Dominion Bond Company, both of whom are now defunct. The companies were amalgamated to form the present Spanish River organization, which had not only watered common stock, but also watered preferred stock and watered bonds; for example, the old Imperial Mills at Sturgeon Falls was purchased at a very low figure and a small cash payment and incorporated into the Ontario Pulp and Paper Company, with many millions of dollars capital and bonds. This was later turned into the Spanish River Company at $125 a share, and the whole thing was later amalgamated with the Lake Superior Paper Company at $125 again, while the Lake Superior was put in as a new organization at $150. By this and other turns, companies which already had an abnormal stock and bond figure were further increased, so that the present financial standing of the Spanish River Company is always considered in the paper trade of Canada as a joke.

Mr. George H. Mead, the present president, is taking steps to put the company on a proper manufacturing basis. His recent employment of Mr. R. B. Wolfe shows that they propose to make the operation of the mills as efficient as possible. It is also hoped he will be able to devise some means of eliminating this enormous financial burden now against an otherwise good manufacturing proposition. The real net cost or value of the Spanish River Mills has always shown a good profit, but because these profits were all approximated or hidden by financial operators, is no argument against the pulp and paper industry as a whole.

Mr. Smith's argument that pulp and paper securities are not attractive is absurd, because the securities handled by his own firm are always of the most attractive nature. Further than this, bond and banking houses are always looking for pulp and paper securities as they are the most salable they can offer.

In this case this banker's view was very strongly colored by his other interests, and for this reason his statements regarding pulp and paper mill investment cannot be taken seriously. Mr. Smith's view point of the paper situation is perhaps best exemplified in his dissatisfaction with the work of the Paper Committee of the A. N. P. A., and his request that the Committee be "fired."

FINE PROGRESS ON MATTAGAMI COMPANY'S NEW PLANT.

Excellent headway is being made on the new sulphite mill which is being erected by the Mattagami Pulp and Paper Co. Limited. It will be second largest producer of easy bleaching sulphite in Canada and the accompanying illustration affords some conception of the magnitude of the undertaking at Smooth Rock Falls, Ont. It is expected that the industry, which is now nearing completion, will be operating by June next. The company own and are developing their own town site. A large area is owned contiguous to the mill and on this ideal dwelling houses will be erected and desirable public conveniences and entertainment facilities provided for the employees. There will be a lecture hall, library school, club room, reading rooms, moving picture theatre and other modern attractions.



Sulphite Mills of the Mattagami Pulp and Paper Co., Smooth Rock Falls, Ont.

The construction of the company's mill is being carried out under the direction of S. R. Armstrong General Manager, who was for twenty seven years connected with the New York and Pennsylvania Paper Co., filling the position of Vice-President. The first unit of the mill now in hand is designed for a daily capacity of one hundred and fifty tons of sulphite fibre, bleached and unbleached. The mill, in plan and equipment, embraces all the most modern, approved features for turning out the highest class of product. The first hydraulic development is designed for 9,000 horse power and additional water powers are held for future expansion. All tributary to the mills, by easy water drive the company have extensive timber limits, both freehold and leasehold, 125 square miles of the former and 840 square miles of the latter. The various buildings are all of fire proof and erected of concrete. There will be three digesters each 19 x 65 feet, they being among the largest ever manufactured. Smooth Rock Falls, Ont., is located on the Mattagami river, about three and a half miles of the Transcontinental line with which connection is made by a railway built and operated by the company at Smooth Rock Falls station, which is thirty-one miles west from Cochrane. The head offices of the Mattagami Pulp and Paper Co. are in Toronto. Duncan Chisholm is President of the organization and S. R. Armstrong, General Manager.

ABITIBI DID WELL LAST YEAR.

Although no official figures were given out for publication, the financial statement of Abitibi Power & Paper Co., Ltd., for 1916, submitted at the annual meeting here recently, is understood to have shown earnings equivalent to somewhat better than 10 per cent on the company's common stock, after allowing for a full year's preferred dividend, but before depreciation and other writing-off. Dividends on the $1,000,000 and preferred stock were started only towards the end of the year, with one quarterly payment of 1¾ per cent.

After meeting interest charges the net profits for the year were approximately $600,000, a considerable gain over 1915. For depreciation, writing-off, etc., there was appropriated approximately $365,000, and a balance of $220,000 was carried forward. The total in profit and loss is now in the vicinity of $500,000.

The reports submitted to the meeting were of a satisfactory character. The enlarged sulphite mill should be operating about May, and with the demand for this product as keen as it has been recently, the company's revenue should benefit materially from the 100 per cent increase in output. The work in connection with installing the new paper machines, which will double the company's output of newsprint, is going forward, and the machines will probably be operating before the end of the year.

The extensions are being financed partly out of the proceeds of notes recently sold, and partly out of earnings. The capital stock remains unchanged at $5,000,000 common and $1,000,000 preferred, and profits from the extensions will accrue largely to the benefit of the holders of these securities.

Ontario Pulp and Paper Makers' Safety Association Elect New Officers

The annual meeting of the Ontario Pulp and Paper Makers' Safety Association was held in Toronto on Monday, February 5th, when several changes in officers took place and the annual report of A. G. Pounsford, the retiring secretary and safety engineer of the association was presented.

I. H. Weldon, of the Provincial Paper Mills Co., Limited, Toronto, who has been vice-president, was elected President succeeding W. P. Gundy of the Kinleith Paper Co., Toronto. George Carruthers of the Interlake Tissue Mills, Toronto, was appointed vice-president. The new secretary and safety engineer is A. P. Costigane, who succeeds A. G. Pounsford, who has been appointed general manager of the Port Arthur Pulp and Paper Co., Port Arthur.

The retiring members of the Executive Committee are F. H. Anson of the Abitibi Pulp, Power and Paper Co., Iroquois Falls, W. M. Shea, of the Lincoln Paper Mills Co., Merritton and Lieut.-Col. C. H. L. Jones of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont. These gentlemen have been replaced by R. B. Wolf of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, W. P. Gundy, Kinleith Paper Co., Toronto, and R. A. McInnis of the Abitibi Power and Paper Co., Iroquois Falls, Ont. The other members of the Executive are H. I. Thomas of J. R. Booth, Ottawa, C. B. Thorne, Riordon Pulp and Paper Co., Hawkesbury, and W. N. Hurlbut, Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont.

The new Secretary and Safety Engineer, A. P. Costigane, has for the past year and half been Safety Engineer for the printing and allied trades, which embraces newspapers, job offices, lithographers, box makers, stationery manufacturers, card board manufacturers and other industries from which position he now resigns. He has opened an office at 206 Bell Telephone building, Toronto. Born in Glasgow, Scotland, Mr. Costigane obtained his theoretical training in Glasgow Engineering College and then served an apprenticeship of five years in the big engineering plant of Harvey's, Limited, first as draughtsman, then as works manager and later as one of the directors when the concern was taken over by a limited liability company.

He was with this organization about ten years when his health failing he came to Canada and spent a year and a half in the western provinces. When fully restored to strength, he came to Toronto and took a position as engineer in charge of the tool department of a large importing machinery house. He is both a practical and technical engineer and has always taken a deep interest in safety work having had considerable experience in the Old Country in this line. Mr. Costigane is a former member of the Institute of Engineers and Ship Builders, of Scotland, and is thoroughly qualified for the new duties upon which he is entering.

The following interesting report was presented by A. G. Pounsford, the retiring Safety Engineer in reference to his work during the past nine months, which shows the splendid progress that has been made.

Since taking up the engineering work of the Association, I have made 68 inspections and visits to the Pulp and Paper Mills of Ontario. With the exception of two concerns, I have been very graciously received, and have been given the greatest amount of co-operation.

I think, undoubtedly, that the past year was a very unfavorable time to launch a campaign of the nature which I have undertaken. Labor conditions have been the worst probably in the history of the industry in Canada. The demands for production exceeded any other year, and these two factors working together have brought about a state of affairs very difficult to control.

I sincerely feel, however, that in the great majority of mills more active work for safety has been undertaken than was previously in existence. Eighteen Safety Committees were formed, and entered into the work of preventing accidents. One mill has employed their own Safety Engineer, and two others are contemplating similar action. Guarding has been undertaken quite extensively and new installations have been of a much better standard of safety than prevailed before. I have gone over a large number of designs and attempted to assist wherever possible to improve same with respect to safety appliances.

One moving picture show was undertaken at the expense of six mills and was quite a success.

Details of First Aid equipment were forwarded to all mills, and I do not think I am wrong in saying that every mill in the Province has some outfit now to care for minor injuries. The infections did not run very high during the past year, there being a total of ten reported, or 1.6% of the injuries. This is very encouraging compared to 10% which were reported to the Board last year.

Close record has been kept of the accidents occurring and our records show 617 accidents, totalling 7,556 days. There were ten deaths and seventeen cases of permanent disability.

Taking an average of the Province, the mills are in fair shape, as far as safe guarding goes. There are one or two exceptions where mills are in very bad shape. Toilet facilities are lacking most every instance and active work must be undertaken in this line. Tentative rules have been formulated and will probably be issued

Four bulletins have been issued and one (the most expensive yet undertaken and paid for by the Riordon Company) is ready for distribution.

A handbook on Staging and Scaffolds is ready to go to the press.

In conjunction with the Pulp and Paper Section of the National Safety Council, I have been working on standards of guards for inrunning rolls, and a pamphlet will be issued on this subject at some future date.

The work of the Association has been more or less handicapped through changes in the organization but should proceed rapidly to expand in its scope and be of valuable service to all members.

In leaving the Safety work, I do so only in a direct contact manner, as it is my earnest desire to take an active interest in the work and assist wherever possible.

I desire to take this opportunity to express my appreciation to all of the firms in Class 2 for the welcome they have given me in my visits to their mills.

CAPITAL WIRE CLOTH DOUBLES CAPACITY.

"Capital wires are good wires." In fact they are so good and the demand for them is so great that the Capital Wire Cloth & Mfg. Co. of Ottowa is erecting what is the third addition to their plant. When this construction is complete, the capacity of the plant will be doubled. It is expected that the new machinery will be installed by July first. The new addition is brick and steel construction, 100 x 45 feet and will be two and a half stories high, to conform with the original building.



Capital Wire Cloth Co., Ottawa.

The Capital Wire Cloth & Mfg. Co. began work in Canada in August 1912. They make nothing but wire cloth for pulp and paper mills and cater exclusively to Canadian business. Every means is taken to provide for the requirements in this trade. Tre president of the company, Mr. J. R. Buchanan, comes from a family of wire makers. He has been actively engageged in making fourdrinier wires for 22 years, having been connected with the Appleton Wire Works of Appleton, Ohio.

NEW MILLERTON PLANT MAY BE RUNNING RUNNING APRIL 1ST.

That the big plant of the New Brunswick Sulphate Fibre Company at Millerton, N. B., will in all probability be in operation about April 1st, was the statement made by J. W. Volckman, the manager of the company.

The New Brunswick Sulphate Fibre Company springs from the ashes of the New Brunswick Pulp and Paper Company, which was destroyed by fire some time ago and of which Mr. Volckman was manager. The new plant will make in the vicinity of fifteen tons per day. It is the intention of the company to operate the plant all the year round. About seventy or eighty hands will be employed at the plant.

It was found possible to use some of the machinery out of the old plant and Mr. Volckman said that the outlook was very good at the present time for the operation of a successful industry at Millerton. Only pulp will be turned out of the mill.

The new company is in reality a re-organization of the members which controlled the New Brunswick Pulp and Paper Co. Sir Robert Perks, a well known English financier is interested in the proposition. The fact that the company will soon begin operations means a boom in business circles at Millerton. The destruction of the old plant by fire was a severe blow from an industrial aspect to the town, and it now promises to be re-established. The work of completing the plant is being carried on rapidly as the company desires to have the wheels in motion at the earliest possible date. —Telegraph.

RIORDON OUTPUT WILL BE 850 TONS.

The "Pulp and Paper Magazine" understands from the very best authority that plans have practically been completed by the Riordon Pulp and Paper Company for the building of a 500 ton bleached sulphite plant in the Temiskaming district, northern Ontario. Specifications have been made and mostof the arrangements completed in connection with the undertaking. It is expected that work will start in the new plant early in the spring.

The Riordon Pulp and Paper Company are developing at a remarkably rapid rate. A year ago their output was in the neighbourhood of 200 tons a day and now it is 350 tons. A few weeks ago they purchased the Ticonderoga plant, at Ticonderoga, N. Y., and now comes the announcement that they are to build a new sulphite plant in Northern Ontario. Within the past year they have also enlarged and improved their plants at Merritton and Hawkesbury.

$21.50 PLUS THREE YEARS MAKES $25.00.

The new War Savings Certificates which have been created by the Government to encourage thrift and economy and to give everyone an opportunity to assist in financing our war expenditure, are now on sale at every bank and money order post office in Canada. The $25 certificate sells for $21.50, the $50 for $43, and the $100 for $86.

As an investment these certificates offer many attractive features — chief of which are the absolute security and the excellent interest return. For every $21.50 lent to the Government now, $25 will be returned at the end of three years.

There are two other features which are especially interesting to small investors. First, the certificates may be surrendered at any time, if the buyer should need his money; and second, each certificate is registered at Ottawa in the buyer's name and, if lost or stolen, is therefore valueless to anyone else.

But while they are excellent from an investment standpoint, the certificates should appeal strongly to Canadians because they offer to those who must serve at home a splendid opportunity for a most important patriotic service. The person who honestly saves to the extent of his ability and places his savings at the disposal of the Government by purchasing these certificates, may feel that he is having a direct share in feeding, equipping, and munitioning our Canadian soldiers, who are so nobly doing their part.

"VARIABLE" NOT "VALUABLE"

On page 124 of this magazine for Feb. 1 there appears a review of an article by G. W. Dickson. The title should read "Some Variable Conditions Affecting the Manufacture of Ground Wood," not "Valuable Conditions".

Aim Restriction at Canada

R. W. JOLLY.

New York, N.Y., February 3, 1917.

At the Thirty-Second Annual Meeting of the American Protective Tariff League, held recently in this city, resolutions were passed aimed to deprive Canada of the various "free entrance" privileges which she is now enjoying. These resolutions were presented by A. G. Paine, of the New York & Pennsylvania Company, and read as follows:

Reciprocal Restrictions and Prohibitions.

Whereas, The Dominion of Canada prohibited the export of spruce logs to the United States on July 23, 1911, the day following the adoption of the Canadian Reciprocity Bill by the Congress of the United States; and,

Whereas, Merchants and importers representing the products of other nations threaten to prohibit the exportation of raw materials to the United States, be it

Resolved, That we urge the Congress of the United States adopt measure authorizing "Reciprocal Restrictions and Prohibitions."

Another resolution which will be read with interest is the following:

Whereas, That facts based on careful investigation and experience are the most important element for Tariff Legislation, be it

Resolved, That every industry connected with The American Protective Tariff League be invited and urged to appoint a committee of three to prepare facts and records for the consideration of the Ways and Means Committee, House of Representatives — and Finance Committee, Senate, as a basis for an adequate Protective Tariff.

It is well known that by allowing Canada to export certain papers and pulps into the United States free of duty, we have been compelled to extend the same privilege to the other nations of the world, with regard to the same commodities, because of the "Favored Nation" clause in our tariffs.

The Canadian trade will be interested to know of some of the concerns in the United States, associated with the industry, who are interested in the movement of the Protective Tariff League:

Robert M. Donaldson, of the American Lithogarphic Company, New York; John T. Sprague, of the D. P. Winne Company, twine dealers, New York; B. A. Van Winkle, treasurer, Hartford City Paper Company, Hartford City, Ind.; Wellington Smith, Smith Paper Company, Lee, Mass.; The Eastwood Wire Manufacturing Company, Belleville, N.J., makers of Fourdrinier wires; John Omwake, president United States Playing Card Company, Cincinnati, Ohio; John Lang Paper Company, Philadelphia, Pa., makers of bleaching powder and other paper makers' chemicals; C. A. Jasperson, of the Nekoosa Edwards Paper Company, Port Edwards, Wis.; The Pettibone-Cataract Paper Company, Niagara Falls, N.Y.; Appleton Wire Works, Appleton, Wis., makers of Fourdinier wires; West Virginia Pulp and Paper Company, New York; Emerson Paper Company, Sunapee, N. H.; The Hammerschlag Manufacturing Company, Garfield, N.J.; Finch, Pruyn & Co., Glens Falls, N. Y., paper mill machinery.

Sealing Fibre Boxes is a Business

The proper method of sealing corrugated and solid fibre containers has always been a problem not only to the users of such cases, but also the box manufacturers. It is an established fact that a great deal of trouble has been caused by improper sealing. It is a very hard matter to explain in detail the manner in which these cases should be sealed.

Each manufacturing plant, using cases for shipping their commodities, is working under certain individual conditions and any method or system used economically by them must be carefully worked out to dove-tail in or fit the conditions of the shipping-room.

As an example: A corrugated or fibre case, measuring 15 ins. in length, 12 ins. in width and 12 ins. in depth, containing a commodity weighing in the vicinity of 30 lbs. and having a fair value, should be sealed in the following manner: All flaps should be thoroughly silicated together and a strip of tape; preferably 3 ins. in width, should cover the middle seam over-lapping the ends of the box 2½ ins.

In sealing cases containing commodities such as shoes, where the cases weigh from 60 lbs. to 90 lbs. and the value of contents is considerable, the flaps should be thoroughly silicated together, a 3-in strip of tape should be glued over the middle seam, overlapping the ends of the box 2½ ins., and re-enforcing strips should be applied to the ends of the flaps holding them firmly to the ends of the box, the tape then being drawn around the corners covering the open space in the corner of the box, thereby greatly adding to the strength of the corners.

Silicate of Soda should always be used in sealing these boxes together with the sealing tape which should be made of a strong kraft paper with a hard surface, but at the same time being flexible enough to instantly adhere to the box, the gum compound on such tape being of such a character that it will dry instantly without undue or unnecessary rubbing and adhere permanently to the case. The use of poor tape or silicate is not only dangerous to the shipper and consignee but unfair to the transportation companies and much more expensive in the end.

Trouble has been caused in the past by poor sealing where silicate of soda alone was used. In such cases the flaps separate leaving an open seam in the center of the case, causing the corners to separate and greatly weakening them. Trouble has also been caused by the use of tape alone without the addition of silicate of soda.

The box manufacturers realize that proper sealing is essential to the growth of their industry. They also realize that this is a separate business in itself and is handled by experts who are thoroughly familiar with all of the conditions existing in the shipping rooms of the majority of large users of these cases.

As stated above each individual sealing proposition must be taken up separately and a system worked out whereby each case is sealed properly and economically so that it will arrive at its destination in good condition and the danger of pilfering reduced to a minimum. —Fibre Containers.

PULP AND PAPER NEWS

A provincial charter has been granted to the Port Arthur Pulp and Paper Co., Limited, with headquarters at Port Arthur and a capital stock of two million dollars. The company will erect a hundred and fifty ton sulphite mill and excavation will be started at Port Arthur by the middle of next month. The first unit of fifty tons will be completed this year. The men behind the large undertaking are those associated with the Provincial Paper Mills Co., Limited, Toronto, of which company I. H. Weldon is President; T. A. Weldon, vice-president; and S. F. Duncan, secretary-treasurer.

At a large banquet of the Canadian Lumbermen's Association held at the King Edward hotel in Toronto last week, Hon. G. Howard Ferguson, Minister of Lands, Forests and Mines, told of the precautions and progressive measures which are being adopted by the provincial authorities to guard the forests of Ontario from fire.

Arthur Gate, the founder of the first printing establishment for the blind in Canada, died in Toronto last week, aged seventy years. He founded the Dominion Tactile Press, in 1911, and up to the time of his death was engaged in printing books for the blind.

A canvass has begun in Windsor and other border municipalities in Ontario for the sale and distribution of Sunday newspapers in Canada. A petition will be presented to the Dominion government asking that the Lord's Day Act which forbids the sale of newspapers on Sunday, be amended.

At the annual meeting of the F. N. Burt Co., Toronto, manufacturers of sales books, counter check books, etc., held last week, an increase in profits of $107,348 or forty eight per cent was shown. The profits in 1915 were $222,267 and those in 1916 were $329,515. The sum of $75,000 was transferred out of profits to the realty and plant reserve account bringing that account up to $250,000. The directors will ask the shareholders to approve a by-law to increase the authorized capital stock by $750,000 common. S. J. Moore, of Toronto, is the President of the company. The profits of the American Sales Book Co., which is closely allied with the F. N. Burt Co., for the past year were shown, at the annual meeting of this organization, to be $341,945, an increase of $161,127 or forty-seven per cent. over 1915. The profits on the common stock were better than four per cent. The profits, after payment of bond interest of $31,183.50, amounted to $310,761.74 which are the largest in the history of the company. These have been retained in the business and have been used chiefly for increased working capital and in the reduction of liabilities. A transfer of $71,400 was made from the profit and loss account to the reserve for depreciation, thus bringing this account up to $300,000. The directors have resumed dividend disbursements of one and three quarter per cent. quarterly on the preferred stock.

Fire broke out in the premises of the Simcoe Lithographing Co., Simcoe, Ont., on February 7th and did damage to the extent of one hundred and fifty thousand dollars on the building and three hundred and fifty thousand on the stock and equipment. The offices and vaults alone escaped the flame. Fourteen car loads of paper which had been received and unloaded a day or two before, were entirely consumed and over one hundred hands are thrown out of employment. The stones and plates with the original work recorded thereon which were in the vaults were found not to be damaged. The company have taken temporary premises and will start rebuilding at an early date. The structure destroyed was a large two storey brick building erected about four years ago.

EVENING CLASSES AT THOROLD, ONT.

The evening industrial classes which were originated by the Technical section of the Pulp and Paper Association, is perhaps the first school of its kind which has been formed in Canada. These classes were formed for the benefit of the employees of the various Pulp and Paper Mills which are spread quite numerously through Thorold and Merritton, and any resident of these towns and districts who is fourteen years of age and who does not attend a day school is eligible to attend the classes.

It is hoped by this means to extend some of the advantages of a High school education to those who are not in a position to take the regular day course, and with the hearty support and active co-operation of the managers and officials of all the large concerns, it is made very attractive. No fee is charged and no entrance examinations are necessary while the courses given are taught by the teachers of the High School of Thorold, where the classes are held. Courses are given in Chemistry, Mechanical Drawing, English, Arthmetic, and Electricity. The classes are held on Tuesday and Thursday of each week from 8 o'clock until 9:30 and by limiting each course to 45 minutes, students are enabled to attend any two classes.

At present the number of students who attend these classes number about seventy-five, which is, under the present conditions a most gratifying number. The teachers expressed their satisfaction at the earnestness with which the pupils have taken up their subjects, and are of the opinion that the manufacturers before long will feel the result of this movement.

CONGESTION.

The coal situation is becoming a serious problem to the manufacturers of this district, caused chiefly by the congestion of traffic at Black Rock and Buffalo, besides, the snowstorms and cold weather which has prevailed here during the past six weeks has been the most severe the railways companies have had to deal with in many years, and unless something is done very soon to relieve this condition of affairs, a shut down is feared by some of the manufacturers. It has been a hand to mouth struggle for the past month and although the pulp and paper industries have managed to keep going, the Pilkington Glass Works at Thorold, Ont., were a victim of the circumstances this week having had to close down half their plant for an indefinite period.

PULP MILL IN BAUDETTE.

The Baudette Region announced last week that a new and important industry will be added to Baudette. The Engler Lumber Company have decided to go into the manufacture of pulp, and preparations are being made for the construction of immense buildings just west of the present mill site. This plant will be used for the manufacture of sulphite. The Baudette mill will have a capacity of fifty tons a day, which means that not only will employment be given to a big crew of men, but immense quantities of spruce will be bought from the homesteaders. The buildings will cover a big territory, and the present tracks of the company will be extended so that cars may be run to the plant. The coming of this industry will be a splendid addition to the industries of the town, and the Engler Company, already a big factor in the prosperity of this district, will increase its annual payroll by thousands of dollars.

We understand that one of the best experts in the country will be engaged by the company to be superintendent of the new plant. A very satisfactory feature of a plant of this kind is that it will be operated throughout the entire year. The company can conduct the plant to advantage, as part of the refuse of the saw-mill can be used in it.—Fort Francis Times.

MANY MERGERS OF NEWSPAPERS.

The high cost of production and paper shortage throughout the year were too great odds for many of the smaller newspapers to face with their insufficient revenue. The result was that many newspapers in smaller cities and towns merged their interests and combined their energies and financial abilities to face the fight for existence. In some places as many as three newspaper properties were merged into one. Several hundred papers were said to have passed away during the year. In most cases the missing ones are accounted for in consolidations.

The conditions served to bring many over-newspapered towns and cities back to something like livable fields for papers, more of which will have real excuses for existence when business affairs in this country become normal again.

PARCELS FOR PRISONERS OF WAR.

The Post Office Department is in receipt of a cablegram from the British authorities stating that no parcels containing foodstuffs, or articles of clothing should be forwarded in future from Canada for prisoners of war in Germany. Any one desiring to send a parcel of any kind to a prisoner should ask the postmaster for directions.

The publication of a newspaper picture of a body of sappers, of whom Lieut. F. S. Milligan was in command, and showing them as they were coming out of the trenches has led to a curious coincidence in this particular photograph. The cut appeared in the Toronto Star Weekly and, while looking over the paper W. P. Gundy, managing director of W. J. Gage and Co., Toronto, was much surprised to find his nephew in the foreground. Lieut. Milligan was assistant city engineer of Saskatoon when the war broke out and offering his services secured a commission in the Royal Engineers, with whom he has been serving several months on the Somme front.

LANCE CORPORAL McINNIS.

Lance Corporal John W. McInnis, who was killed in action on January 4th, was a brother of a well known Montrealer, R. A. McInnis, of the Abitibi Power and Paper Company. Lance Corporal McInnis enlisted from Cobalt where he was with the Penn Canadian Mines. He joined the 3rd Universities Company in the fall of 1915. After he arrived in England he joined the second section of the reinforcements and when the company joined the Princess Pats in France he took active part in the scouting work for this famous regiment. He was wounded in the spring of last year, but returned to the front in October. Lance Corporal McInnis was born 29 years ago in Cache Bay, Ont., where his parents still live. For a number of years he was connected with the Traders' Bank occupying position in the branches at Surbury, Edmonton and Sturgeon Falls. He was a fine athlete, and one of the best of fellows.

CANADIAN PENSION BOARD.

The information here given may be of help in some of the many pulp and paper mills from which men have gone to the front.

The Dominion Government has appointed a Board of Pension Commissioners for Canada with offices in Ottawa. As this Board wish to cause as little delay as possible in dealing with communications with regard to pensions, they wish the public to correspond directly with the Board of Pension Commissioners, Ottawa.

A great deal of delay may be caused by communications being sent through other Departments of the Government.

The Patriotic Fund Association and the Military Hospitals Commission have kindly consented to give information and assistance to those wishing to write direct to the Board of Pension Commissioners. These societies have offices in certain localities throughout Canada.

In addition, in order to facilitate the granting of pensions, the Board is opening Branch pension offices in Vancouver, Calgary, Edmonton, Regina, Winnipeg, London, Hamilton, Toronto, Barrie, Kingston, Ottawa, Montreal, Quebec, St. John's and Halifax. All information with regard to pensions may be obtained from these offices.

MAKING PAPER MAKERS IN MICHIGAN.

To encourage research work on problems met in the manufacture of pulp and papre, the pulp and paper makers of Michigan have renewed their industrial fellowship of $500 at the University of Michigan. This amount is granted a graduate student at the University who chooses to do research work along this line. Valuable work has already been done in studying the retention of fillers. This problem will receive further attention and new problems attacked.

Applications for fellowships must be made on appropriate blanks and returned to the Dean of the Graduate School by March 1, 1917.

Correspondence should be addressed to Professor Alfred H. White, Ann Arbor, Michigan, U.S.A.

The cost of making sales of Government timber on the national forests in California was cut from 39 cents to 31 cents a thousand feet recently.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The General Naval Stores Company has just opened a Chicago office at 1235 McCormick Building, and will solicit the rosin business of paper manufactures in this territory. The office is in charge of Frank Calo, former Eastern sales manager of the company, who is well known in the paper trade of the East. The Company has spacious offices, well furnished, and equipped with a staff of clerks and stenographers.

The Parsons Paper Company of Holyoke, Mass., has elected the following officials: Aaron Bagg, Jr., president; Edward P. Bagg, treasurer; Charles P. Randall, assistant treasurer, Aaron C. Bagg, secretary; directors: Aaron Bagg, Jr., Edward P. Bagg, Henry E. Gaylord, George F. Towler, Charles P. Randall.

The New York World has, it is authentically been reported, purchased another paper mill, since the following notice appeared in a recent edition. "Owing to the shortage of paper, the circulation of the morning edition of the World will be reduced to $350,000 copies daily, beginning February 1st until further notice. The paper will be absolutely non-returnable." The publishers have been endeavoring to buy a mill which could fulfill their requirements. Now comes the news that they have bought the High Falls Mill at Chateaugan, N. Y. This is the second mill this big Metropolitan paper has purchased in the past few years.

Control of the paper mills of the Collins Manufacturing Company at North Wilbraham, Mass., has just passed to S. R. Whiting and associates. The Collins Manufacturing Company mill has three machines, a 66 inch, a 79 inch, and a 102 inch. Its capacity of loft dried papers is from 15 to 20 tons a day. The offices of the company will be in the same building as Whiting & Cook, In., at 208 Race Street, Holyoke, Mass.

The Thilmany Pulp & Paper Company, of Kaukauna, Wis., has purchased property to build a community club House for use of company employers. Details of the plans have not be given out as yet, but it is known that the company has something quite elaborate in view and will begin building early in the Spring.

The re-organization of the Inland Empire Paper Company of Spokane, Wash., following the resignation of R. S. Talbot, general manager, announced several weeks ago, is explained in a trade letter sent out over the signature of L. M. Alexander, vice-president and treasurer who is acting as general manager pro tem. In addition to the officers elected at the annual meeting at the time of Mr. Alexander's visit, the actual managing force is as follows, under this direction. W. A. Brazeau, general sales manager; R. E. Alexander, assistant treasurer; H. W. Nehf, mill manager; J. C. McCrary, purchasing agent and office manager.

Advices from Niagara Falls, N. Y., state that the general Roofing Manufacturing Company, of St. Louis, Mo., which recently purchased the Falls plant of the Lockport Paper Company, has taken possession of the plant. H. B. Allen, who has been chief chemist of the Company's, York, Pa., plant has been made general manager to succeed Harry M. Nichols, promoted to general manager of the Lockport Paper Company's Lockport Plant.

The Federal Trade Commission has just completed its News print paper investigation. Its report was sent to congress on Monday of this week. For a time it was not decided whether to make the complete report or an interim report, but development within the last few days, it is said has made it posisble to finished the inquiry.

The report covers developments in the news print situation since the trade commission began investigation last summer. It shows that the commission's efforts to bring manufacturers and publishers together have relieved the situation to some extent. Legislation is asked giving the commission power to prevent a similar situation arising in the future.

Press dispatches from Paris, Saturday (February 10) stated that the French Cabinet had decided on the reduction in the number of pages of the daily newspapers. The change will be made to curtail the consumption of coal and the purchase abroad of print paper and raw materials.

The International Paper Company of 30 Broad St., New York, issued a notice last Saturday (February 10) to holders of bonds and preferred and Common Stock to the effect that the company has prepared a plan to consolidate its bonded debt under one mortgage. The company accordingly offers its bondholders the right to exchange present bonds for new First and Refunding five per cent sinking fund mortgage bonds. The Directors of the Company have also unanimously voted to offer to Preferred Stockholders, in full settlement of all deferred dividends: 7½ per cent. of the face value of their holdings of Preferred Stock in cash, 14 per cent. in Six Per cent. Cumulative Preferred Stock, 12 per cent. in Common Stock, "provided, however, that the holders of such an amount of Preferred Stock as the Company and the Committee representing the Preferred Stockholders shall deem sufficient, shall accept said offer by depositing their stock with Bankers Trust Company, Depositary, 16 Wall Street, New York, subject to a Deposit Agreement bearing even date of January 31, 1917. Copies of this Deposit Agreement, including circular letter to Stockholders, outlining in detail the plan of adjustment, and copies of letter to the bondholders, may be obtained upon application to Bankers Trust Company, Depositary, or from the International Paper Company, whose officers will be glad to answer any inquiries or give any further information that may be desired."

SAVES NEWSPRINT.

A paper splicing machine, invented by Glenn S. Williamson, mechanical superintendent of the N. Y. World proved that the saving in pressroom loss, based on one 5-minute interruption of a press because of pasting trouble in every 5 rolls of paper (with the loss of pasted paper) is in excess of $11,000 a year. The total annual saving depends on the number of presses operated and the number of paper "breaks" experienced.

The Markets

CANADIAN MARKETS.

The general dislocation of train schedules has prevented the receipt of our regular Toronto and New York letters on the market situation. Telephone calls inform us that no changes in prices are reported. Manufacturers are bending every effort to securing empty cars in which to make shipments. Railway officials say that ten days of reasonably mild weather will loosen up enough cars to greatly alleviate the present troublesome congestion. An illustration of the situation is our own case, as we have had a car of paper on the road for two weeks, coming from a point on the mainline only 80 miles away. It is not in yet.

The coal situation is exceedingly and increasingly serious. Some mills have only a day's supply, while train loads of coal are held up at places on the rails. It is said that some manufacturers want the Government to take charge of the railroads. A shut down of any paper mills or machines at this time would be a serious misfortune.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as	5½c
News (rolls), at mill, in carload lots	$3.00 up
News (sheets), at mill, in carload lots, smaller lots higher	$3.75
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 14½c
Writings	10c up
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	1.90
Heavy ledger stock	3.40
Soft ledger and writings	1.60
No. 1 magazine	1.85
No. 1 book stock	1.75
No. 1 manila envelopé cuttings	2.60
No. 1 print manila	1.40
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.70
Tailor rags	1.70

CANADIAN CHEMICAL MARKET.

No important changes have occurred in the market for Paper Makers' Chemicals during the past week. Prices are firm. Deliveries are very slow on account of congestion on the railways.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb.	5½c@6c
Alum, potash, lb.	7½c@8c
Blanc Fixe, paste, lb.	4c@4½c
Blanc Fixe, powder, lb.	5c@5½c
Bleaching powder, lb.	5¼c@5¾c
Brimstone, f.o.b. New York, long ton	$30.00
Casein, lb.	25c@30c
Caustic Soda, 76%, lb.	5¼c@5¾c
China Clay, No. 1 white, ton	$20.00
,, ,, ,, 2 ,, ,,	$15.00
,, ,, ,, 3 ,, ,,	$12.00
Lime, ton.	$7.52@$8.00
Sal soda, bags, 100-lbs.	$1.25@$1.30
Sal soda, bbls. 100-lbs.	$1.35@$1.40
Salt cake, 100-lbs.	75c@90c
Soda ash, lb.	3c@3¼c
Starch, lb.	4¼c@5½c
Sulphate alumina, technical, lb.	3c@3½c
Sulphate alumina, iron free, lb.	4½c@5c
Talc, American, ton	$15.00@$20.00

NEW YORK MARKETS.

(These are a nominal range of prices).

Ground wood, f.o.b. mill	$40.00
Foreign bleached sulphite, ex-dock, New York	10c and higher
Foreign easy bleaching sulphite, ex-dock, New York.	6c and higher
Domestic bleached sulphite, f.o.b. pulp mill	8¼c and higher



ARE YOU FOR THE RED CROSS

or

ARE YOU FOR THE IRON CROSS?

Are You For The Patriotic Fund Or Are You A Sunshine Patriot

Ready to Wave the Flag but not to pay the cost?

Everybody who is not fighing in this, the third year of the war, must do his share of paying Your sacrifice of cash is nothing to the sacrifice of those in the trenches.

ABSOLUTE NECESSITY OF INCREASED SUBSCRIPTIONS TO COVER THE WORK OF

Soldiers' Families. Canadian Hospital Service

Prisoners of War

Means that Montreal must subscribe this week at least **$2,500,000** Authorised canvassers carry identification card. If they miss you, send your cheque to

The Hon Treasurer, Patriotic Fund and Red Cross Joint Campaign

303 Drummond Building - Montreal

Foreign unbleached sulphite, ex-dock, New York. ..... 5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York..... ....5c to 5¼c
Domestic bleached sulphite, f.o.b. pulp mill ....5¼c to 5½c
Easy bleaching, f.o.b. pulp mill ... .6c and higher
Kraft pulp, f.o.b. pulp mill ....6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York ....6½c to 7c
Bleached soda pulp, f.o.b. pulp mill...5½c and higher
Foreign unbleached soda pulp, ex-dock, New York ... .6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. ....6½c to 7c
Bond papers, sulphite ....12c and way up
Ledgers papers ....13c and way up
News, contracts, f.o.b. mill... ....$3.10
News, spot lots 5c
Book, super... ....9c and higher
Book, coated ....8c and higher
Tissues, good sulphite, bleached, per ream.....$1.30
Tissues, ground wood, manila, per ream $1.30
Kraft ....9c and higher
Manila .....7c and higher
News board, per ton, f.o.b. New York.....$75.00
Straw board, per ton, f.o.b. New York.....$65.00
Chip board, per ton, f.o.b. New York.....$70.00

R. W. JOLLY.

NEW YORK WORLD NOW OWNS DEGRASSE CO.

The reorganized directorate of the DeGrasse Paper Company has finally put control of the company in the hands of the New York World.

For a number of years the DeGrasse Paper Company has been under contract to furnish paper to the New York World. From time to time rumors have circulated that the concern was losing money on this contract, and of late there had been talk of bankruptcy proceedings to break this contract which has a number of years yet to run. To prevent this the Press Publishing Company gradually acquired stock in the company until it finally got control. Other efforts to purchase mills in this section have met with failure.

The following new directors were elected: Philip Huetwohl, N. H. Botsford, L. E. Wolfe, C. B. Brophy, J. J. Jackson, all of New York; W. P. Libby of Norfolk, former superintendent of the Remington Paper and Power Company mills at that place. J. A. Outterson of Carthage, president of the company, was the only one of the old officers retained. J. J. Jackson was elected vice-president, L. E. Wolfe, secretary; N. H. Botsford, treasurer and W. P. Libbey, manager.

CANADIAN BUYING IN U. S.

Canadian importers are purchasing in the United States five times as much goods as they are taking from the United Kingdom as shown in statistics made public by the Bureau of Foreign and Domestic Commerce. This country's sales to Canada in the last fiscal year were valued at $370,000,000, against $77,370,000 supplied by the British Isles, and the total imports were just $508,000,000. The United Kingdom continues to be the largest purchaser of Canadian products.

NEW PAPER-MAKING MATERIAL.

The Trade and Industry Committee of the Royal Colonial Institute have been investigating the qualities of the grass known as lalang as a possible paper-making material. It is found in large quantities close to the coasts of Malaya, and as it is a waste product, it can be had for the mere cost of collection of yielding a good quantity of cellulose suitable in every way for the manufacture of paper. It is very susceptible to the action of dilute alkalies, but the final product is exceptionally pure and readily dissolved. The pulp obtained after washing is of good uniform quality and colour. By using a mixture of half-pulp obtained from the lalang grass and half-cotton beaten together the paper obtained would prove useful as a high-class wrapping paper, as it is strong and possesses a comparatively high resistance to folding. The paper made from "all grass" pulp, it is added, would, with judicious treatment for improvement of colour, be very suitable for printing purpose.—Chemical Trade Journal.

It is interesting to read of what is being done experimentally on new sources of raw material for paper-making. Such information would be infinitely more valuable if it stated quantity and availability and constancy of supply.—Editor.

WASHINGTON EDITORS MAY BUILD PAPER MILL.

Preliminary steps to the establishment of a news print paper mill were taken by the Washington Newspaper Association, at its annual meeting, held in Seattle January 13, while the annual newspaper institute was in session at the University of Washington.

This association is made up of 93 of the leading small papers of the state, who have been particularly hard hit by the abnormal price of news print. In the past they have paid from 3 to 4 cents—prices higher than those paid by Eastern publishers—for their supply. At the present time the price ranges from 7 to 10 cents per pound.

It is probable that the new mill will be located on the Olympic peninsula, in western Washington. In addition to an abundance of cheap timber land this section of Washington can provide water transportation and unlimited water power for manufacturing purposes.

A committee was appointed to investigate and report on the advisability of establishing one central supply station. The orchardists and dairymen of Washington have been able to effect considerable savings by doing this and the newspapers believe they would find it equally profitable.

S. H. Lewis, Lynden Tribune, is the new president; J. C. Harrington, Colville Examiner, first vice-president; Paul Harvey, Elma Chronicle, second vice-president, and C. A. Sprague, Ritzville Journal-Times, secretary. E. E. Troxell, in charge of the courses in newspaper administration and advertising at the University of Washington, was re-elected executive secretary and active manager.

GOOD LESSON TAUGHT.

The experiences of publishers probably gave them much needed lessons in business management. They learned how to economize, stop waste and charge for their papers and advertising space somewhere near what their service is worth. The lessons they learned in 1916 will make better men out of many of them.

Want and For Sale Advertisements

SULPHITE COOKS wanted. State experience; age; married or single. Applications will be treated confidential. Apply Box 138 Pulp and Paper Magazine, 45 St. Alexander St. Montreal.

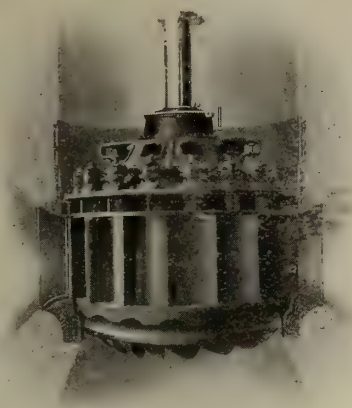
MACHINEMAN wanted at once. Experience in fine papers necessary. Address with particulars. No. 141, Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal, Que.

MACHINE TENDER, back tender and third hand for for board machine wanted. Permanent positions. Apply, stating experience to Box 140, Pulp & Paper Magazine, 35-45 St. Alexander St., Montreal, Que.

MECHANIC DRAUGHTSMAN with several years practical experience in pulp and paper mills, wants steady position. Apply Box 139, Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal, Que.

SUPERINTENDENT OR ASSISTANT. — Twenty years practical experience, United Kingdom and United States, nearly all grades, Fourdrinier and Cylinder, also ground wood. Thechnical education, Chemistry and Papermaking. Mechanical ability. Apply "Practical", Pulp and Paper Magazine, 35-45 St. Alexander St., Montreal, Que. Feb. 1, 8, 15

HYDRAULIC TURBINES



Five Vertical Direct-Connected Units.

In Concrete Spiral Flumes

BUILT FOR

The Wateree Power Co., Charlotte, N. C.

Fishing Creek Station

55 FT. HEAD—11000 H. P. EACH—97.3 R.P.M.

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Imperial Genuine

THE HIGHEST GRADE BABBITT METAL MADE

For all Bearings Carrying Extremely Heavy Loads

When melted, flows freely.

WILL NOT SHRINK.

Is very tough and durable, tin being the basis, antimony and nickel for hardening, and toughened with pure copper.

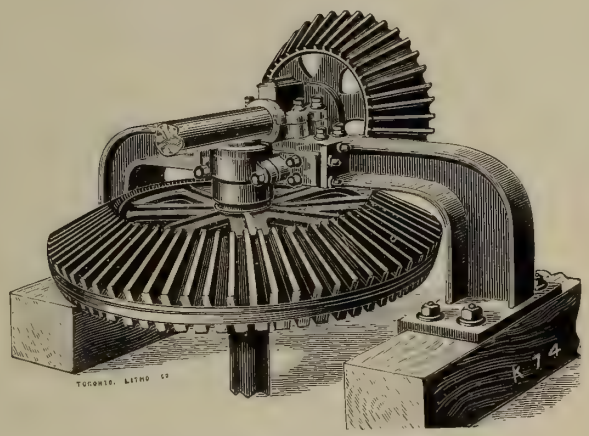
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SPUR MORTISE BEVEL MOR
SPUR BEVEL MITRE

In Steel, Semi-Steel or Iron

Accurately machined and balanced, with or without Machine Cut Teeth. Best Maple cogs supplied. Bridgetrees to suit any size gears.

Complete Turbines, Stoplog and Headgate Hoists, etc., for

WATER POWER PLANTS

WM. KENNEDY & SONS, LIMITED

Established 1860 OWEN SOUND, Ont.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Electro-Magnetic Devices for Extracting Foreign Substances from Paper Pulp.—A. J. Newell, Holyoke, Mass., and R. J. Marx, London, E.C., British Patent 2865, (1915). The Paper-Maker and British Paper Trade Journal, Vol. 52, No. 6, Dec. 1, 1916.—The invention consists of a plurality of strong electro-magnets having pole-pieces, with semi-circular projections suitably mounted in a pocket or sand catch in a delivery trough, which conveys the stocks from the beater to the machine, and a baffle-plate to direct the flow of the stuff downward into the pocket into close contact with the poles of the electro-magnets, which, combined with the force of gravity, tend to extract not only magnetic substances, but all foreign substances from the stock. The electro-magnets are attached to a frame-work that can be attached to the floor portion of the pocket. Improved means are provided for enclosing the electro-magnetic coils in water-tight metallic castings.—E. K. M.

Lime Recovery.—The World's Paper Trade Review, Vol. 66, No. 26, Dec. 29, (1916).—The difficulties in the recovery of lime are mainly those of working details. A difficulty from the paper-maker's point of view is the comparatively small quantity he has to deal with. Success from the money point of view depends on using economically the high initial temperature necessary for the work, and this could be done more effectually if the average mill using esparto consumed as much lime per day as it usually does per week. It appears that one part by weight of coal is required for three parts of lime burnt, while in a good limestone kiln the ratio is 1 to 5. Cheap coal or lack of limestone would favor the recovery of lime. The chalk, when dry, breaks down into a very fine powder, and much is carried away by the flue draught. Problems would no doubt be raised by the tendency of the caustic soda silica, etc., going forward with the chalk to form fusible compounds. See also articles by James H. Payne on "Lime Recovery in Soda Mills." Jour. of Ind. & Eng. Chem., Vol. 6 (1914), p. 937, and Vol. 7 (1915), p. 1,056, and Paper, Nov. 17 (1915).

French May Develop Alfa Pulp Manufacture. — Paper Vol. 19, Jan. 17, 1917, No. 19.—The attempts that have been made in France, with one or two exceptions, to manufacture pulp from Alfa (better known as esparto), have been unsuccessful. It now seems possible to manufacture the pulp in Africa by new or improved processes. It was found impracticable to locate a mill in close proximity to the esparto fields, because of an insufficient supply of water.

Concrete Adopted to Storage and Industrial Uses.—Eng. Record. Vol. 75, Jan 20, 1917, p. 91, 92.—Summary of paper by J. R. Freeman read at the meeting of the Portland Cement Association. Reference is made to a concrete sulphite digester erected at Austin, Pa., about four years ago. Digester is 15-ft. in diameter and 42-ft. high, operates under 100 to 150 lbs. steam pressure and is lined with special acid proof lining. The company using it considers it superior to other types. A recent test of this digester showed no leaks. Advantages claimed are low initial cost, small heat loss by radiation and long life of linings.—O. F. B.

Well-Made Concrete Tanks Affected by Few Liquids.—Eng. Record. Vol 24, Oct. 24, 1916, p. 470, 471.—Results of tests made for Portland Cement Association show that in most cases plain untreated concrete resists action of various liquids as well as specially treated concrete. Certain substances, however, cause deterioration. Plain dense concrete of 1:2:4 mix was resistant to menhaden oil, linseed oil, rosin oil, 4% caustic soda solution and tanning solution. Plain concrete was affected by lard oil, sulphite liquor and cider vinegar. Sulphite liquor lays bare and loosens, the coarse aggregate under progressive action which makes it unsafe for storage of this liquor. The only satisfactory method of protecting concrete from disintegration by sulphite liquor is a surface treatment with a point coat of blown-oil gilsonite compound. A concrete tank treated by this method has been used for storing sulphite liquor for 15 months and is still in perfect condition.

Blown-oil gilsonite compound is prepared as follows: Dissolve 100 parts by weight of Utah asphalt (Gilsonite) in 250 parts turpentine. 24 hours are required for solution, stirring frequently. Add five parts neutral petroleum oil. Two coats should be applied with a brush allowing at least 24 hours for drying of each coat.

Methods for rendering concrete tanks resistant to molasses and concentrated brines are also discussed. —O. F. B.

Five Water-Works Plants Make Filter Alum.—Eng. News. Vol 77, Jan. 4, 1917, p. 4-7.—Description of plants for making alum by the Hoover Process (U. S. Pat. 1,197,123) at Columbus, Ohio; Trenton, N. J.; Springfield, Mass.; and mention of a plant installed at Montreal, Que.

The process consists essentially in adding sulphuric acid to ground bauxite, mixing well and dumping into crystallizing boxes where the re-action takes place and the alum cystallizes to alum cake.

At the Trenton plant a steel mixing tank 6-ft. in diameter and 3½-ft. high is used. No lining is used in the tank and the mixing is done by a revolving paddle with cast iron teeth. The mixture of bauxite and sulphuric acid is discharged from the mixing tank, before the re-action begins, into the crystallizing boxes. These are two boxes each about 8 x 18 ft. with an available depth of 2-ft. The boxes are made of 3 inch yellow pine with the bottoms lined with paving brick. The mixing process requires from 3 to 5 minutes whereupon the mixture is dumped into the crystallizing box. In about 10 miuntes the mixture comes to a boil, due to the heat of the re-action and in half an hour the major re-action is completed. About 24 hours is allowed for the cooling and hardening process after which the alum cake is broken up and used as required. In actual practice one charge from the mixing tank is dumped upon another in the crystallizing box until the box is sufficiently full.

The plant described produces about 2,500 lbs. alum per day and the total cost of the plant was $2,200. With bauxite at $20.00 per ton and 60 deg. Be sulphuric acid at $20 to $25 per ton alum can be made at from $25 to $32 per ton.—O. F. B.

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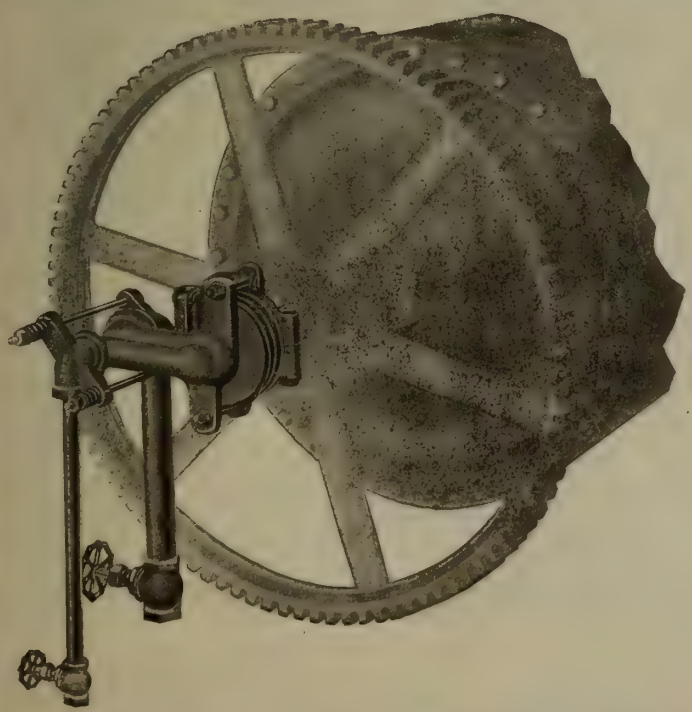
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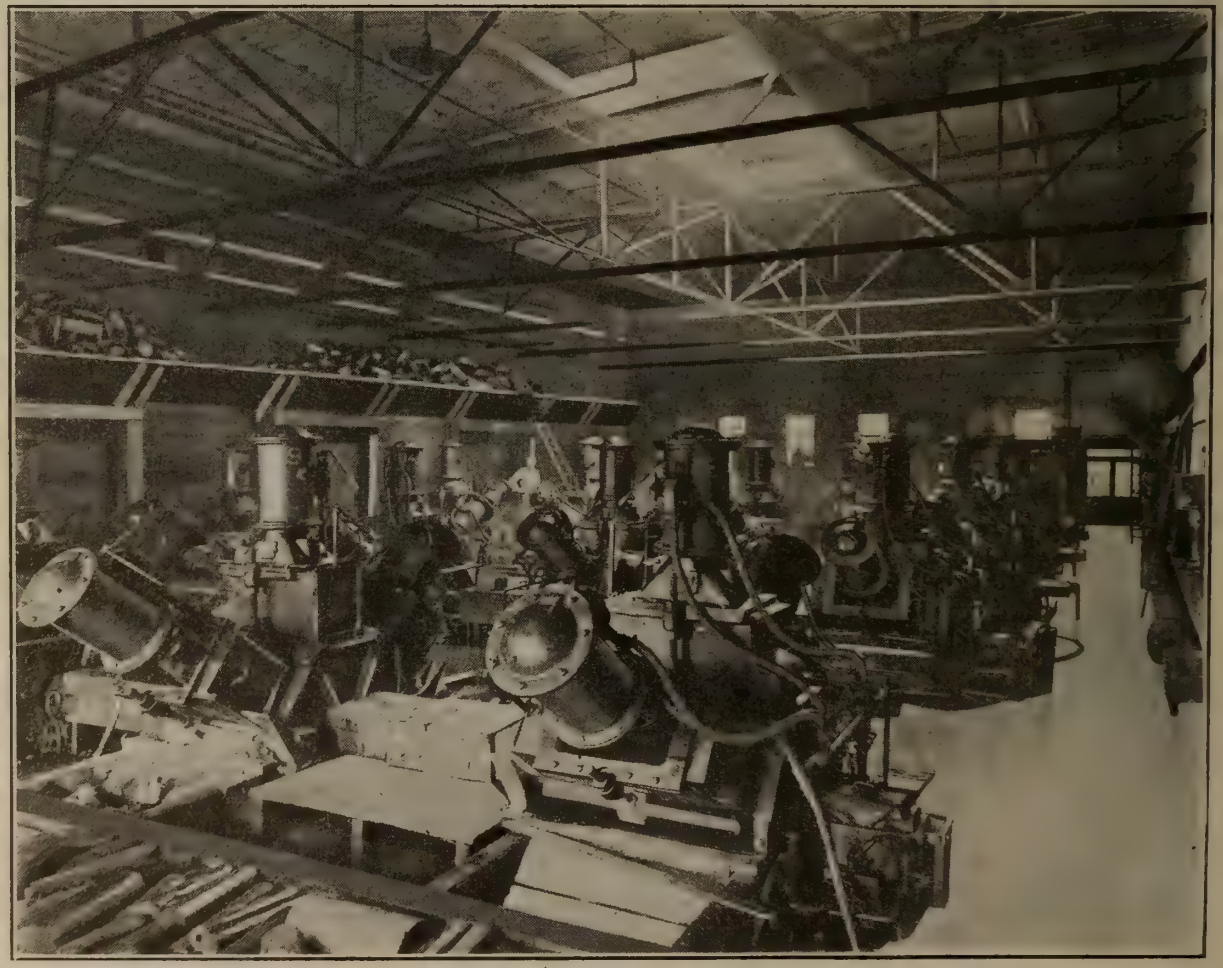
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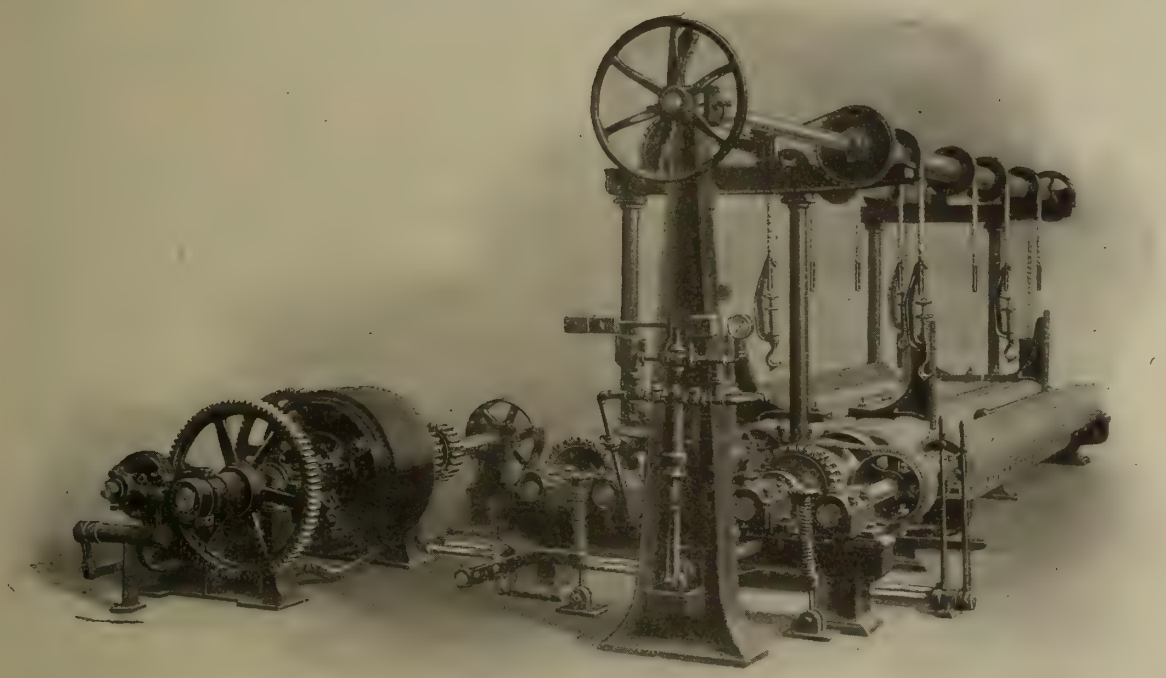
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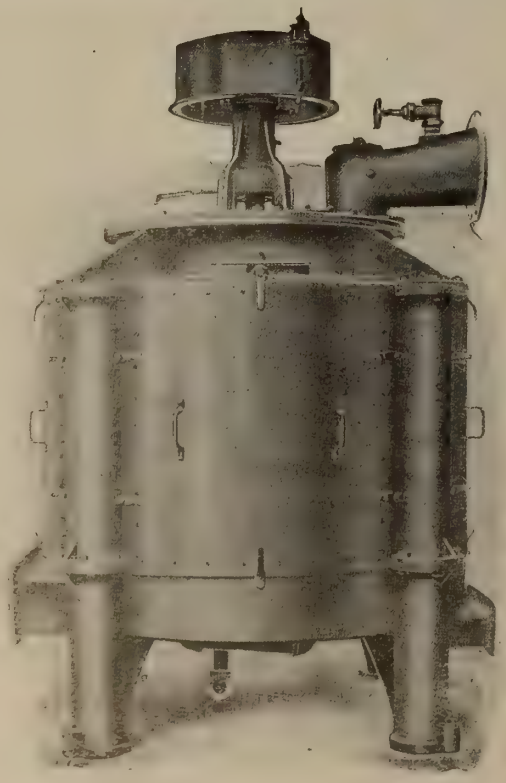
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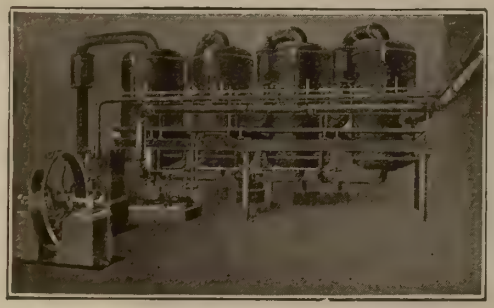
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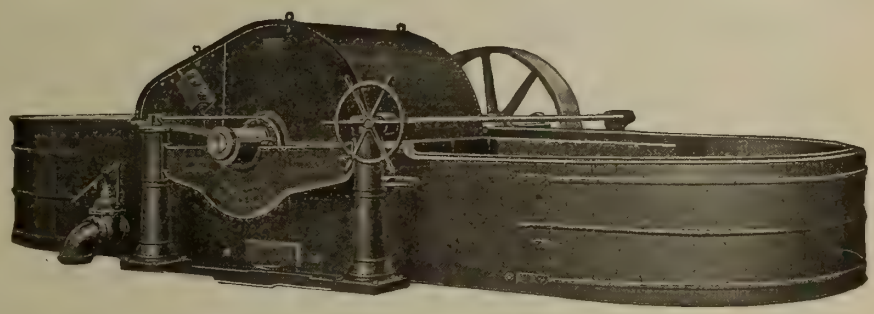
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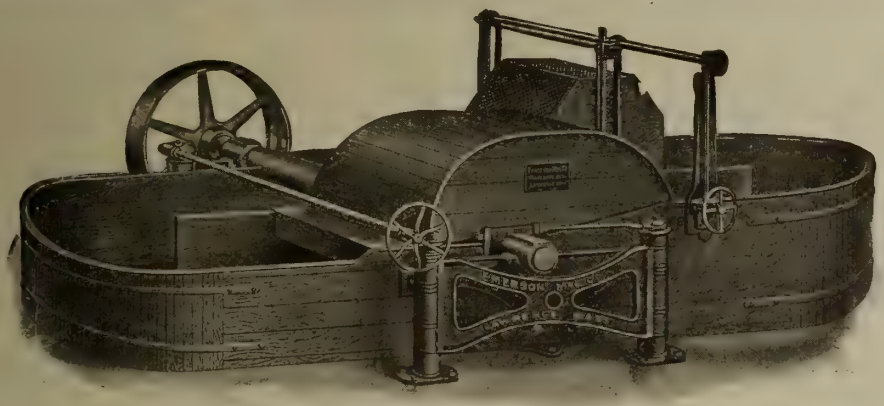
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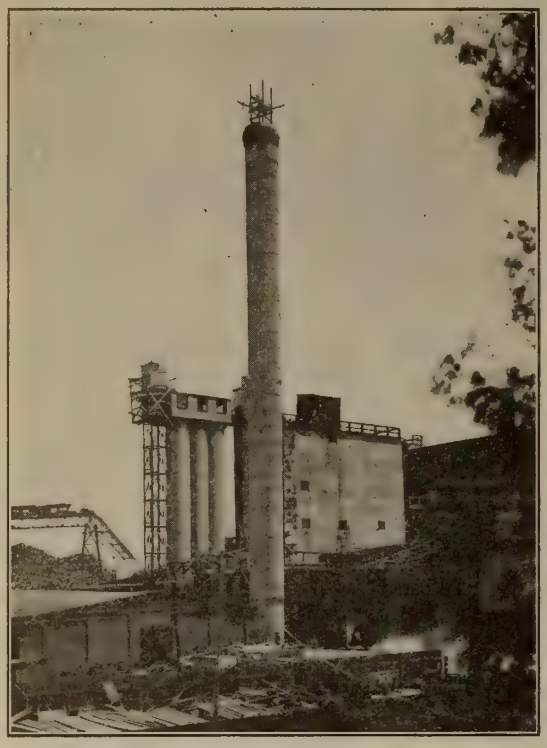
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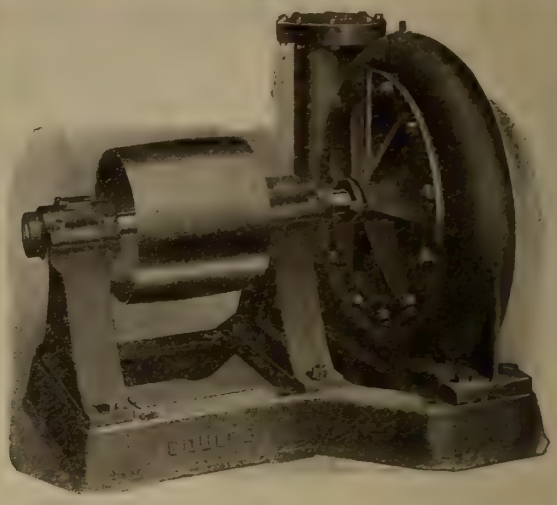
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EDITORIAL

LUMBER VS. METAL FOR BUILDING PURPOSES.

An interesting controversy is going on in the United States in regard to the respective merits and demerits of wood and metal siding, and shingles as building material. During the past few years the lumbermen have been forced to fight the cement maker, the manufacturer of brick and now the maker of metal sidings, shingles, etc., comes out with the claim that his products are superior to wood for building purposes.

In Canada, one or two progressive manufacturers of metal sidings have recently been advertising their wares and telling the public of the many advantages of metal for barns, garages and out-buildings over those built of wood. Now, some of the more progressive lumbermen are replying with advertisements pointing out the greater cheapness and durability of lumber for building purposes.

While this fight primarily concerns lumbermen, to a lesser extent, it effects all those engaged in the manufacture of wood products, including the makers of box board, beaver board, etc. They find competitors among the manufacturers of metal siding, brick, etc. While the lumbermen are finding competition from other manufacturers it is interesting to note that paper products are being used in an ever increasing area such as paper for clothes, drinking cups, tubs, etc., etc. The whole struggle is an interesting controversy, the outcome of which no one can foretell, but it behooves the lumbermen and paper box manufacturers to stand by their guns and tell the world about the many advantages of lumber and wood products.

AN IMPORTANT EVENT.

The headline in a Montreal paper last Thursday, "The Publishers Win Out," puts the conclusion of an unfortunate situation in not exactly its true light. The manner in which some papers made the announcement that the Finance Minister had fixed a price for newsprint sold in Canada put the matter in the light of a contest in which a prize had been awarded the more skillful antagonist.

The object of the Government was not so much to award a prize to anyone as to reconcile the two factors which make possible the advantages to the public of the press. When it became evident, after months of effort, that the paper makers and publishers would not or could not get together, the press was recognized as a public need. As such, the publishers must be supplied with paper at a reasonable rate. The Government apparently did not wish arbitrarily to fix a price, but tried to encourage an agreement between publishers and paper makers. The attempts were not successful, as we all know. The only step short of making a definite price was to name a figure that would be "recognized" by the Government. It was expressly stated by the Government that, in recognizing the price of $2.50 a hundred for roll news that should be accepted by the parties interested, it was purely a War Measure.

This price is purely an arbitrary figure, arrived at by assumption and compromise, not by investigation. While published reports of the action make no mention of sheet news, it is understood that a proper allowance be made for the factors that involved making and marketing flats. And right here we would like to point out to the publishers who use sheet news that many mills will not be bothered with the trouble of supplying their odd sizes, weights and finishes. The higher price of flats is not to be reckoned alone on the basis of extra machines, extra floor space, extra power, extra labor, extra heat, extra wrappings (and twine at 16c!) and extra overhead, but should include such extraneous factors as extra worry and the disposition to go to the trouble to undertake the job at all. When we buy bread and rolls from the baker we may pay twice as much for the rolls than we do for the bread, weight for weight, we don't ask if it costs him twice as much to make the rolls, we want the rolls so are glad to pay his price and say "thank you." Similarly with the sheet news.

To get back to roll news. The situation is obviously complicated by the fact that, while only 20 per cent of Canadian made news is consumed here, some mills sell all their product to Canadians and others export all they make. It is understood that the mills which do not sell 20 per cent of their paper in Canada, will pool their excess earnings above 2½c on this 20% of their product; allotments and distribution would be left to the Association. It is expected that no difficulty will be encountered in distributing the tonnage or assessment so as to at least partially compensate the loss that some mills would otherwise suffer dispropor-

tionately by selling most or all their paper in Canada. Any refractory mill could readily be "persuaded" by an embargo on its export.

There seems to be but one sensible thing to do, and that is for the manufacturers to behave in conformity with the Orders-in-Council, and like the true patriots they have often proved, shoulder a little more of the country's burden. The newsprint manufacturers, then, submit to a war measure for the good of the Empire, or at least of the Dominion, but—

We are not convinced of the fairness and justice of this action, still firmly believing that the general public will derive no great benefit. It may be argued that the Canadian publisher is entitled to a price below market quotations because he is consuming a home-made article. The argument is usually reversed and we are often asked to use Canadian made articles out of a sense of patriotism, even at an increased cost. Suppose the Canadian Publisher is entitled to a favored-industry price for his paper, why isn't the Canadian Miller entitled to a specially trimmed price on his wheat so that cheaper bread may be enjoyed by all the Canadian people? Does the Canadian Contractor get his lumber at a reduced rate because he is a Canadian? Does the wrapping paper manufacturer get his pulp any cheaper because he is using a home-made article? No, none of them get a special Ottawa brand price and they don't ask it. When the price of their raw material goes up they can bring it down by buying less, as business men have always done, or they can pass the extra cost on to the consumer.

We are heartily in favor of action that will assist in getting paper to the country paper, but we believe it is the duty of community, and not of the paper maker, to support its newspaper, just as it supports its schools and other helpful institutions. We believe in the action that has been taken by such associations as the Newspaper Publishers Association of the State of Maine, in uniting for the purchase of the paper in quantity.

Many of the papers in Maine are small country papers, with high ideals and strong influence. They strengthen themselves and incidentally make it easier for the paper maker by banding together for the joint purchase of paper so that satisfactory contract prices and deliveries can be made. It is always the little fellow who suffers first in a pinch, from the little pig in the litter, to the little grocer in the city — or the little newspaper in the country. Co-operation will greatly help the situation, at least in the future.

As mentioned in a daily paper, "The business situation relating to newsprint paper is most complex and intricate." At the time of this writing a final formal agreement of publishers and manufacturers has not been made, but it is very unlikely that the Government will have to take any vigorous action in using the recently conferred power to commandeer stocks and fix the price of newsprint.

THIS IS CO-OPERATION.

The Pulp and Paper Division of the Forest Products Laboratories of Canada, situated at Montreal, has been contemplating for some time, the erection of a model pulp mill for experimenting and research on the problems involved in the manufacture of chemical pulp. Having obtained the necessary appropriation steps were taken to lay out the details of the plant. The staff of course wants the new plant to be a model in design, and equipment. Two of the foremost engineers in Canada are giving their services and their companies are lending their draftsmen and engineers. We refer to C. B. Thorne, of the Riordon Pulp and Paper Co., and Henning Helin, of the Wayagamack Pulp and Paper Co., who are experts in sulphite and sulphate manufacture, respectively.

We congratulate the Laboratories on their good fortune and commend these engineers and their companies for their appreciation of the value of the research work of the Laboratories to the pulp and paper industry.

THE IDES OF MARCH.

While we were not personally acquainted with Julius Caesar, it is our opinion that he anticipated the Ides of March with no greater interest than the paper makers look forward to March 1st, 1917. The newspapers predict that their paper will be obtainable at 3 cents or less. There is just a bit of a suspicion on their part that the manufacturers will be found guilty of some more or less serious infractions of the law. So far we have not heard of a satisfactory arrangement for distributing sufficient paper to the small dailies and country papers. As we recall it, their plight started the inquiry. Our sympathy goes out to them, we are short of paper ourselves.

We submit the following: Require the mills to make all the paper that is needed, require the railroads to deliver it promptly and require the consumer to pay the price that the market dictates.

CONGRATULATIONS.

We congratulate the Paper Trade Journal and the Paper Mill and Wood Pulp News on their fine issues, celebrating the fortieth and most successful year of the American Paper and Pulp Association. We are glad to note that the manufacturers of pulp and paper and mill supplies have the good sense to so heartily support the trade papers of this industry. Both of these convention numbers are larger than last year, thus reflecting the growth of the industry.

Introduction of Ground Wood Pulp into Paper Manufacturing in the United States

By Hon. WARNER MILLER.

(Read at the meeting of the American Paper and Pulp Association, in New York, February 8, 1917).

I have been asked by some friends, paper manufacturers, to write an account of the introduction of wood-pulp in American paper manufacturing. In doing so, I shall be compelled to mention myself often, as I was connected with the enterprise from the beginning.

First a short statement of the paper-making conditions at the outbreak of the Civil War. At that time all paper was made from rags or cast-off clothing of civilized people, consisting of cotton, hemp, linen, etc. We imported large quantities of rags from all European countries, Egypt and the East. Previous to 1860 a Frenchman, Melier by name, had invented and patented a process of treating straw and wood and other vegetable fibres, with caustic alkali. He treated the substance in a digester with steam pressure, 100 pounds or more, and then bleached the pulp with chlorine. He had great difficulty in introducing the system, and finally being completely discouraged, committed suicide.

Mr. Pulser, an Englishman, had been connected with the enterprise; he brought the invention to America; he secured the co-operation of Mr. Howland, a paper manufacturer. They leased an old paper mill at Fort Edward, New York, starting making news paper out of rye straw, which was grown very largely in that vicinity.

My connection with the enterprise came about as follows:

Having graduated from Union College in June 1860, I was engaged as teacher in the Fort Edward Collegiate Institute. There I became acquainted with Mr. Pulser, and frequently visited the paper mill and was much interested in the process of making white paper out of rye straw. In 1861, the civil war began; I enlisted in the 5th New York Cavalry. We were sent in the Shenandoah Valley from Harper's Ferry. We followed the Confederates up the valley to Stanten; then Stonewall Jackson came into the valley and drove us back to Harper's Ferry, but a part of our regiment, myself included was captured at Winchester. Jackson had to make a hasty retreat so he paroled all his prisoners taking their agreement not to serve again unless exchanged. This left us free to go home, which we did as quickly as possible. While waiting to be exchanged I went to Fort Edward and into the paper mill and undertook to learn the business.

Meanwhile, Mr. Pulser had undertaken to introduce his process in the paper mills at Huy, Belgium; the mills there were at that time the largest in the world. The firm or corporation was Godin Sons & Company. They had fourteen machines making paper of all varities, which they sent to all the markets of the world. Mr. Pulser thought I understood the soda process well enough and asked me to go to Belgium to inaugurate the system of making paper out of rye straw.

I went to Belgium in the Winter of 1863, started the process, and returned to Fort Edward and took charge of the mill as foreman. It may be worth remembering that we made and sold newsprint that year at 25c per pound—$500. per ton. We paid $30.00 per ton for rye straw, a great price for soda, ash and bleaching powders. During my stay in Belgium I heard of the making of wood pulp in Germany by grinding wood.

In 1865 I bought a paper mill at Herkimer, N. Y. which had attempted to introduce the soda process and had failed. I put the mill to rights and in September turned out printing paper which I sold at 20c per pound. Rye straw was scarce around Herkimer and I began a look around for some other material to make paper. I recalled what I had learned of the use of wood when in Belgium. I, at the same time learned o fa man in Baltimore who had started a machine for grinding wood into pulp, but had not made a success of it. I went to see the machine. I thought I could improve it, and I at once bought his patents and put four machines at my mill, and having made some improvements, was making wood pulp late in 1866 or early in 1867.

At the same time I came in contact with Alberto Pagenstecher, a German engineer who had returned from South America, where he had been building railroads. Some of his German friends had called his attention to wood grinding, and he brought out some machines, patented by Volter. He set up the machines at Curtisville, in the Berkshire Hills, and began making pulp in a small way, which he sold to the Smith Paper Co. at about 5c per pound. We joined forces and bought Volter's patents, which we found were the first patents issued, and therefore controlled the manufacture of ground wood.

We had as yet little idea of the great power that would be required to make any considerable tonnage of pulp. Our first joint enterprise was to build a small mill at Lucerne, located a few miles north of Saratoga, near the Adirondack wilderness, where we were to get a supply of wood. We built a small mill and developed about a hundred horsepower. So far we had not developed a practical way of extracting the pulp from the water used in the grinding machine. The pulp, as it came from the machine was about ten parts water and one part pulp. At Herkimer, I had run the water and pulp as it came from the machine into the old bleach vats, which I had used for rags and straw. At the Lucerne mill we put in a large number of vats of wood about 4 x 10 feet and 3 feet deep. The bottom of these vats was covered with fine wire cloth. When one vat was filled, the flow was turned into another. When the water was drained off the pulp was shoveled into small bags and then put into a strong hand press. When the press was full, strong men turned the screw down, and the result was, the pulp came out in squares of 10 to 12 inches, and two inches thick. These cheeses, as we called them, were then shipped to the paper mill.

The cost of making the pulp, for labor alone was more than $25 per ton. I soon came to the conclusion that the process we were using of separating the pulp from the water was not practical. To have made ten tons daily would have required hundreds of vats and ten acres of room. We were greatly discouraged at the prospect. I sat down to think it out. Whether I fell asleep or not I am not sure, but an angel appeared

and solved the difficulty in a single moment. The angel said, "Why you must be dull. You used to make straw boards with a cylinder in the vat, and a pair of press rollers and the felt running over the top of the cylinder, leaving the straw fibre on the rollers." The angel disappeared with a scornfull laugh at my obtuseness.

I started at once for Worcester, Mass., where I ordered a cylinder vat, and the necessary machinery, and went on to New York to report to my associate. He did not understand the proposition, but had faith in my knowledge. Within a few weeks the machine was shipped to the pulp mill. We went up to try out the matter.

First we broke up and threw out the vats, which had cost large sums. There was no one about the mill who had ever seen such a machine, so I set it up myself and attached the power. Meanwhile Mr. Pagenstacher became nervous; he could see the destruction of the vats but he could not see the results of which I was sure. He began swearing in German (which he thought I could not understand), complaining that I had ruined the enterprise. I made no comment, but ordered the machine started. The water and pulp came into the vat, which required some time to fill. I stood in front of the rollers; I threw in the clutch, the cylinders moved, the felt travelled over it, picked up the pulp which had been separated from the water, delivered it to the rollers, which wound it up until it was as thick as a side of sole leather. I had a sharp stick in my hand; I ran it across the roller and took off a sheet of pulp 5 feet by 3, and threw it down. The difficulty was solved. We had reduced the cost of manufacture from $25.00 to less than $10.00. We had made it possible to make ground wood by the thousands of tons, if wood and water could be had.

We took the first train to New York, where we celebrated the occasion in true German style. We next began to look for a great water-power and a supply of wood. We found it nearby; five miles below Lucerne; the great Hudson River rushes over a precipice nearly one hundred feet high, giving a power at low water of twenty thousand horsepower, and more than one hundred thousand at ordinary stages. We leased the entire falls and surrounding land, with privilege of purchase. We at once set to work to build a large mill. In a few months we had it running. Then came the tug of war, the paper manufacturers took alarm and refused to buy the pulp. They said it was shoddy and they got some of the publishers to condemn it as bad and unfit for use.

I reported to my associates our difficulties and recommended that we put in paper machines, I was sure we could produce and sell paper at a profit for less than half of the going price. We were all young and fearless and ready to take a chance.

The paper machinery was ordered and in a few months we were making paper.

We found no trouble in getting orders. The profit in paper making as against pulp making was so great that we abandoned making pulp for sale, and proceeded to increase our paper making department thereby adding very largely to our profit.

We organised ourselves into the Hudson River Pulp & Paper Co. and bought large tracts of timber land on the upper Hudson. At this time Mr. Warren Curtis came with us; he was a born paper maker and mechanical engineer; he invented the hydraulic system of feed for the grinders, increasing capacity from a few hundred pounds product daily to a ton or more per grinder. We turned the water wheel down horizontally and connected its shaft with the shaft of the grinder thus throwing out all gears, pulleys and belts, producing an immense saving in cost of construction and of manufacturing also. He perfected the machinery for cleaning and preparing wood, he made the plans and had built the first fast running paper machine in the world.

Almost at the beginning of the wood pulp industry Mr. William A. Russell, a large paper manufacturer of Massachusetts, took up the business in New England, and built or bought a number of mills and developed the industry largely, putting the pulp into higher grades of paper.

At the same time Messrs. Bradner, Smith & Co. of Chicago took an interest with us in the patents for the West. They built a large pulp mill at Appleton Wisconsin, thus starting the business in the West.

When the patents expired, the business was free to all and many rushed in. The business was overdone; not only did profits disappear, but in the case of many mills badly located with high price of wood, large losses were made.

During the first two years of the industry we used only poplar wood because it made a very white pulp. The poplar was scarce about Herkimer, and I found myself woodless before the end of the first year. My bank account was low, wood must be had and I found it about twenty miles north of Herkimer, where a small settlement of Germans had taken up some forest lands, which were mostly covered with spruce trees. I determined to try this wood. I got the Germans to take down many loads of spruce, which I ground and made up into paper. The color was not equal to the poplar pulp, but it was much stronger and firmer and in every way better. My customers approved of the change. Immediately poplar was taboo, it was left to makers of book paper by the soda process, where it remains to-day filling a very important place in the trade.

I made the first wall paper out of ground wood. I solicited a sample order from a wall paper manufacturer in New York City. I sent the sample and waited for results. Some months later being in New Lork I called at the office of the manufacturer. He said the paper had worked satisfactorily and asked whether I could take an order for delivery during the year to come. I could. He sat down and wrote an order for one thousand tons at 10c per pound which was the going price. I went home a rich man in my imagination.

I had a small paper machine standing idle. I knew I could make the paper at 5c per pound or less. It left me a net profit of more than $100,000. but I did not stop working.

During the first two years of my manufacturing affairs I was owner, foremen, bookkeeper and salesman. I didn't work on the eight hour system. The tme generally ran from 6 a.m. to 12 o'clock midnight, and I wasn't overworked at that.

I made the first imitation, or bogues Manila paper, as I named it. I had succeeded in bleaching jute bagging to a degree that I could use it in white paper. My agent in New York bought and shipped me a lot of bagging, some of which had been in a fire. I found I could not get rid of the burnt fibres nor could I

bleach it. I used the bagging, loaded it with wood pulp and colored it with yellow ochre. It produced a fair looking paper which at a low price answered for many purposes.

As I have said, I learned making paper of straw in 1863 at 25c per pound. I began making wood pulp at 20c per pound and quit the business selling a better paper at $36.00 per ton at a loss. The publishers got the benefit.

I am glad to know that the paper manufacturers have at last come into their rights and are recovering some of the losses they have made during the past ten years.

TESTING GREASE-PROOF PAPERS.

In a communication from the Royal Materials Testing Laboratory, Grosslichterfelde, Berlin, which is abstracted in the "Journal of the Society of Chemical Industry", tests are given for imitation parchment and "pergamyn" papers, particularly to determine their grease-proof properties. The "blister" test and the oil of turpentine test commonly employed for grease-proof papers, have been the subject of controversy as to their relative validity, and the communication says, both possess the disadvantage of standing in no direct relation to the actual use for which the paper is required, and of being incapable of numerical comparison. In devising a quantitative method it was preferred, therefore, to employ butter or lard as the greasy medium, and standards had to be fixed to express the degree and time of resistance.

In the test now prescribed, sheets of the grease-proof paper, 13 by 18 Cm. in size, are smeared with a layer of fat 1 Mm. thick and 25 sq., Cm. in area. The fat is applied by means of a zinc template having a square hole of the correct area, and the excess is scraped off with a celluloid straight edge.

The treated paper is laid on a sheet of white engine-sized note paper, and supported on a glass plate, another glass plate loaded with a 500 Gm. weight being superposed.

The results are classified by an examination of the sheet of note paper after a given time as follows:

(o) Perfectly grease-proof, no stains or only one or two stains due to minute pinholes: (1) Grease-proof, not more than 15 small, practically isolated stains; (2) Fairly grease-proof, between 15 and 50 small stains, mostly isolated; (3) Slightly grease-proof, numerous stains, largely confluent, covering about half the area under treatment; (4) Not grease-proof, stains spreading over the greater portion of the area.

A large number of observations have shown that lard has a greater penetrating power than butter, consequently lard has been suggested as the standard reagent, and one hour as the standard time. None of the imitation parchment or pergamyn papers possesses prease-proof properties approaching those of the real vegetable parchments, but the degree of resistance may be determined in relation to the purpose for which the paper is required in a manner similar to the ink-resistance of sized writing papers.

AMERICAN TIMBER MOSTLY ON PACIFIC COAST.

Revised estimates place the amount of standing merchantable timber in the United States at approximately 2,767 billion board feet. Of this amount 1,464 billion board feet, or 53 percent of the total, is in California, Washington, Oregon, Idaho, and Montana.

TO UTILISE WASTE PAPER.

Under the title of the "Camco" Paper Macerating Machine the Toronto Type Foundry Company, Limited, of 70 York St., Toronto, is offering a useful and handy appliance for use in destroying documents, manuscripts, tickets, cheques, used account books, and other papers of any kind whose destruction is advisable. The original idea of the Macerating machine was to provide for the destruction of private and confidential documents in banks, insurance offices, etc., but it has the further advantage of turning out a remarkably good packing material, which in these times, when the usual packings have risen to extremely high prices, it is an advantage to be able to produce from one's own waste paper. The machine turns out ribbons of paper that make an ideal packing material. The cutters are of the best hard-tempered steel and are practically indestructible. Four sizes are made, Nos. 1 and 2 being power-driven with a conveyor to facilitate feeding, and Nos. 3 and 4 with a shute for carrying off the cuttings. The No. 4 size is just the thing for office use. It only occupies about 22 inches by 32 inches of floor space, and can be handworked by a boy or a girl, without any previous experience. The paper is fed from a table into a hopper, and delivered, cut up, into a basket, box or other receptacle. To intal a Macerator is to add a profitable adjunct that will soon repay its cost.

This machine is sold in England by the Canadian-American Machinery Co., Ltd., 8 Bouverie St., E. C., London.

WEALTH IN RUBBISH.

An illustration of the extent to which the "Campaign for Thrift" is being conducted in Germany is contained in the following extract from an article appearing in the Kolnischen Zeitung, translated for the News-Print Manufacturers' Association:

"The collection since the war began of kitchen refuse in the large cities is an important step in advance of social economy. If, however, we inspect the contents of the rubbish receptacles, we must say that there is still serious wastefulness. The public does not realize the great value that attaches to waste paper, and how many thousands and thousands of marks are lost at the rubbish dumps. What is known as "old paper" is sorted out, and the commonest stuff can be used in making wrapping paper. The wrapping paper mills hardly know how to get raw material, and prices have almost doubled. We often do the small tradesman an injustice when we denounce him as an extortioner without stopping to consider that for paper bags, string and other petty supplies, he must pay four times as much as formerly."

FOR A FEDERAL PAPER MILL.

Erection of a government pulp and paper mill to insure an adequate supply of paper to the government at reasonable prices has been approved by the joint Congressional Committee on Printing, which annually draws the specifications for government paper.

The government uses about 30,000,000 pounds of print paper a year, which is sufficient to absorb the output of a 50-ton mill.

The report of the committee says that water power and extensive forests and mineral deposits to supply such a mill can be found on many government reservations. The House Committee on Printing has also recommended a government mill.

Making Paper to Substance Numbers

By EMMETT H. NAYLOR,
Secretary of the Writing Paper Manufacturers' Association.

On October 1 the manufacturers of writing paper began making all of their production to substance numbers. It is because of this change in the principle of production that your president has asked the Writing Paper Manufacturers' Association to send a representative to your convention to explain to you what this change means. As there is truly nothing new under the sun, so this change is not new, but merely the adoption of an old principle of production, that of standardization of product. But to show the reason for this change, one must appreciate that is has come, like many other changes in manufacturing, as a correction of abuses, which have gradually arisen through years of practice. This manufacturing to substance numbers is simple and far from radical. Its simplicity, however, has been considerably clouded and still is, in the minds of some, through custom. There are many people who are so conservative that were the world made of such we should still be most primitive. This change in the principle of production is so elemental, so simple, so desirable, that the wonder is that it was not adopted long ago by the writing-paper manufacturers.

You have all been accustomed to buying writing-paper by the pound. With the universal desire to have things different or individual, your customers have wanted special weights for no particular reason in many cases, except just to be different. You accepted the order for an unusual weight, and either as a jobber or through a jobber the order was placed with the manufacturer, who with characteristic accommodation accepted the order.

This brings us to the fundamental manufacturing principle, which has been the root of evil and which root is now dug up and cast out by the adoption of the proper principle of manufacturing only to substance numbers. You all are familiar with a papermaking machine and know how the wet pulp passes over the wires, becoming dryer as it moves, finally to be a sheet of paper. The weight of the paper is largely determined by the thickness of the pulp, as it becomes paper, an exceedingly delicate process, requiring often several hours of adjustment so that the flow of pulp, or "stuff," as it is called, will be just enough to make a certain weight of paper. The width of the paper on the machine is determined by rubber deckles between which the stuff runs in becoming a sheet of paper. These are the two basic operations the manufacturer has had to consider in accepting an order for a special weight of paper.

Having accepted the order, the manufacturer proceeded as follows: First it took a considerable while to get his machine ready. Then, of course, the order hardly ever has been for a sheet the full width of the machine, so the deckles were moved together. An hour or more was spent in adjusting the quantity of pulp or stuff as it came over the machine, so that after a considerable time the machine was ready to run the order for a special weight. What was the result? For the manufacturer, he had lost several hours in getting ready to make the order and, in the clean-up afterward; since the size of the sheet was not for a full width of the machine there had been part of the machine moving and making nothing, and the profit had in no way compensated him for the time, trouble and lost manufacturing energy. As for the customer, he had received the weight and kind of paper he desired, but for his life he coudn't have told the difference between his sheet and the regular sheet, which he wished to avoid, without Leunig's paper-scales and Ciceri Smith's micrometer. The ultimate consumer could not tell this slight difference in weight and had no reason to care for or to need any paper, except those of apparent variation in weight.

Through the years of custom the manufacturer and jobber became used to a great many weights, so that the regular orders or production of the mill were for an unreasonable variety of weights of paper. Neither the manufacturer nor the jobber was profiting by this; in fact, there was a decided manufacturing and merchandising loss. Of these various weights, however, there are certain ones which are desirable, and, therefore, the manufacturers of writing paper decided to make only these distinct and standard weights or substances and to eliminate all others, which were a result of caprice or fancy, yielding through the years to custom.

This, then, is manufacturing writing paper to substance numbers. It is the standardization of the product to certain definite and established weights. It is in line with all similar efficient modern methods of simplifying and standardizing production. A moment's thought will show one that it is not only basically desirable, but absolutely necessary. It is fundamental in principle, and, like all fundamentals, is not in the least complex.

The result of the adoption of this principle as a trade custom by the writing-paper manufacturers is that each has a definite and not a variable weight production. The papermaking machine is now adjusted to make a standard weight, and the deckles are moved to the full width of the machine, so that full capacity production is always obtained, and the machine can make a large quantity of the standard weight for stock. There is no loss of time and production by frequent adjustments and clean-ups for special weights, and no loss of energy by making special size on only one-half of the machine. All orders can now be filled from stock.

Since the mills are making these standard substance weights or numbers, the jobber or buyer must adjust his buying accordingly. Because of the variation in quality, there are three groups of numbers — those applying to ledger paper, which have seven substance numbers, namely, Nos. 20, 24, 28, 32, 36, 40 and 44; those applying to bonds and linens have four substance numbers namely, Nos. 13, 16, 20 and 24; and those applying to flat writings, which have five substance numbers, namely, Nos. 16, 20, 24, 28 and 32. Where paper used to be purchased on the pound basis it will now be purchased on the ream folio basis; that is, a ream of paper with a substance number folio size (17 by 22) weighs the same number of pounds as the substance number. Substance numbers, in other words, mean pounds to (17 x 22); that is, 17 by 22 —

No. 13 is 13-pound folio; No. 16 is 16-pound folio; No. 20 is 20-pound folio, etc. The number in any other size is to the folio basis; that is, 17 by 28—No. 28 is 28 pound folio, and 19 by 24—No. 16 is 16-pound folio, etc. That is all there is to this simple principle.

As with all changes, there are bound to be certain adjustments which must be made from the former to the present method. The mills, though now manufacturing to substance numbers, have on hand some stock of the old variable and unstandard weights, which until consumed will be shipped on the old basis. All papers made after October 1 are being stenciled with their respective substance numbers and will temporarily also carry the nearest substance ream weight. New orders for bonds and linens, flat writings and ledgers are now being entered and manufactured only in conformity to the adopted list of nine substance numbers; namely, Nos. (or equivalent pounds to the ream) 13, 16, 20, 24, 28, 32, 36, 40 and 44. Intermediate substance numbers carry the same ream price as the manufacturer, who with characteristic accommoda- the next higher number. On substances below No. 16 the Trade Custom No. 17 of the association governs and reads as follows:

"For weights lighter than basis 16 pounds 17 by 22, 500 sheets, an additional price to be charged. All bond and writing paper basis 15, 14, 13 pound folio to be charged for at ream prices, 16-pound basis."

In order to provide a clear means of ordering from these former odd weights, the association has distributed among the trade a table showing actual weights (figured to the one-half pound) of standard substance numbers. The list is not as yet complete, as additional sizes will have to be added to fit loose-leaf ledgers and other sizes may also be added from time to time; but for all present purposes the table is satisfactory. Soon number will have become as familiar to the mind as weights, but until that time this list, as published by the association, may be consulted in making out specifications. If, for example, you are buying 17 by 28—36-pound, you can find on the list the nearest weight, which is 35-5, which is in the column under substance number 28; therefore, you will order 17 by 28, No. 28. In ordering odd sizes all that is necessary is to determine the folio basis desired, and then specify this folio basis or substance number with the size of the sheet and number of reams desired.

While this change may seem in certain aspects to be complicated, yet it is not, and when the mills have disposed of all the odd weights, as formerly made, and are selling exclusively from substance numbers, it will be a very simple matter to state the size and number, and then always get the standard weight for that number. Reams will be marked, for example, 17 by 22—20, which will be substance No. 20, and all other sizes made on the same basis of weight will also be called No. 20; thus we shall have 17 by 22—20-pound, or No. 20, 17 by 28—No. 20, 19 by 24—No. 20, etc. The 13, 16 and other folio basic weights will be similarly handled.

This uniformity and standardization of weights will be of great value, for instance, to the printer. It will make it very simple for him to order other sizes of paper to match exactly any given folio sheet. He will have the same substance on different sizes to print upon, which is a material matter on finer work. In the past a printer would print a job on a sheet size 17 by 22, weighing 20 pounds to the ream. He might, for economy sake, want to print another part of the same job to match it on larger size sheet and would order 17 by 28 or 19 by 24, or other odd sizes. Under the former manner of manufacture he could have purchased the larger size, but it would not have the same weight per square inch as the 17 by 22 folio size. It would have weighed either more or less, and would have had a more or less thickness or substance. Under the present method the thickness or substance of any standard number is uniform, for it is exactly the same paper throughout.

This standardization of weights will also be of immense advantage to the blank-book manufacturers, because it will now bring all their standard books, like cap, demy, table cap, medium and royal, to the same standard or thickness of paper. Already several leading blank-book manufacturers have expressed their satisfaction concerning this standardization of weights of paper.

So it will be seen that this manufacturing writing paper to substance numbers is simplifying first the process of making the paper, giving the mills increased capacity; second, the manner of ordering the paper, and third, the use of the paper by the stationery manufacturer, the printer, etc. A vast amount of calculating of weights and bases is simplified, as are sample-books, both in the making and understanding.

The question may arise as to whether or not one will hereafter to able to have weights made other than those of the regular standard substance number weights. The answer is that such will not be made by the mills, as all have adopted this principle of manufacturing to substance numbers for one reason — to abolish this most undesirable practice of making odd weights, just as they have adopted all other beneficial trade customs. Some customers may feel that they must have certain odd weights, but after a while they, too, will be ordering the regular substance weights, and will find that the odd weights are, after all, not a necessity, but a mere fancy.

The table on the following page will be helpful in finding the weight per ream in standard sizes of paper corresponding to nine common substance numbers.—Paper, Dec. 6 and Dec. 20, 1917.

THE PRESENT STATUS OF RAG PAPERS.

The B. D. Rising Company, Housatonic, Mass., under the above caption, has been sending out the following interesting circular:

Do you realize the present status of rag papers? Here are four significant facts:

That the oldest piece of paper in the world is made from rags—a deed of King Roger of Sicily—1106 A. D.

That the paper which will outlast all other papers at present existing is made from rags—because rags are the most permanent material known for paper making.

That those who know best insist on rag papers. The U. S. Government will have nothing else for its better work.

That on the present market rag papers have advanced 40 to 50 per cent., while papers made from other materials have advanced 100 per cent and more, so that rag papers are relatively cheap.

The consumer who regards papers for what they will do—not as mere "expense" — will always buy rag papers.

The printer who wants a good name and "quality business" will always sell rag papers.

TABLE SHOWING ACTUAL WEIGHTS (FIGURED TO ½LB.) OF STANDARD SUBSTANCE NUMBERS.

Size.	Substance.								
	No. 13	No. 16	No. 20	No. 24	No. 28	No. 32	No. 36	No. 40	No. 44
14 x 17	8.5	10.	12.5	15.5	18.	20.5	23.	25.5	28.
14 x 34	16.5	20.5	25.5	30.5	35.5	40.5	46.	51.	56.
15 x 19	10.	12.	15.	18.5	21.5	24.5	27.5	30.5	33.5
16 x 21	11.5	14.5	18.	21.5	25.	28.5	32.5	36.	39.5
16 x 26	14.5	18.	22.	26.5	31.	35.5	40.	44.5	49.
16 x 42	23.5	29.	36.	43.	50.5	57.5	64.5	72.	79.
17 x 22	13.	16.	20.	24.	28.	32.	36.	40.	44.
17 x 26	15.5	19.	23.5	28.5	33.	38.	42.5	47.5	52.
17 x 28	16.5	20.5	25.5	30.5	35.5	40.5	46.	51.	56.
17 x 44	26.	32.	40.	48.	56.	64.	72.	80.	88.
17 x 56	33.	40.5	51.	61.	71.5	81.5	91.5	102.	112.
18 x 23	14.5	17.5	22.	26.5	31.	35.5	40.	44.5	48.5
18 x 46	29.	35.5	44.5	53.	62.	71.	79.5	88.5	97.5
19 x 24	16.	19.5	24.5	29.5	34.	39.	44.	49.	53.5
19 x 26	17.	21.	26.5	31.5	37.	42.5	47.5	53.	58.
19 x 28	18.5	23.	28.5	34.	40.	45.5	51.	57.	62.5
19 x 30	20.	24.5	30.5	36.5	42.5	49.	55.	61.	67.
19 x 48	31.5	39.	49.	58.5	68.5	78.	88.	97.5	107.5
20 x 28	19.5	24.	30.	36.	42.	48.	54.	60.	66.
20 x 56	39.	48.	60.	72.	84.	96.	108.	120.	132.
21 x 32	23.5	29.	36.	43.	50.5	57.5	64.5	72.	79.
21 x 33	24.	29.5	37.	44.5	52.	59.5	66.5	74.	81.5
22 x 25½	19.5	24.	30.	36.	42.	48.	54.	60.	66.
22 x 34	26.	32.	40.	48.	56.	64.	72.	80.	88.
23 x 28	22.5	27.5	34.5	41.5	48.	55.	62.	69.	76.
23 x 31	25.	30.5	38.	45.5	53.5	61.	68.5	76.	84.
23 x 34	27.	33.5	42.	50.	58.5	67.	75.5	83.5	92.
23 x 36	29.	35.5	44.5	53.	62.	71.	79.5	88.5	97.5
24 x 38	31.5	39.	49.	58.5	68.5	78.	88.	97.5	107.5
24 x 48	40.	49.5	61.5	74.	86.	98.5	111.	123.	135.5
26 x 32	29.	35.5	44.5	53.5	62.5	71.	80.	89.	98.
26 x 33	30.	36.5	46.	55.	64.	73.5	82.5	92.	101.
26 x 34	30.5	38.	47.5	56.5	66.	75.5	85.	94.5	104.
26 x 38	34.5	42.5	53.	63.5	74.	84.5	95.	105.5	116.5
27 x 40	37.5	46.	58.	69.5	81.	92.5	104.	115.5	127.
28 x 34	33.	40.5	51.	61.	71.5	81.5	91.5	102.	112.
28 x 38	37.	45.5	57.	68.5	79.5	91.	102.5	114.	125.
28 x 40	39.	48.	60.	72.	84.	96.	108.	120.	132.
28 x 42½	41.5	51.	63.5	76.5	89.	102.	114.5	127.5	140.
30 x 38	39.5	49.	61.	73.	85.5	97.5	109.5	122.	134.
31 x 53	57.	70.5	88.	105.5	123.	140.5	158.	175.5	193.5
34 x 44	52.	64.	80.	96.	112.	128.	144.	160.	176.

SHORTAGE OF CANADIAN PULP WOOD.

That United States pulp and paper mills, purchasing pulp wood from Canadian sources, will be unable to get such raw materials after October next, is asserted by Canadian Pulp & Paper Association.

Scarcity is due to difficulty of cutting owing to unusually severe winter and heavy fall of snow, and a serious tangle in railway facilities. Labor is also phenomenally scarce, the government having sent to England and France thousands of expert woodcutters in "forestry battalions."

Newsprint Manufacturers Offer to Concede to the Government's Demand

By ROWLAND W. JOLLY.

(Special to the Pulp and Paper Magazine).

New York, N.Y., February 19, 1917.

The climax in the investigation of the news print industry of the United States by the Federal Trade Commission came to a head yesterday when the news print manufacturers made the offer to submit the regulation of prices to a Federal body to be named by the Commission. While this move was not altogether unexpected, it came as a surprise to the trade. It is said that this announcement is the result of a several days' conferences between the news print manufacturers and the attorneys from the Commission, held recently at Chicago. At this time, it is said, the proposal was made by the representatives of the Commission, but was refused by the paper men. Other events, since that time, have, however, made it appear advisable to concur with the Commission, with regard to the regulation of news print prices by a Federal Board.

The offer of the news print men is embodied in the following resolutions:

"Whereas, Among manufacturers and publishers there are differences of opinion regarding the increase since January, 1916, in the cost of production of news print paper in the United States and regarding the increased prices to which manufacturers are entitled for news print paper sold for use in the United States for the six months period beginning March 1, 1917, taking into consideration the increase in their cost of production and other conditions affecting such manufacturers and,

"Whereas, The undersigned manufacturers are desirous of co-operating in any plan that may be approved by the Federal Trade Commission providing for a more effective distribution of news print paper among the smaller publishers; and

"Whereas, The undersigned manufacturers are desirous of submitting these matters to the arbitrament of the Federal Trade Commission; now, therefore, each of the undersigned does hereby request the Federal Trade Commission to find, fix and determine forthwith:

"(a) The probable or estimated increased cost of production of standard news print paper in the United States during the period of time commencing March 1, 1917, and ending September 1, 1917, over the cost of production of news print papers in the United States during the year 1916.

"(b) What price per hundred pounds at the mill would be a fair and reasonable price for the sale of such paper for use in the United States during the aforesaid period of time, from March 1, 1917, to September 1, 1917; taking into consideration such increased cost of production and other conditions affecting respective manufacturers which the commission may deem pertinent at this time.

"It is agreed by the manufacturers that they will carry out all existing contracts even if at prices lower than those fixed by the commission and that with respect to contracts which are for higher prices, reductions will be made. Further important clauses in the proposition are these:

Each of the undersigned does hereby agree that it will, so far as lies in its power limit each contract purchaser to his necessary requirements only, and sell to its customers respectively who have no contracts sufficient paper to meet their necessary requirements only, during said period of time, at a price not in excess of the amount found, fixed and determined by the Federal Trade Commission to be a fair and reasonable maximum price on such paper.

And the undersigned does also agree and bind itself to co-operate with the Federal Trade Commission in carrying out any plan approved by the commission to bring about the distribution of news print paper for the purpose of securing prompt and effective relief to the small publishers of the United States and which will enable such small publishers through co-operative buying, to secure their news print paper at practically the same price as that which is hereinunder to be enjoyed by the larger publishers, due provision being made for any additional cost of distribution. New publishers shall not be charged more than said maximum price so found, fixed, and determined by the Federal Trade Commission during said period of time.

And each of the undersigned, while not admitting but, on the contrary, expressly denying that any law has been violated by it, does nevertheless hereby agree that the Federal Trade Commission may, if it finds it necessary or advisable, proceed forthwith to make recommendations for the readjustment of its business in order that it may maintain its organization, management, and conduct of business in accordance with he law.

This climax which has engaged the attention of the trade since last May, is causing considerable discussion. True, the publishers claim it is a victory in their favor. for now, they maintain, they will be able to get their news print at reasonable rates. But, while the news print manufacturers are not altogether desirous of having their business conducted by outsiders totally unacquainted with trade conditions and other matters of vital importance in this connection, they feel confident that, if the Board appointed to regulate these prices is at all fair, which they have every reason to believe it will be, that there will be no material change in the present prices. As a matter of fact, judging from the ever-growing scarcity of wood pulp, they believe that, despite the intervention of the Board, prices on news print must advance much higher.

The following statement has been issued by the Federal Trade Commission: The offer with its promise of lower prices and more equitable distribution, not only means the saving of millions to the great publishers of the country, but averts the absolute ruin that now threatens hundreds of the smaller publishers.

The proposition is the outcome of the news print paper investigation that the Federal Trade Commission has been conducting for the last eight months. As a result of public hearings and the work of economists, accountants and financial experts, the commission arrived at the conclusion that the paper shortage was largely artificial, that prices were extortionate and that free competition had ceased to exist.

It was not stated whether the proposition, if accepted, would affect the Federal Grand Jury investigation of the paper situation in New York, but the intimation made was that there aws a close relation between the two phases of the matter.

Report of the Meeting of the Technical Section---January 30th and 31st, 1917---Ritz-Carlton Hotel, Montreal

Secretary's Report.

The annual meeting of the Technical Section of the Canadian Pulp and Paper Association was held January 30th and 31st at the Ritz-Carlton Hotel, Montreal. The business meeting which was called at 10:30 A.M. January 30th was presided over by Dr. J. S. Bates, chairman of the Section.

The reports of the secretary-treasurer were read and approved and the various committees of the Section reported as follows:

Report of Committee on Literature and Statistics.

Mr. Chairman and Gentlemen:

Your committee begs to report that a plan for abstracting current literature on pulp and paper has been worked out and put into operation and that abstracts are now appearing regularly in the Pulp and Paper Magazine of Canada.

In co-operation with our official organ, the Pulp and Paper Magazine of Canada, arrangements have been made for abstracting the available technical and trade journals dealing with subjects of interest to the pulp and paper industry. Abstractors have been appointed to handle this work and the whole undertaking is being financed by the Pulp and Paper Magazine. Your committee has assisted in getting the work started by arranging for abstractors to carry on the work and in similar ways.

Since the first of January abstracts have been appearing regularly in the Pulp and Paper Magazine and while of necessity the beginning has been rather modest there is no doubt that the work will develop and become more extensive and complete. The whole undertaking is being handled by the Pulp and Paper Magazine through paid abstractors and the Magazine is bearing all the expense. Now that the work is well under way there is no need for a Committee from the Technical Section to look after it. The duties of your committee have never been very well defined and we would therefore be pleased to know if there is any further work for us to do.

O. F. BRYANT, Chairman.

After the reading of the report the chairman called upon Mr. J. N. Stephenson, Editor of the Pulp and Paper Magazine to express his views on the abstracting of technical literature. Mr. Stephenson outlined the work he done as chairman of the Committee on Abstracting Literature of the Technical Association of the Pulp and Paper Industry and the attempts that had been made to co-operate with the Technical Section. When he became editor of the Pulp and Paper Magazine one of his first steps was to work out a system whereby abstracts of technical articles should appear in the Pulp and Paper Magazine. He pointed out that the abstracts were probably of more importance to the men in the mills than they were to the officers of the various companies and should therefore receive the support of the mill men. The abstracts were valuable because through them the men could keep in touch with the development of the various phases of the industry. The men could hardly be expected to read all the technical and trade magazines and the abstracts provided a means of quickly and [illegible] the field. While the abstracting of the technical literature on pulp and paper was still in the experimental stage a beginning had been made and there was no doubt but that the work would continue to grow and expand and become of greater value to the industry. He wished to express his appreciation of the help he had received from the Committee on Literature and Statistics and would be glad to receive any further suggestions that they could offer; in fact he would be glad to have this committee edit the page devoted to abstracting if they cared to do so. In conclusion he asked that the members of the Section cooperate in the work by offering any suggestions that occurred to them.

Mr. C. B. Thorne pointed out that every one was trying to keep in touch with the developments of the industry and that owing to the rapid progress that was being made it was becoming increasingly difficult to do so. The abstracts if carefully prepared would furnish a means for doing this. It was, however, of extreme importance to arrange these abstracts so that they could be easily filed in order that the information would be readily available. He thought that a proper system of classification should be worked out by the Committee on Literature and Statistics. He did not know whether it would be more satisfactory to have the abstracting handled by the Committee or by the Pulp and Paper Magazine but he felt that if possible it should be handled by the Magazine. This was a matter for the Committee to decide. He felt that the Section should not only support the Magazine by suggestions, but that they should go on record as stating that they felt that all the manufacturers of pulp and paper equipment should advertise in the magazine.

In answer to a question by Mr. T. L. Crossley, Mr. Stephenson said that the abstracts would be indexed in the Annual Index Number of the Magazine.

Report of Committee on Technical Education.

Mr. Chairman and Gentlemen:

Your Committee is pleased to report very satisfactory progress in the work at Thorold. Attendance and interest are maintained and increasing.

The chairman of this Committee is expected shortly to give the opening lecture of a series of illustrated lectures on various phases of paper and pulp mill work.

It is expected that this school and its experiences will become the basis upon which other similar schools will be opened, and eventually lead to a demand for a central school of papermaking.

Your Committee will be pleased to have data from all the mills showing percentage of illiterates employed and the class of work they are engaged in. Circular letters will be sent to the mills later and it is hoped that valuable information will be obtained as a basis of comparison from time to time, of the literacy status of the industry.

We are indebted to the Editor of the Pulp and Paper Magazine of Canada for answers to some inquiries re board machines.

It is expected that this department will hereafter always be located in the same part of the Magazine, namely following [illegible]

market reports. We would especially draw attention to questions in issue of Jan. 25, page 110. We hope to see not only questions and answers but correspondence and discussion of the answers.

On behalf of the Committee,
T. LINSEY CROSSLEY,
Chairman.

In the discussion which followed this report Mr. J. A. DeCew said that he felt that it was particularly important that the answers to any questions which were submitted to the "Question Drawer" handled by this Committee should be absolutely accurate and it was suggested that questions should be submitted to men in the country who were experts on the subjects in question before the answers were published.

Committee on Standards.

Synopsis of Report on Pulp Testing.

Since the last Meeting, your Committee have been studying the question of the various methods for the sampling and moisture determination of chemical and mechanical pulps. Owing to the various conditions in which pulp is shipped from the manufacturer to the consumer, both within and outside of Canada, your Committee consider that it will be necessary to modify the various methods of sampling to meet the various conditions in which the pulp may exist at the time of being tested.

The manufacturers of Canada export a much larger proportion of pulp than they import and those methods which are of the most operative importance to the Canadian manufacturers are those concerned with the determination of the average moisture content of the pulp at time of shipment—it being essential that the methods adopted be those which will give the closest possible determination of the amount of air dried pulp within the shipment.

The various conditions in this connection to be considered, are: — First, — pulp which comes fresh from the drying machine and which is immediately baled and weighed for shipment. Second, — Pulp which comes direct from the wet press, folded into laps, and which is weighed and loaded directly into cars for shipment. Third, — That pulp which after having been taken from the wet press is placed under hydraulic pressure to remove further moisture and which is then directly weighed and shipped. In addition to these, there are special conditions such as when pulp has been stored for sometime at the point of shipment before being weighed and tested. In adopting methods of testing it is important to consider first, whether the pulp is tested at the time when individual sheets are uniform in character, or whether atmospheric influences have been allowed to create variations in moisture at parts in the individual sheets of pulp. When pulp is weighed and tested direct from the drying machine, the variations to be considered are those which may occur in moisture content at different points across thge original sheet of pulp. Variations in moisture content may also exist from one period of time to another, depending on adjustments in the pressing and drying conditions on the machine. It is obvious therefore, that if a sample is taken representing uniformly the entire width of the drying machine and that if a sufficient number of samples are taken at periods of time equidistant with the rate of production, then the best possible means of obtaining representative samples have been complied with. If however, the pulp is not weighed and samples, fresh from the machine, but is stored either in the form of rolls, or bales, then the problem of sampling becomes more difficult and more similar to those confronting the testing chemist at the receiving end.

More elaborate testing methods must, under these conditions, be adopted, in order to insure accurate results.

In the testing of wet pulp, taken fresh from the wet press machine, the conditions described above also apply. Obviously the most accurate sample is obtained by taking a parallel strip across the width of the press and the weight of the sample should be in proportion to the rate of the production of the machine.

The pulp should also be weighed for shipment at the time samples were taken. If however, the pulp is folded into laps and then sampled, it is difficult to obtain a sample which will provide for variations in moisture across the original sheet of pulp, but any samples taken by an approved method will be more representative than if the product is sampled after having been exposed for sometime to atmospheric influences.

In the testing of wet pulp which after having been folded into laps has been further treated in a hydraulic press to remove still more of the water, the problem of testing is again difficult, owing to the fact that moisture adjustments had taken place within the pulp which eliminates the variations in moisture across the original sheet and also to some extent the variations in the pulp produced within two short periods of time.

We are now concerned with the distribution of moisture resulting from intense pressure which has caused a flow of water from the inner portion to the outer portion of the folded sheets. In this we have the condition where the method of sampling the individual sheet of pulp is of very great importance, it being essential that the sample taken will represent as near as possible, the average moisture content of the entire sheet, although the outer portion of the sheet is naturally wetter than the inner portion, which has received the maximum pressure. It is necessary therefore, that specific methods of sampling this kind of pulp when freshly treated should be determined and this should be based upon evidence of the fact that a specific sample represents equivalent portion of the inner and outer pulp.

If the pulp from the hydraulic press is allowed to be stored in the form of a bale until atmospheric influences have effected its weight, then the method of sampling must be further extended to the selection of a number of sheets which will be representative of the contents of the bale.

This committee have now in contemplation the preparation of a statement of the specific methods which could be followed with the best advantage, under these special conditions and which they can submit for the consideration of this association. After this work has been finished, they could submit suggestions covering more comprehensive methods of sampling which if used by the chemist testing at the receiving end, should give results in conformity with those obtained when the pulp is properly sampled at the point of shipment.

Your committee have now under consideration the report of the committee of the American Pulp & Paper

Association and the American Wood Pulp Importers, on the methods of sampling pulp at the receiving end. This method is now specified for the use of all the chemists appointed to make moisture tests for the above association.

The general opinion of this committee is that the above method is designed mainly for the testing of dry pulp imported from abroad which has been carefully wrapped and that it is hardly comprehensive enough to be used in testing all of the various kinds and conditions of pulp imported into the U. S. from Canada. This committee is fully impressed with the importance of this work and the general advantage it would be to the trade if standard methods of working under specific conditions could be adopted. Although we have before us at the present time sufficient data to enable us to make these recommendations, we feel that prior to doing this, any controversal points should be eliminated by a careful and scientific determination of the additional data required to establish any specific method. In order that the work involved should be fairly distributed and that any report submitted would be as representative as possible, it would be advisable that all those chemists in Canada who have expert knowledge of this subject should participate in this work. On the other hand the association might consider it available to select a special committee for preparing a report on this subject.

It was suggested at our last meeting that the committee studying this subject should visit some of the representative mills and investigate their various methods. The difficulty in carrying out this suggestion is the fact that the committee is already working at some disadvantage owing to the difficulty in arranging meetings for personal discussion. Any Committee which could spare the time for mill investigations would necessarily be a small one and their report would be a statement of the common practice rather than recommendation of standard methods based upon scientific data. We would therefore ask at this time for instructions from the Association as to whether they wish this Committee to undertake this work or whether they would wish to appoint a separate committee to undertake it. We would also respectfully ask that whatever committee is authorized to proceed, will be given instructions whether they are to report on the best practice in use in Canada today in testing pulp or whether they are to collect sufficient data to enable them to submit recommendations regarding methods that would be worthy of adoption by the mills in general as standard methods.

Yours truly,

J. A. DeCEW.

Chairman of Committee on Standards.

In the discussion which followed it was suggested by Mr. Thorne that the committee might do very valuable work by recommending methods of testing which had already been adopted by other associations. The committee could recommend the adoption of these methods by the Section and could either send out copies of the methods or information as to where the methods might be found. He thougth that the testing of pulp for moisture was extremely important and suggested that a special committee be appointed to handle this work. This committee could gather information as to the existing standard methods of testing and if it was found that none of these methods applied to Canadian conditions a new method could be developed. The committee could visit the Canadian mills and find how the work is being carried on at each mill and then go over the various methods being used and select one that would suit all mills.

Mr. Crossley thought that it would be impossible to select a standard method which would suit the conditions in every mill until the machines themselves were standardized as each mill ran its machines somewhat differently than the others. If a method of testing for moisture was adopted it should be stated that the method applied to pulp handled in certain standard ways.

After considerable discussion as to whether a special committee to investigate the testing of moisture in pulp should be an independent committee or a subcommittee of the Committee on Standards the following motion was made by Mr. Bowness and seconded by Mr. Slack.

That a committee be appointed to investigate the testing of moisture in pulp with a view to drawing up standard methods; the committee to be a sub-committee of the Committee on Standards.

The motion was carried.

At 11:30 the business meeting was adjourned and the members attended a lecture and demonstration of the Schoop Metal Spraying Processes given by Mr. T. S. Worthington, General Manager of the Metals Coating Company of Canada, Limited, at the laboratories at 90 St. James Street.

After lunch at the Ritz-Carlton Hotel the members and guests of the Association again assembled to hear a paper by Mr. H. S. Guettler of the American Barking Drum Company, Chicago, Illinois, on Barking Drums. The Section was fortunate in having as a guest Mr. Moulton of the Moulton Engineering Company, Portland, Maine. Mr. Moulton has had considerable experience in the installation of Bache-Wiig Barking Drums and at the close of Mr. Guettler's paper read some very interesting data furnished by Mr. Bache-Wiig and gave some valuable information on the Bache-Wiig Barking Drum. The remainder of the afternoon was spent in a discussion of barking drums and methods of handling wood.

At 10:30 A. M., January 31st, the Technical Section met with the main association to listen to the address of the President of the association and the reports of the officers and various Sections. Of particular interest to the Technical Section was the report of chairman, Dr. J. S. Bates, in which he outlined the field covered by the papers read before the Section during the past two years and made an energetic plea for a wider recognition of the value of science in the industry.

At 11:30 the members again convened to complete the business which was still before the Section.

Editor's note.—The reports of the Committee on samples and the advisory committee to the Division of Pulp and Paper of the Forest Products Laboratories of Canada will appear in an early issue of the Magazine.

Dr. J. S. Bates made a brief report for the council recommending the following amendment to the Constitution of the Section.

That article VI of the Constitution be amended to read as follows: "Article VI Officers and Council—The officers shall be Chairman and Vice-chairman elected for one year by the members of the Technical Section at the annual meeting, and a Secretary-treasurer.

"The chairman and vice-chairman with the council-

lors shall constitute the Council of the Technical Section. The three councillors shall be elected for one year by the members of the Technical Section at the annual meeting. It is desirable that the various branches of the pulp and paper industry shall have representation on the council.

"The chairman, vice-chairman and secretary-treasurer shall perform the usual duties of these officers. The council as a whole shall pass on membership, attend to business between meetings and have general charge and control of the affairs of the Technical Section."

It was moved by Mr. Anderson and seconded by Mr. Thorne that the amendment be adopted. Motion carried.

The Council further proposed that the following addition be made to Article VI of the Constitution.

"That for committees which are established from time to time by the Technical Section, the members shall hold office for one year unless otherwise provided for; the Council shall appoint the chairman of the committee as soon as possible after the annual meeting in the case of a standing committee or after the establishment of a new committee and the chairman shall choose the members of the committee with the approval of the council."

It was moved Mr. Thorne and seconded by Mr. Norton that this addition be incorporated in Article VI of the Constitution. Motion carried.

The following recommendations were presented by the Council.

"The council recommended that in addition to the existing standing committees the policy should be to establish committees for specific purposes and limited scope as the demand for special investigation arises from time to time."

"The council has adopted a policy regarding publicity whereby those who present papers and those who take part in discussions at meetings may have the opportunity to correct or revise the manuscript before publication in the proceedings of the Section."

The matter of arranging for a secretary-treasurer for the Technical Section was left to the council. The Section felt greatly indebted to Mr. Roy Campbell for his faithful secretarial assistance during the past two years.

The Section then proceeded to the election of officers and the following were elected for the coming year.

Chairman—Dr. J. S. Bates.

Vice-chairman—C. B. Thorne.

Councillors—Mr. G. W. Dickson, Mr. O. Rolland, Mr. A. O. Bowness.

The chairman then called upon Mr. J. N. Stephenson to tell the members something of the new policy of the new Pulp and Paper Magazine. Mr. Stephenson said that the Magazine was intending to publish and distribute to the members the proceedings of the Section for the past two years and that the yearly subscription to the Magazine would be $3.00 for members of the Technical Section.

Dr. B. Johnsen of the Forest Products Laboratories of Canada then read a paper on "Wood as a Raw Material for Paper Making". A short discussion followed this paper during which Mr. H. N. Lee referred briefly to work being done at the Forest Products Laboratories on the fibre lengths of various Canadian woods.

The Section then joined the Main Association at lunch and again at the banquet of the Main Association held during the evening.

Proceedings of the Canadian Pulp and Paper Association

(Continued from last issue).

REPORT OF COATED PAPER SECTION.

By F. H. GAGE, Chairman.

Mr. President and Gentlemen:

The Coating Mills have shared a portion of the general prosperity in Canada. While it may be wise to consider that we are now at the height of our prosperity, I see no signs of reaction in sight.

The mills are all running full capacity and have considerable more orders on books than at this time last year.

The war has forced us to do a great many things that we never attempted before, in order to keep up with orders and machines running.

The quality of paper supplied the mills for Coating did not run uniform, notwithstanding the price more than double. Casein has increased 300%, other materials have advanced from 50% to 100%, and on a number of the colors used in making deep tinted papers, bristol and boards, could not be purchased at prices that would enable us to secure a market, consequently we had to experiment, some with success and other the reverse. The bright red and blue papers were taken off the market last spring.

The trade have in many cases substituted white for tints, and are not so particular about the quality, which has been impossible to keep up to standard. There was very little stock on hand with jobbers the end of last year, and all the mills have small stocks, as paper is shipped out as soon as made. Odd lines and seconds practically all cleaned up.

All paper made is used in Canada. We have had several opportunities to accept foreign orders, but preferred to look after home market which has greatly increased.

Previous to the war Canada imported 75 to 80 p. c. of box enameled in white and tints and considerable quantity of No. 1 book an lithograph the former used for high class catalogues and the latter for cigar bands label and fancy box tops. We installed machinery to make these grades and the bulk of the orders will remain in Canada after the war. This new business has helped to tide us over dull seasons in the printing and lithographing trade.

Our production is small in comparison with the book and news mills, but the demand is increasing and should be a very important industry in a few years, as coated paper is fast becoming more of a necessity than a luxury.

We are the largest and best customers of the book mills.

Last spring we formed a Casein Co. to encourage and increase the production in Canada as nearly 75% was imported from France, England, United States and South America. Owing to the demand for butter and cheese the results did not come up to our expectation but greater effort will be made this year and Canada should supply 50% of our requirements and eventually all Casein used will be made here.

We in Canada have benefited through the curtailment of borrowing money and importing merchandise from abroad and because of the increased production and less extravagance.

At this time when custom house returns at different points indicate a large increase in importations, it might be well to bear in mind that the careful policy

has proved to be a good one, and that it is the utmost importance that every individual and mill should maintain a strong financial position in order to meet the uncertainties which must surely lie ahead.

Respectfully submitted,

F. H. GAGE.

REPORT OF THE FELT SECTION.

Mr. Mr. E. R. Pepin, Chairman. Read by Mr. Graves.

Mr. President and Gentlemen: I would like to say that the making of this report was thrust upon me at the last moment.

The Felt Section is one of the youngest Sections of our Association. It was formed largely through the efforts of Mr. Campbell, your Secretary, and we believe that we have all the felt mills in Canada but one, as members.

We have met regularly each month, and we believe we have helped each moll very materially.

Now, you know that our stock is all rag stock, and heretofore it was all rag-tag and bob-tail stock, and after all the other material was taken out of these rags by the different sections, the balance was brought to us, and we found that we could not regulate the picking of these rags, and we endeavored to put up some certain standard of quality for these. We believe that we have been fairly successful in that. The unscrupulous rag dealer who filled his rags with rubbish now has more or less difficulty in disposing of them until he puts them up right.

We have all the mills but one in our Section, and we are looking forward to a very successful and prosperous 1917.

(To be continued).

NEWSPAPERS AND PROSPERITY.

The New York Times prints in a box on its first page a statement of its 1916 records as follows:

Circulation—Net sales, 124,593,327 copies.

Average daily and Sunday ..... 340,419 copies

Paper consumed ..... 67,914,000 pounds

Ink consumed ..... 1,062,000 pounds

Advertising space ..... 11,552,496 lines

This is impressive until it is subjected to analysis from a business viewpoint.

The cost of producing newspapers has increased tremendously in the last two years. Print paper has been advanced in price so much that it has occasioned governmental inquiry. Ink has gone 'way up.

Many newspapers in various parts of the country have been hit so hard that they have had to suspend publication. In some cities newpsapers ahve raised the price at which they were sold from 1 to 2 cents, and there has been some increase in advertising rates, but there probably has not been a time in the last half century when the newspaper industry the nation over was in so bad a state financially as today.

Few newspapers are making money. The vast majority are suffering heavy losses. And this at a time of collossal circulation, unprecedented advertising and the greatest general prosperity the country has known.

In their desperate efforts to reduce production costs the publishers have resorted to the poorest quality of print paper that can be made. Some of this paper is so bad that is has to be handled carefully or it cracks and tears. The quality of the ink, too, is vile.

To bind the newspaper of today into volumes for reference by people in the future is ridiculous. The paper changes color, rots and falls apart. The ink fades. There are libraries that have copies of newspapers printed twenty, fifty or 100 years ago that are as good today as the day they came from the press. Posterity will not know of the New York newspapers of today from seeing these papers, for there will be no copies to see.

Editors presume to instruct everybody, from the President as to the conduct of national affairs and the field marshals as to military operations in the war zone down to the mayor of a town in municipal matters or transit officials in the handling of street cars. Yet, as was pointed out in one instance, a newspaper that keeps itself busy telling Mr. Wilson how to run the government cannot make the clock in the tall tower over its editorial sanctum keep time.

There is one newspaper in New York which, on the basis of its present circulation and the contract it has entered into for news print for 1917, will pay $680,000 more for print paper than it did in 1916. And yet it clings to its 1 cent price. There is another paper which at one time earned nearly $1,000,000 a year which is said to have had a deficit in 1916 of $165,000.

A newspaper outside of New York which has a circulation in excess of 400,000 is paying $1,200,000 a year more for paper than in normal times. What must be the extra paper cost to a sheet like the New York Evening Journal with its 800,000 circulation?

Through lack of courage the owners of the great newspapers hesitate about raising the price of their papers from 1 cent to 2 cents. Everything has gone up in price except the newspaper, yet they punish themselves because each one fears that if he goes to 2 cents one of his rivals will get a lot of his circulation.

The more circulation a big newspaper has today the more it loses. There is a limit to what a newspaper can charge for advertising, but there seems to be no limit to the business folly of newspaper owners.

Outside of New York there has been a decided movement to do away with the 1 cent paper and supplant it with the 2 cent sheet. If it has affected circulation or advertising the fact is not apparent. In New York the editors walk the floor after they read the financial statements they got from the business office

Then they soothe their souls by lashing out at Congress and everybody else for their sins of commission and omission and they tell the erring ones exactly how things should be done and how sensible, clear headed people would do them.

All of which is right and proper, for the editor is to be judged only as temperamental persons are to be judged.

Henry Ward Becher once was criticised by a person who argued that Mr. Becher's performances were not in accord with his preachings.

"My friend," replied the great lecturer, "don't do as I do; do as I say."

Which might be said by editors and publishers today.

The New York Times as the most influential newspaper in America and possibly in the world, would do much for the stability and prosperity of the newspaper industry in this country if it broke away from the folly of the 1c sheet and established the 2 cent newspaper as the standard in this country. If it leads the herd will follow.—Commerce and Finance.

PULP AND PAPER NEWS

A charter has been granted to the Ina Grafton Homes Corporation with headquarters in Toronto. The Corporation is without share capital and the object is to assist by charitable aid those of necessitous circumstances and to provide homes for people in need of aid, to purchase or lease lands, buildings or apartment houses and to dispose of same by lease, sale, etc., to those who are in straightened circumstances. Among the incorporators is W. J. Gage, head of W. J. Gage & Co., and the Kinleith Paper Co., Toronto, who has donated a fund of one hundred thousand dollars to the Corporation. It is understood that the Corporation will erect an apartment house in Toronto capable of accommodating fifty families. The apartments will be leased, at a nominal rent, to the widows, children and other dependents of Canadian soldiers who have given up their lives for King and Country.

It has been reported for some time that the Beaver Board Companies intended installing in their plant at Thorold two Fourdrinier machines for the making of newsprint for one of the leading papers in Buffalo. The head office of the Beaver Board Companies in Buffalo states that the information is incorrect and they have no intention, whatever, of making news in Canada.

John Firstbrook, of Birstbrook Bros., Limited, box manufacturers, Toronto, has been elected a new director of the Confederation Life Insurance Co., Toronto.

James Hooper, who for the past fourteen years has been King's printer at Winnipeg, is retiring at the end of the present month on a government allowance. Philip Purcell, of Winnipeg, who was for twenty years editor and publisher of the Brandon Sun, succeeds Mr. Hooper.

The Porcupine Pulp and Lumber Co., Limited, was incorporated recently and has its head office in Toronto. E. E. Mansfield, of Niagara Falls, N.Y., is the president and secretary of the company, while A. A. Oatman, of Niagara Falls, is the treasurer. The organization is empowered to manufacture, purchase and deal in pulp, paper and paper substitutes of all kinds.

According to the report of Hon. G. H. Ferguson, Minister of Lands, Forests and Mines, for the Province of Ontario, the value of pulp manufactured in Northern Ontario, during the past year, was over four and a half millions, while the figure for the present year will show an increase. It is stated that fifty per cent of the pulp manufactured in the whole of Canada is being contributed by Ontario at the present time.

A meeting of the shareholders of Carter-Crume Co., Limited, Toronto, will be held next month. The American Sales Book Co., is controlled through stock ownership by the Carter-Crume Co., and it is reported that the latter concern will likely pass out of existence to be survived by the American Sales Book Co. Arrangements will be made with regard to the future of the two companies at the meeting to be convened in March.

At the annual meeting of the Hydro-Electric Union of Municipalities held in Toronto last week, Sir Adam Beck sketched the work which had been accomplished by the municipalities and predicted that, within five years, they would have an investment of one hundred million dollars in the enterprise. The total power now developed for the Hydro-Electric system is over 200,000 horse power. The municipalities now operating hydro systems comprise eighty-one villages, sixty-three towns, seventeen townships and twenty cities. Sir Adam predicted that a big news print mill would be erected in the Trent district. In reference to the situation confronting the Commission in the operation of pulp mills in the Trent district, he stated that ground wood not so long ago had been profitably sold at sixteen dollars a ton. Now the mills were offered forty dollars a ton for it. He added that newspapers were having considerable difficulty in securing, at a reasonable price, their supply of paper. If public support were behind the enterprise there was no reason why a paper mill should not be established in connection with this phase of hydro-activity and print paper supplied to the newspapers at reasonable cost. Sir Adam declared the publishers could never get this by legislation or act of parliament. The only way to get it, permanently and assured, was to go into competition. There was the power and there was the pulp and the problem was not insurmountable.

A new charter has been granted to the Peterborough Review Co., Limited, of Peterborough, Ont., with a capital stock of sixty thousand dollars. The old company went into liquidation some months ago and the plant and business were later purchased by A. H. Stratton and T. F. Matthews, of Peterborough.

In connection with the protest forwarded to Ottawa by the Publishers Section of the Toronto Board of Trade, of which Frank Wise, of the Macmillan Co., of Canada, Limited, publishers, is the chairman, it was pointed out that if there was not a drop in the price of book papers, there was a strong possibility of dearer school books. It it declared, however, by those in authority that the advance in the cost of book papers cannot affect the price of school books as the figure at which they are sold, is fixed by the Ontario Government, who have a contract with the publishers. Until the present contract expires there can be no change. In connection with the coarser papers used in the scribblers, etc., of Toronto, provision is being made in the estimates of the Board of Education for an increase in the appropriation. The principals and teachers of all the schools have been asked to practice economy on papers and to see that every page is filled carefully. It has been suggested that slates be used, but they are regarded as noisy and unsanitary. Unless paper becomes very much more expensive than it is at present, there will be no change in the system of using scribblers, etc.

The fifty-ninth annual meeting of the Canadian Press Association will be held in Toronto on June 14 and 15. Of the original members there is only one living to-day and he is Sir Mackenzie Bowell, of the Belleville Intelligencer, who is in his 94th year.

The Trade and Class Section of the Canadian Press Association has asked Sir Thomas White, Minister of Finance, to hold an inquiry into the cost and prices of book papers, and if necessary to summon witnesses and experts to give evidence regarding expense of materials, manufacturing, supply, outlook and general conditions. It is understood that a resolution to this effect has been forwarded to Ottawa. Many trade and technical publications are raising their subscription rates to meet the augmented outlay of paper, ink, labor, etc., and are rigidly limiting the number of reading pages.

John G. Sutherland, sales manager for the Spanish River Pulp and Paper Mills, Limited, who has been living in Toronto for the past six years, will in a few weeks remove to Dayton, Ohio, where he has purchased a house. The change is rendered necessary in that Dayton is the home of George H. Mead, President of the Company, and the general sales offices are located in that city. Mr. Sutherland will, however, make frequent business trips to Canada where he has a host of friends in all branches of the trade.

It is expected that the new 110 inch Black and Clawson cylinder wrapping machine, which has been installed by the Spanish River Pulp and Paper Mills at Sault Ste. Marie, Ont., will be in operation next week. The output will be about thirty-five to forty tons a day of wrapping paper. All of the plants of the company will be supplied with wrapping papers for news rolls while a number of specialties will be made on the new machine.

Charles S. Boehmer, of A. and C. Boehmer Co., paper box manufacturers, Kitchener, Ont., died very suddenly of heart failure on Feb. 10th last. He had just partaken of his supper. Mr. Boehmer, who was well known to the trade, was in his seventy third year. He was one of the oldest paper box makers in the province and had built up a large business. He is survived by his wife, three sons and one daughter. Mr. Boehmer was among the most respected and progressive residents of Kitchener and many friends will regret to learn of his demise.

Charles H. Mortimer, of Toronto, died on Sunday, Feb. 11th, after many years of association with the publishing business. H was born in Barrie but had spent most of his life in Toronto. For a long period he was on the editorial staffs of city papers and then branched out in the trade newspaper publishing line issuing the Canadian Lumberman, The Contract Record, The Electrical News and other periodicals. Mr. Mortimer, who was sixty years of age, was a prominent Mason and a leading Methodist and is survived by his wife, two sons and three daughters. His funeral on Tuesday afternoon to Mount Pleasant cemetery was largely attended, many newspaper men being present.

CROSSLEY GOES TO TORONTO.

Mr. T. Linsey Crossley of the firm of J. T. Donald & Co. consulting chemists and chemical engineers has gone to Toronto where he will have charge of the offices which the firm have openend in that city. The Toronto offices are located at 43 Scott Street.

TO SULPHATE PULP MANUFACTURERS.

FOR SALE. — 4 Second hand Diffusers, 10 fit. in diameter by 15 ft. long on body, cone top, about 22 ft. overall, flat bottom and wash outdoor 2 ft. by 3 ft. Address, "Diffusers", Pulp and Paper Magazine.

CORRESPONDENCE.

Editor, Pulp & Paper Magazine:

We notice in your magazine that Mr. James W. Pyke was elected First Vice-President and Mr. Alex Pringle was elected second Vice-President at the annual meeting of the Directors of the Wayagamack Pulp & Paper Company on February 13th. This is not quite correct as the Directors elected two Vice-Presidents, Messrs. J. W. Pyke and Alex Pringle.

Yours truly,
Wayagamack Pulp & Paper Co., Ltd.

SLIGHT INCREASE IN STOCKS OF NEWS PRINT.

The aggregate amount of mill stocks in the Western and Canadian territories on November 25th amounted to 4,233 tons. The aggregate amount of mill stocks in the two territories on January 27th amounted to 4,853 tons, or an increase in mill stocks of 620 tons. As this period covers the time of the year when mill stocks are at the highest point, naturally it would appear that consumption has practically kept up with production to an extent which is quite surprising and that there has been very little accumulation of paper against the usual Spring demand.

The American mills operated during this period of nine weeks constantly at from 100.3 to 108.6 per cent. of rated production, the Canadian mills at from 97.8 to 103.6 per cent., an average of 99.7 per cent.

DETAILS OF NEW PORT ARTHUR PLANT ANNOUNCED.

The plans and specifications of the Port Arthur Pulp and Paper Co., Limited, who will erect a hundred and fifty ton sulphite pulp plant in Port Arthur are announced. The company have been given one hundred acres of land by the city at Bare Point and will be supplied with water free of charge.

The complete details are as follows: Wood preparing plant, 70 x 160 feet, one storey high. The building will be concrete as far as the window sills and from that up brick will be used for the walls. Reinforced concrete on steel will form the main floors. The structures will all be of slow burning construction type, and it is expected that the first unit of fifty tons will be in operation by November next. The demensions of the other buildings are sulphur store room 53 x 107; digester house, 30 x 199, and 96 feet high, with six digesters, each 16 x 52. The digesters will be of the Manitowac type. The blow pit room will be 43 x 199; the screen room, 60 x 190, two storeys high; bleach liquor room, 44 x 140, two storeys high; boiler house, 101x 110; limestone acid system building, 36 x 108, with twelve towers each 60 feet high and six acid storage tanks, 26 x 20. The drying machine room will be 230 x 50.

CANADIAN CHEMICAL MARKET.

There are no important changes to report in the Canadian Market for Papers Makers' Chemicals. Prices are firm with an upward tendancy for spot delivery owing to railway congestion and embargoes. Brimstone has been advanced in the American market due to the enormous demand for home consumption. It is quoted at $32.50 for New York delivery, spot bringing $35.00 a long ton.

The lists of prices is the same as last week with the following changes:

Alum, potash, lb. .....7c@7½c
Brimstone, f.o.b. New York, long ton ..$32.50@$35.00

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

Newsprint paper manufacturers now being investigated by a Federal Grand Jury in New York, unexpectedly went to Washington on February 14 to confer with the Federal Trade Commission. None of those of the conference would say what was discussed or who proposed it, but it was not denied that the course of the Department of Justice was taken up, the Federal Grand Jury indictments against manufacturers for violations of the anti-trust laws. The manufacturers who went to Washington were Philip T. Dodge, Chester W. Lyman, and Owen Shepherd, all of the International Paper Company; George H. Meade, of Dayton, and Alexander Smith, of Chicago.

Arthur E. Wright, who was one of the best known men in the paper industry, died Wednesday morning, February 7, at Asheville, N.C., where he had gone for his health. Mr. Wright was taken ill about a month ago but it was not until within a week of his death that his physicians diagnosed his trouble as tuberculosis. He was born and brought up in New York city. His first venture in the business world was with the New York World, where he spent six years in the business office. From there he went with the International Paper Company, as salesman, working his way up by ability and hard work to the position of general sales-manager and vice-president. He was with that company for eighteen years and is generally credited with having built up and made the sales department of the International. On October 1st, 1916, Mr. Wright resigned from the International and took up new connections with the Perkins-Goodwin Company, as secretary. He also became vice-president of the North American Pulp and Paper Company, and undertook the development of the resources of that company. The North American Controls several companies. In connection with these, one of Mr. Wright's big ideas was the establishment of the tide water mill in or near New York, to have a capacity of 200 tons of newsprint a day. The plan had been temporarily shelved. Mr. Wright was 45 years of age at the time of his death. He is survived by his widow.

According to the newspaper reports from Lincoln, N.H., the Henry Paper Company has absorbed the J. E. Henry & Sons Company, and the whole plant will hereafter be known as the Henry Paper Company.

Several Spaniards are on a visit to this country to inspect paper mills. They were in Northern New York last week studying the new Lefebvre system of handling pulp. They went to the mill and saw the process in actual operation. The men were well pleased with what they were shown, and expressed themselves as satisfied that this system would prove its value in the business.

The election of officers for 1917 of The Consumers' Boxboard and Paper Company of Lancaster, Pa., last week resulted as follows: President, H. R. Gibbel; vice-president, S. E. Lane; secretary, J. F. Stone; treasurer, C. B. Risser; manager, H. J. Pierson; superintendent, H. C. Couch.

The Spencer Electric Light and Power Company, of Smyrna, Mich., has completed its big plant on the Flat River. The new dam is of concrete and will develop about 1,000 horse power. Plans for the structure were executed by the W. G. Fargo Engineering Company, of Jackson, while the actual building was under the control of the Price Brothers, of East York.

According to the report from Belfast, Me., The Pejepscot Paper Company has purchased property on the water front at that place. The property, it is understood will be used as a shipping terminal for pulpwood shipped to Maine from the Bay of Fundy. A new wharf is to be built on the property, and machinery installed to prepare the wood for the grinders.

The Webb bill permitting combinations of exporters engaged in foreign trade has reached a critical stage. according to the Chamber of Commerce of the United States. "The National Chamber is committed to the Webb bill; the Federal Trade Commission has thoroughly investigated the situation and advocates the passage of the bill," says the plea sent out. "The President has strongly endorsed it, and urged it upon Congress as a part of the Administration's programme, it has passed the House of Representatives; it has been reported by the Senate Committee on Interstate Commerce, one Senate only making a minority report; and yet its chance of passage is in jeopardy."

Several of the new buildings being built by the Eastern Manufacturing Company at South Brewer, Maine, are nearing completion. One of them will be used for pulp bleaching. The Bellmer process, which bleaches in separate batches instead of continuous system now in use will be used at this mill.

The experiments have been made by the E. I. du Pont De Nemours Powder Company with cotton as a substitute for wood pulp. The company has pulped a million bales of raw cotton for gun-cotton, and most of the equipment of this plant is very similar to that of a wood pulp factory. The company employs six hundred chemists who do nothing but research work. A certain number of these experts have been at work trying to solve the newsprint problem though officials decline to say how they have succeeded.

A reduction in the rates on paper maker's supplies is sought by the International Purchasing Company, of Boston, Mass., which presented the case to the New England shippers at a hearing last week to examiner William A. Disque, of the Interstate Commerce Commission.

The International Burr Company, of Watertown, N.Y., a new corporation organized last November for the manufacture of pulp mill grinder burrs, will shortly double its capacity. The entire plant known as the old Thermonter works. While the Burr used by the Hall Process Company is being manufactured by the International Burr Company, all other kinds used in the United States and Canada are made there.

The Markets

CANADIAN MARKETS.

Toronto, February 19th, 1917.

It looks as if the long delayed differences between the news print manufacturers and the newspaper publishers has been settled. The disagreement has been a protracted one, and it is a relief on all sides to learn that, while all the details have not yet been agreed upon, the white winged dove of peace is about to brood over the proceedings and that no stringent measures have been taken. Both sides appear to have given in somewhat. The publishers who so vigorously objected to the suggested figure of two and a half cents, called for two and a quarter cents, while the manufacturers held out at first for three and later made an overture of two and three-quarter cents. To use a bargaining phrase they will likely split the difference of half a cent making the maximum figure 2½.

The matter has been passed, by order-in-council, from the hands of Sir Thomas White, Minister of Finance, to the Minister of Customs, who has power to license the export of paper and also to fix the price, etc. It is understood that all the mills will share in the arrangement and so far as domestic consumption is concerned will do so pro rata according to output. There are several plants which practically do an entire export business while others cater wholly to home trade. The latter will not have to bear all the reduction as the bigger concerns will come in proportionately on the basis of respective tonnage.

While the maximum for domestic news print has not been fully adjusted it is felt that the figure of two and a half cents will be the one prevailing. Troubling the plants just now is the scarcity of coal and one mill in Ontario had to shut down for a few days last week owing to lack of this commodity. Several mills have not more than two days' supply ahead and even the most fortunate have less than three weeks. With the milder weather and concerted action on the part of the railways to rush through cars of coal, it is believed that the worst is over. Freights are also in a bad way, and all the mills are being handicapped very seriously in shipments.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as	5½c
News (rolls), at mill, in carload lots on contract	$2.50
News (sheets), at mill, in carload lots, smaller lots higher	$3.75
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

Pulp.

	F.O.B. Mill.
Ground woodpulp	$40 to $45
Easy Bleaching Sulphite	$110.00 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	1.90
Heavy ledger stock	3.40
Soft ledger and writings	1.60
No. 1 magazine	1.85
No. 1 book stock	1.75
No. 1 manila envelope cuttings	2.60
No. 1 print manila	1.40
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.70
Tailor rags	1.70

NEW YORK MARKETS.

New York, February 17.

The big thing in general discussion, as this article is being written, is the report that the newsprint manufacturers intend to submit the regulation of their prices to a Federal board, if this is satisfactory. Naturally, the question arose, would this in any way affect the pulp markets? That is, suppose, if such a Board actually took over the control of news print prices and then decided on a general figure — somewhat about 2½c—would this action reflect on ground wood pulp? It was argued that the limitation of prices in this manner would compel the manufacturers to find some means whereby they would have to prevent the ten-

dency of ground wood from going to prohibitive heights. However, the opinion of a good many of the grinders seems to be that they need have no fear in this respect. They appear to be confident that whatever price is named for newsprint by the Federal Board, in the event one is decided upon, will first have the approval of the manufacturers concerned and that it will most certainly be fair to all parties. No doubt, this price would be regulated from time to time, and, if conditions forced ground wood higher, why the price of news print must be governed accordingly—at least, so it seems to some of the pulp men.

One thing is certain—despite all of the excitement, the market has been holding firm and the tendency that it will continue in this way and probably go higher, is very noticeable. Demand is good. One of the big factors, however, has been the effects of the cold spells which have been afflicting the sections in which the grinding mills are located. This bad weather (it surely is bad for the grinder) has hurt water conditions to such an extent that it has materially retarded the production of pulp. Should the cold weather continue for any length of time, the prospects for greater production are poor indeed. And then, when the thawing season arrives, it is certain that the grinders will be troubled with anchor ice—which is possibly more detrimental to production than any of the other factors. It is also true that the big war "scare heads" in the daily papers have had some influence in helping to add strentgh to the market. It is felt that, in the event that war is actually declared with Germany, the United States government will take control of the distribution of coal and some of the other necessities in manufacturing. As a matter of fact, during the recent convention of the American Paper and Pulp Association, held in this city, a rumor was passed around that the government had commandeered all of the available soft coal. One can readily understand the effect such a rumor would have on a body of manufacturers—especially at a time when they were assembled and discussing conditions and prospects. Efforts were immediately made to verify the rumor, but these efforts did not meet with success.

War talk is occupying much attention in practically all of the offices where chemical pulp is handled in any way. The wreckless U-boat war which Germany has started to wage is regarded very seriously for it will certainly have some affect on the quantity of foreign pulp brought to this country. There has been little enough coming in, because of the closed condition of the Baltic Sea, but Germany's submarine campaign is likely to shut even this out. At all events, it will put the rate of insurance up to the point where either the importer will have to pay more for his pulp, or the foreign producer will make up his mind that it is not worth the trouble and expense to try to get stock to the United States. The trade was interested this week in a shipment of pulp which arrived in dock from Scandinavia. The boat had left port last November and no track had been found of it, nor could its owners trace it, according to the story current. It met with bad weather conditions and was compelled to seek a circuitous route for safety's sake and, being slow—about 8 or 9 knots an hour—did not complete its journey until this week.

Naturally, with the firming of foreign pulp, domestic stock has been hardening in proportion. Added to this, the freight troubles have been causing much dif-

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y.

ficulties. Everything is being done by the railroads of the country to try to alleviate the congested conditions which are now hampering the continuity of business. In many cases, price has become no object, for it is necessary only to get the pulp—and this is impossible because of an embargo on the road leading to the mill. As might be expected, what would affect pulp would also affect coal—and this is another big source for worry. The very operation of a mill is dependent entirely on its supplies of coal—so every effort is being made to guard against unforeseen possibilities. Otherwise, conditions have not changed materially from what they were reported in these columns last week. Domestic manufacturers report that they have comparatively little stock to offer—and, at the same time, there seems to be a good demand from the consumers. Indications are for higher quotations within the near future—so most pulp men agree.

Rag men are complaining that the interest which was beginning to be manifested by the mills, a few weeks, ago, is already waning. As a matter of fact, buying is reported to be rather discouraging in nature and there have been a few sales made at what the dealers consider shaded prices. Indications are that stock is rather plentiful. The logic of the mills, it is understood, is along this line, leading them to believe that prices must become lower in the spring. They reckon that there has been no collecting of rags in the rural districts during the past few months. The weather has been decidedly unfavorable for any such project. At the same time, they believe that there is considerable rag stock available. In other words, they no longer shudder at the thought of a "rag shortage." Then again, the coming of April and May usually brings forth the Spring collections of rags. The rag pickers take their wagons and travel through the country districts collecting the accumulations of the winter — thus making a great deal of stock available to the market. The rag dealers, however, are not so confident that there will be a Spring collection. They maintain that, in order to induce men to travel through the rural sections collecting stock, it must be made a profitable business for them — especially when they have the option of taking employment in a munitions factory where good pay is certain. If the price of rags is forced down, it simply means that those men who would ordinarily collect stock, will turn their endeavors in other directions—and there will be no Spring collection.

Good white shirt cuttings are still quoted at 9½c to 10c; old white rags, at 5½c; house soiled whites, at 3½c; street soiled whites, at 2¾c; thirds and blues, at 2¾c; and black stockings, at 2¾c. Roofing has been reported at a little over 2c.

No particular life has been noted in bagging. Some buying is being done, but interest seems to be lacking. Nevertheless, the market is firm, because of the unlikelihood of getting any more supplies from England. Gunny is quoted at a little over 3¼c; bright bagging, at 3c and a little higher; sound bagging, at 2½c and some higher; mixed bagging, at about 2½c. Manila rope is reported to be selling fairly well at as high as 6c. This market is governed by the same conditions influencing bagging.

Some influences are at work trying to bear many of the grades of waste papers. However, the demand for shavings, both soft and hard continues strong and the prospects are that there will further advances in price within the next few weeks. As a matter of fact, the dealers are confident that all of the other grades will pick up shortly, for they figure on the shortage of other raw materials, which can be reclaimed from waste papers, helping the demand. Hard white shavings are quoted 5½c to oer 6½c; soft white shavings, from 5c and higher; ledger stock, 3¼c and higher; new box board chips at 90c per hundred pounds, and higher.

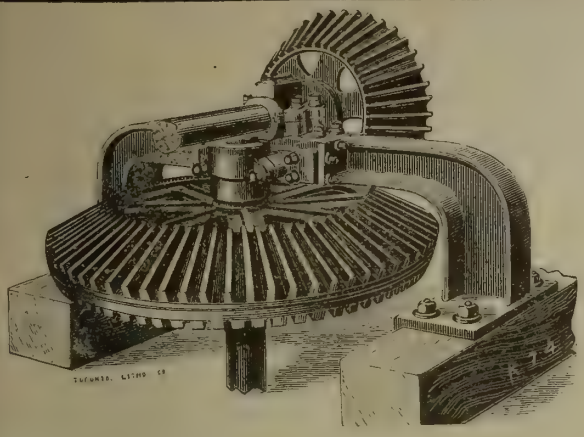
Manilas are firm at 1c up to nearly 2c; old krafts are still hovering around 3¾c; over issue news is around 1¼c; mixed news papers is being quoted at about 85c per hundred pounds.

The situation in the paper market is still spoken of as being "in the scale." It is the old story over again. The jobber has tired of the high prices and is refusing to buy, claiming to have sufficient stock on hand to last for some time. On the other hand, the mills are holding firm and have given their representatives orders not to accept business at lower than market figures. Also, the mills claim to be in need of such a buying relapse as that which is now being experienced, so as to "catch up" with back orders. They maintain that the jobbers may be able to hold out for a few weeks, probably a few months, but at the end of that time, their stocks will be exhausted and there will be no option left but to come into the market and pay market prices. Conditions in all of the markets are about the same as they were reported last week.

(These are a nominal range of prices).

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Foreign unbleached sulphite, ex-dock, New York	5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Easy bleaching, f.o.b. pulp mill	6c and higher
Kraft pulp, f.o.b. pulp mill	6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾ and higher
Foreign unbleached soda pulp, ex-dock, New York	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	12c and way up
Ledgers papers	13c and way up
News, contracts, f.o.b. mill	$3.10
News, spot lots	5c
Book, super	9c and higher
Book, coated	8c and higher
Tissues, good sulphite, bleached, per ream	$1.30
Tissues, ground wood, manila, per ream	$1.30
Kraft	9c and higher
Manila	7c and higher
News board, per ton, f.o.b. New York	$70.00
Straw board, per ton, f.o.b. New York	$65.00
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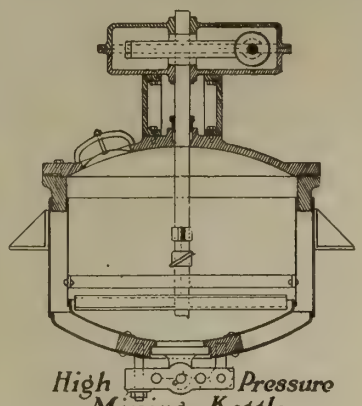
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Review of Recent Articles of Interest to the Pulp and Paper Industry

Wood Pulp from Resinous Wood. H. C. Alford U. S. Pat. 1,206,283 Nov. 28. Chem. Abs. Vol. 11. No 2 P. 209. (1917).

Resinous substances are extracted from wood by the action of turpentine or other solvent which is passed successively through a series of containers filled with wood. The wood thus freed from resin is digested with hot NaOH. The Na_2CO_3 solution formed is drawn off and treated with $Ca(OH)_2$ to regenerate NaOH.—E. K. M.

The Retention of Fillers. The Paper Makers Monthly Journal through The Paper Mill January 13, 1917. The amount of mineral retained may be increased by: (1) increasing the thickness of the sheet. (2) lowering the dilution of pulp. (3) using finer mesh wire. (4) decreasing suction. (5) increasing hydration of pulp. Mineral fillers are roughly divided into two classes: those of a crystalline character (barium sulphate, hydrated calcium sulphate, etc.), and those which are capable of developing a collodial character (clays and talcs). Owing to the high specific gravity of minerals like barium sulphate a rapid settling out of the mineral occurs. The fibrous nature of agalite and "fibrous alumine" gives a slight "felting" quality which aids in their retention. It is said that the addition of a small fraction of a percent of calcium hydroxide to clay in the presence of water will cause a marked increase in the colloidal content. Talcs and clays which are capable of developing a comparatively high colloid content show a relatively high retention for dyes. Comparative Tests (1.) China clay and the talcs show approximately the same retention when no size or alum is used. (2) The addition of size and alum very materially increases the retention of the talcs, asbestine and clay. (3.) Hydration of pulp aids retention (4) Alum seems to have little influence on the retention. (5) Increasing the length of time of agitation of the clay with the fiber decreases retention. (6) Size used in connection with alum has a very marked influence in increasing retention. (7) The order of adding the pulp, clay and alum has practically no effect on the retention of China clay. (8.) Where white water is completely reused the concentration of clay in the white water steadily increases, but the percent of clay present that is retained decreases owing to the fact that the coarser material is removed first. E. K.M.

This article, by John D. Rue and F. Edwin Ford, first appeared in Paper, Oct. 4, 1916, pp. 18-25.

Grinding of Wood from "Old" & "Young" Trees. By G. C. McNaughton. The Paper Maker's Monthly Journal, Vol. 55, No. 1, Jan. 15, 1917. The experiments were carried out on white fir. The "young" wood was cut from trees eighteen inches or less in diameter while the "old" wood was split from a single tree forty inches in diameter and 130 feet high. The speed of the stone was maintained constant for the different tests at peripheral speeds of 1,355, 2,033, 2,710 and 3,388 feet per minute. Under like conditions of grinding and power supplied to the grinder the production with the "old" wood is less than with the "young" wood by from 10 to 17 per cent. The explanation of this is not so much due to the difference in yield of pulp from equal volumes of wood, for the yield from the young wood was a trifle higher, as to the rate of grinding.—E.K.M.

Materials Used for Paper Coating. Paper Trade Journal, Vol. 64, No. 9, Jan. 25, 1917. The materials used for coating paper consist of blanc fixe, satin white, enamel or China clay used in varying proportions. Casein or gelatine is added to prevent the coat from rising when being printed. Artifically prepared blanc fixe is preferred to the natural ground mineral. Satin white is a mixture of hydrated alumina and calcium or barium sulphate. Ammonia, soda or borax is generally used for dissolving casein. To dissolve casein: — add 3 pints of water for every pound, stir out all lumps, heat to 100°F, add alkali and heat to 150°F. In using ammonia add one ounce for each pound of casein. 25 per cent of borax should be used to dissolve casein where colors are used. —E.K.M.

Surveying New Brunswick Timber Lands. — P. Z. Caverhill, Canada Lumberman and Woodworker, Vol. 37, No. 3, p. 26, (1917). Objects of survey and a few figures on work finished. In also Pulp and Paper Magazine, Vol. 15, No. 5, p. 115, (1917).



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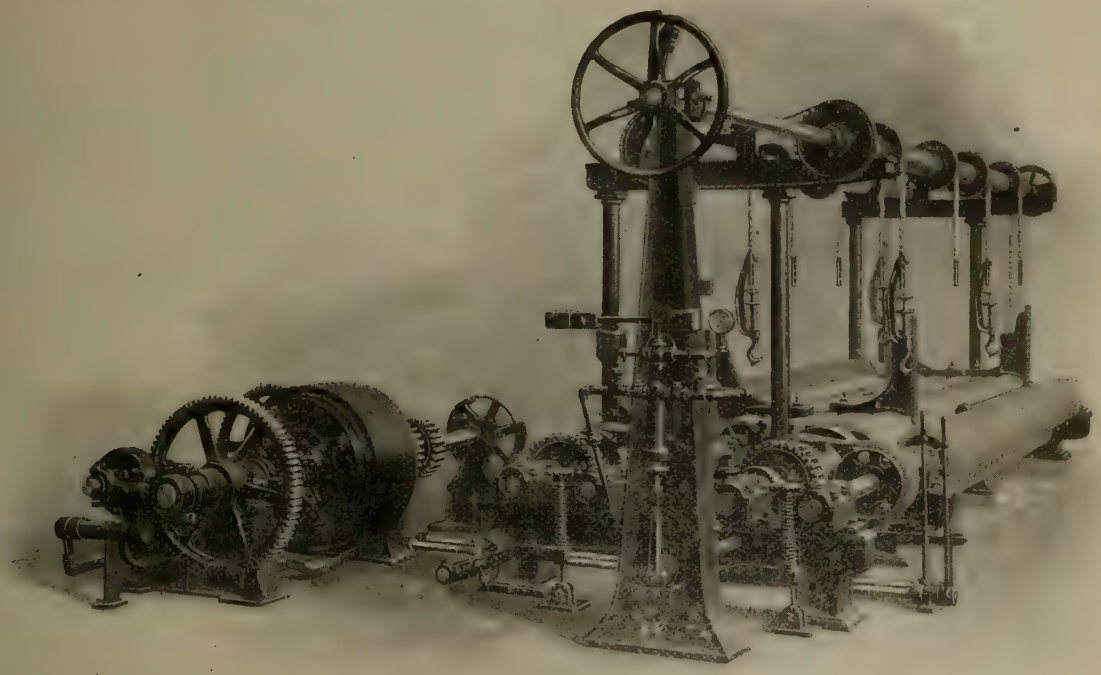
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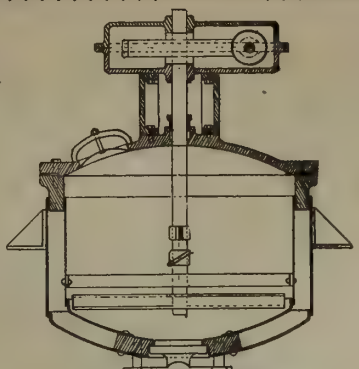
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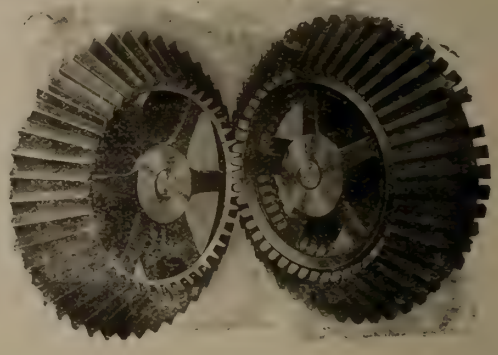
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EDITORIAL

S. O. S.—SCIENCE OUR SERVANT.

The average Englishman, and particularly the average educated Englishman, has been prone to consider science as entirely unassociated, unconnected with ordinary affairs of life and industry. It was well enough for a gentleman to amuse himself with mercury, glass tubing and air, and even to discover the relation between the volume of a gas and the pressure upon it. But why bother to see if this has anything to do with a pump or a steam engine? "Alizarine from coal tar and the coloring matter from the madder root are identical," said the chemist. And the business man and even the scholar remarked, "How very odd!" But where is the madder industry now, since that discovery has been put to service?

It has taken a long while for the Englishman to put **Science to Service.** More has been accomplished in the last two years than was ever attempted in the previous two decades, not in the complete realization of ends, because that has not come yet, but in the public's appreciation of the value of science as a servant of industry. Long ago the Germans realized this and built their industry on scientific principles and laws as they knew them. And when the law had not been discovered a theory was worked out and tried out. Some of these trials cost money, but success is seldom cheaply obtained. A great deal of so-called pure science has been done in England and Scotland, but there has been a wide gulf between the laboratory and study on the one side and the factory and the office on the other. Happily, this is changing. At least one good result of the war will be found in the fact that the British public—and Government—has been jarred awake to the apprehension of the **usefulness of science.**

Some time ago, a committee for Research was appointed in England. The Government has recently decided to establish a separate Department of Scientific and Industrial Research for Great Britain and Ireland. A Royal Charter has been granted for the proper holding and handling of funds and property to be devoted to this purpose.

The fact that in Canada many industries are just in their infancy is a very potent reason why they should be "trained up in the way they should go." Then when they are a few years older, there will not have been such a high death rate or so much scrapping of incorrect plant, equipment and method. The application of science to an industry may not solve all its difficulties for good and all, but it will enable it to start out right in so far as it is possible to find out what is right. That is what Research is, an organized inquisitiveness to find out the truth, whether it be to know the chemical composition of a coloring matter or to find out the best ways to keep a fence post from decay.

On another page is a statement from Canada's Council for Scientific and Industrial Research. The gentlemen composing this council are giving much time and thought to the problems of organization and procedure. They wisely plan to make use of present organizations and equipment as far as possible. These include the colleges and universities of the Dominion, the Forest Products Laboratories, the technical and scientific societies and some private organizations. The Council is wise also in its appreciation of the fact that finding a problem is the least important factor in successful research. The real problem in developing work of this kind is to find men of research calibre, disposition and training. This they plan to do by offering studentships for research in the various lines of industry that are the most important to Canada. This will make it possible to sift the material and establish a supply of researchers that will be available, not only for Government work, but for the needs of industry as well.

The value of such men and the information they will be able to obtain will be a tremendous factor in Canadian industry. The value of research work has been abundantly confirmed in agriculture, stock-raising, etc., and just as large opportunities are open in textiles, fisheries, mining, and, as we all are aware, in forestry and pulp and paper-making. It is not only positive information that is of value. Sometimes it is quite as important to know what will not work. Dr. Ruttan, a member of this Council, said that processes have been brought to his attention where it would have been cheaper to reverse the process, buy the product and make the raw material.

In the refining of the crude pyroligneous acid, a Canadian firm found that on a part of their product the cost of refining was greater than the value of the product. Up to a certain point they would make more money by throwing weak acid into the sewer. But research further showed that a change in method would make it profitable to refine all the crude acid, thus eliminating two sources of waste.

It is high time that Canadian industry, through the

Government, employed the service of Science more generally. The wages are high but the return is worth the expense. **It pays to find out.**

BUILDING BIGGER BUSINESS.

The Address on this topic by John G. Jones before the Montreal Publicity Association would have been appreciated by any paper maker. As the speaker said, "The great problems in building big business, are the same as in building any business. It is not so much a question of getting money as in getting men—capable men who are willing and able to take responsibility. An organization is built of human units. They must have the spirit of success.....and there is sentiment in business. Sentiment is everything in business. Men who have built up big businesses have been successful in putting responsibility on their associates and building all into one by a common ideal."

It would be hard to find an industry where these statements are more pertinent than in the manufacture of pulp and paper. Pulp mills and paper mills, especially for making newsprint and wrappings, are becoming large concerns. They involve many various contributing processes which converge to the paper machine. The control of these processes is yet in many cases far from scientific and never will cease to be dependent on the sense of responsibility of the man in charge, whether he be manager, superintendent, foreman or laborer. We said responsibility. It takes that, but more than that. It takes pride in the work, devotion to the ideal—a perfect product.

The writer recalls how, many a time, the boss beater man would come into the machine-room and pull a sheet off the lay-boy, saying, "This is the way to make paper, Jimmy. It takes me to give you the stuff right." Jimmy would agree, but soon he would go down the machine and look over the screens, suction, presses, etc. That was why that mill was a big business. It was, and is, the business of every man in the mill to make the best paper possible.

New pulp and paper mills will be more and more big affairs requiring a distribution of responsibility and a cementing of co-operative effort. There are the forester, woods superintendent, ground wood and chemical and paper mill superintendents, chemist and engineer, all bound in a unit under a manager. He may be one of several associated under a board of directors guided and inspired by the president. The success of the whole concern depends on the willingness and ability with which each foreman and superintendent shoulders his responsibility and co-operates with the rest.

If such an organization wants to expand and needs capital, it has a good solid foundation and its confidence in itself will win the confidence of the man with money. Industry is not founded on money. It is founded on men, and developed by men with brains, faith, vision and enthusiasm.

BONEHEADS.

The assassin of the goose that laid the golden egg was a "bonehead." The race is not yet extinct. In fact there is evidence that there are numerous persons with ivory craniums, most of whom have the gift of speech. Recent indications point to the possibility that in establishing a "normal" price for paper the basis may be the mill in the most favored position. That would be the mill with its own supply of pulp and with cheap power and low freight on materials.

The large majority of mills in the United States and many in Canada are not in that fortunate situation. Most paper mills are dependent on the market for either ground wood or sulphite, if not both. Their cost sheets must begin with the market prices for these materials. To force them to sell their product at what might be the cost of production in a mill of the former class would in many cases be nothing short of murdering the industry.

Why kill the geese when the eggs are so sorely needed?

A GREAT OPPORTUNITY.

Mr. A. P. Costigane, who has recently been oppointed Safety Engineer for the Ontario Pulp and Paper Makers' Safety Association has a great opportunity for service. We wish to assure him and his Association



that the Pulp and Paper Magazine is heartily in sympathy with his work and is ready and glad at all times give any assistance to this movement. Much progress was made by A. G. Pounsford, who is now General Manager of the Port Arthur Pulp and Paper Company.

Success to you, Mr. Costigane.

HAVE YOU ANY SOLDIERS?

In an early issue of the Pulp and Paper Magazine there will be reprinted the Honour Roll that was distributed at the Banquet of the Canadian Pulp and Paper Association. The roll now contains over 1,400 names, but there may be some changes or additions. Any reader who knows of a member of the Pulp and Paper Industry, in any capacity, who has joined the colours, or of any deaths, wounded, promoted or honoured since the first of the year can help make the Honour Roll correct by sending us word at once.

The Sedimentation Test of Ground Wood Pulp

By SNOWSHOE, Shawinigan Falls, Que.

In the issue of "Paper," dated Oct. 11th, 1916, there appeared an article on the sedimentation test for determining the quality of ground wood pulp. Various facts and figures were given, and the author's conclusions were that the results obtained were satisfactory, and that their system had been permanently adopted in the Watab Pulp and Paper Mill. To determine the value or otherwise of this test for Canadian conditions, the writer carried out a series of tests in a Canadian mill running 24 three-pocket grinders and working on a large scale. An apparatus was made of tin plate in the laboratory, as is shown, this being practically the same essentially as that used by the Watab Co. The body of the apparatus is a tin cylinder 3" in diameter by 12" in height, having a 3" disc of fourdrinier wire soldered on to the bottom, then on to this is soldered a 3-in. tin funnel. Means of observing the rate of fall of the liquid is provided for by a glass tube bent at right angles, inserted into the side of the tin vessel, as is evident from the figure.

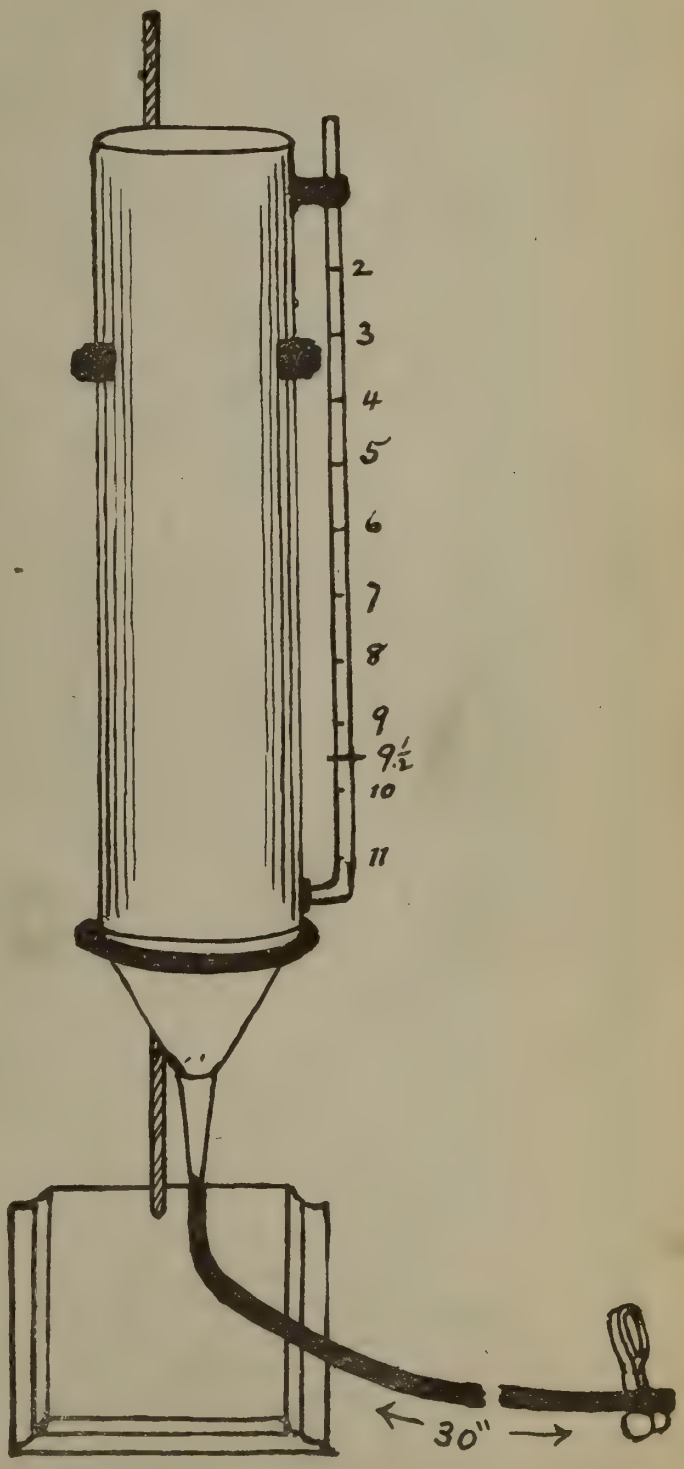
This cylinder holds 1,500 c.c. of water. The method of making the tests was as follows: The ground wood pulp was drained on a wire sieve, then squeezed in the hands as hard as possible to eliminate surplus water, then 19 grains of this squeezed pulp was weighed off in each case, this amount containing just about five grains of bone dry fibre. This was then beaten up in 1500 c.c. of water with an egg-beater getting an homogeneous thin stock. The funnel is equipped with a piece of rubber tube of ¼-in. bore and 30-in. in length this giving an actual suction of about one pound per square inch when full of water. A pinch clamp is attached to end of rubber tube and the tube and funnel filled up to the wire disc with clean water. Next the thin solution of wood pulp is filled into the apparatus up to the top, the pinchcock is then released as quick as possible and the time taken for the liquor to run down to the 9½ mark is noted. This is the method as described in "Paper" and is carried out in all cases the same way. There appears to be no mention in the article in "Paper" of the actual temperature of the diluted stock, as this makes a very serious difference in results when run through the apparatus. In Canada we have to reckon with the extremes of river water temperature at the winter and summer reasons. In winter the penstock water will be about 33°F. while in summer we may reckon on forty degrees higher temperature for same water. If in making sedimentation tests in the grinder room the diluting water is drawn direct from river supply, the temperature of the thin test stock will run about 35°F. and if the same is done in summer time we will get around 70°—75°F, obviously a serious consideration as the following figures show:—

TABLE I.

Rate of sedimentation of ground woodpulp (5:1,500) at different temperatures of thin stock.

Temp. of Thin Stock.	Sedimentation Test. Seconds.
42°F	255 seconds.
62°F	205 "
72°F	165 "
82°F	140 "
92°F	128 "

This shows a reduction in sedimentation time between summer and winter temperatures of nearly 50% so that obviously the various tests must be run at about the same temperature at both seasons to get comparable results.



SEDIMENTATION APPARATUS,

Consists of Tin Cylinder 12 Inches x 3 Inches, Tin Funnel 3 Inches Diameter, Machine Wire Disc 3 Inches Diameter, Rubber Tube 1 Inch Bore by 30 Inches Long. Capacity of Cylinder 1,500 c. c.

Table 2 gives an idea of the apparatus in use on other than fine ground wood stock.

TABLE II

Stock	Sedimentation Seconds.
Water alone	21 2-3 seconds.
Sulphite pulp (5:1,500)	30½ "
Refiner Pulp Groundwood (A)	40½ "
Refiner Pulp Groundwood (B)	29 "
Refiner News stock No. 2 (5:1,500)	375 "
News stock No. 4 (5:1,500)	365 "
News stock No. 3 (5:1,500)	295 "

This shows the great "freeness" of sulphite pulp when used alone.

TABLE III

Sedimentation tests on No. 1 Quality Ground wood pulp for "news".

Date.	Sedimentation Seconds.
Oct. 19 A.M.	315 seconds.
" 19 P.M.	275 "
" 20	330 "
" 24 A.M.	260 "
" 24 P.M.	515 "
" 26 A.M.	565 "
" 26 P.M.	670 "
" 30	365 "
Nov. 1	600 "
" 6	235 "
" 7	380 "

This table shows the variation in sedimentation figures which occur from day to day in the mill. It is to be noted here, that although some figures vary by 100% or more the actual difference in the pulp is in most cases not very great.

In taking the samples from individual grinders for sedimentation tests, the actual temperature of the ground stock was the only variable taken note of, the object being to get average conditions and not special conditions of grinding. About one pint of stock was taken and temperature noted: this stock was diluted somewhat and thoroughly mixed, the main slivers being picked out and eliminated. A portion was drained on wire cloth, then pressed as hard as possible between the hands; 19 grams of this dressed pulp gave just about 5 grams dry pulp. This was broken up in 1500 c.c. water with an egg beater and the test made. Practically all tests were made at a temperature of about 40°F, so that they are directly comparable.

TABLE 4.

No. of Test	Date.	Grinder No.	Temperature of Stock	Sedimentation Test Seconds.
49	Nov. 10 A.M.	1	145°F	185 seconds.
50	" "	2	165°	650 "
51	" "	3	148°	285 "
52	" P.M.	4	120°	300 "
53	" P.M.	5	150°	380 "
54	" P.M.	6	150°	330 "
55	Nov. 11 A.M.	7	172°	715 "
56	" "	8	135°	330 "
57	" "	9	165°	480 "
58	" "	10	127°	255 "
59	Nov. 30 A.M.	2	140°	345 "
60	" "	3	170°	510 "
61	" "	4	145°	450 "
62	" "	5	140°	280 "
63	Dec. 1 A.M.	5	126°	250 "
64	" "	6	137°	560 "
65	" "	7	140°	670 "
66	" "	8	172°	over 2000 "
67	Dec. 4 A.M.	2	148°	540 "
68	" "	3	137°	765 "
69	" "	4	145°	400 "
70	" "	5	140°	360 "
72	Dec. 5 A.M.	2	177°	800 "
73	" "	4	127°	530 "
74	" "	5	142°	360 "
75	" "	6	152°	1400 "
79	Dec. 12 A.M.	1	152°	1450 "
80	" "	2	142°	260 "
81	Dec. 12 A.M.	3	160°	1070 "
82	" "	4	132°	480 "
84	Dec. 18 P.M.	5	133°	550 "
85	" "	6	145°	900 "
86	" "	7	121°	540 "
87	" "	8	145°	645 "
88	Dec. 19 A.M.	7	110°	360 "
89	" "	9	158°	555 "
90	" "	10	150°	390 "
91	" "	11	157°	680 "
92	Dec. 19 P.M.	1	165°	825 "
93	" "	2	138°	640 "
94	" "	3	142°	365 "
95	" "	4	147°	800 "

In the above 42 tests the maximum difference in stock temperature is 67°F and the maximum difference in sedimentation time is over 1200 seconds. All these ground wood stocks, were after sedimentation, carefully examined under the microscope to ascertain any distinctive differences.

The results showed that low stock temperature means low sedimentation figures and high stock temperature means high sedimentation figures as is shown in Table V.

TABLE V.

Class	Temperatures of Stocks	Mean Figures	Number averaged.	Mean Sedimentation Time in seconds.
A.	130°F & below	122°F	6	357 seconds
B.	131° —140°F	137°F	10	498 "
C.	141° —150°F	145°F	14	452 "
D.	151° —160°F	154°F	5	782 "
E.	161° —177°F	167°F	7	794 "

Above 130°F there is a considerable jump in sedimentation figures, which then remains fairly constant up to 150°F. Above 150°F. there occurs a big jump, which remains fairly constant up to the limit of grinding temperature. In these two cases of low and high temperature, the actual temperatures of the stock itself gives as good or better indication of the fineness of the pulps than the sedimentation test does.

The average characteristics of the various pulps ground at varying temperatures as observed under the microscope were as follows:—

Class A. (Lowest temperature). The stock is practically always composed mainly of short fractured or torn bits of fibre, plus varying amounts of flour stock, generally rather small in quantity. No long fibres whatever.

Class B. This stock is generally a fair mixture of fibres of varying lengths, but long strong fibres are usually medium to short in length with a tendency towards too much floor stock.

Class C. This stock is generally similar to B. stock.

Class D. This stock is intermediate between C. & E stocks and consists mainly of fibres of medium length plus some short stuff and considerable flour stock.

Class E. This stock is practically always composed of long fibres plus a large amount of woodflour with practically no medium length or short fibres.

In practically all cases where the pulp was leaving the grinders at a temperature below 130°F and in a thin state, the stock consisted of short bits of fibres almost entirely and in cases where the pulp was issuing very hot and thick, the stock was composed of a mixture of long fibres plus flour stock almost entirely with little or no stuff of intermediate length. We may divide the constituents of ground wood pulp into five portions (1) Flour stock. (2) Shorts "bits" of fibre. (3) Short fibres. (4) Medium fibres. (5) Long fibres, and a sample of woodpulp from unknown sources may consist of any, or all, of these constituents in practically any proportion.

The suitability of the pulp for the purposes desired, obviously depends directly upon the proportion of any one or more of the five classes of fibres mentioned.

The range of temperature from 130°F to 150°F produced stocks of too great a sameness to be really differentiated. The sedimentation figures show this to be the case, as between 130° and 150°F these figures average nearly the same. Above 150°F there is a big jump due to increase in flour stock, and below 130°F there is a big drop due partly to decrease in flour stock and also to the "hardness" of the stock.

The first few tests on individual grinder stocks seemed to show the method up to advantage but continued tests modified this opinion. It may be safely said that the temperature of the stock coming from the stones gives a better idea of the fibrous constituents of the pulp than does the sedimentation test. For example, a pulp coming away thick and very hot, may be safely said to consist almost wholly of long fibres plus flour stock (other conditions being normal) and a pulp thin and very cool may be said to consist almost wholly of short pieces of fibre. The use of the sediment tester in these cases appears to be quite superfluous.

In the case of pulps ground near the normal average grinding temperature (130°F—150°F) the extended tests have definitely shown that the sedimentation figures cannot be relied on as an indication of actual quality, for instance, in tests 86 & 27, the sedimentation figures are nearly the same yet the stocks are widely different in appearance and length of fibre, No. 86 being composed mainly of short pieces of fibre while No. 87 is a mixture of long fibres and woodflour.

It is fairly evident from the tests made that we can have all kinds of combinations of long, medium, short and flour stocks to produce all kinds of results in settling tests, and that slight variations in the quantities of flour stock or big fibres produce big variations in time tests.

This being the case, it appears useless to make these settling tests in cases where the temperature vary considerably on different stocks. On the other hand it appears probable that a small mill running say six or eight grinders, would find the sedimentation test to be of value in testing individual stones, as greater attention could be paid to the questions of even temperatures, pressure, surface of stones, etc. In the case of large plants where hydraulic power has to be purchased, a big output is essential and the same attention cannot be paid to individual stones as in a small plant.

Apart from testing separate grinders however, there is the question of the finished screened pulp, and there appears to be no doubt that the sedimentation test can be used on this finished pulp with a certain amount of advantage, but it must be used as an adjunct to the lantern or projector and not alone or misleading results are likely to occur.

COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH.

The Council, after having completed its organization at an earlier meeting, has been in session at Ottawa all last week, considering the various lines of work which are to be undertaken, and the various projects, some forty in number, which have been submitted to it.

The Council will, within the next couple of weeks, issue questionnaires to the manufacturers, the Technical Societies, the various Government departments and the universities of the Dominion, asking for information with reference to the laboratories and various other agencies of research now in operation in the Dominion; the men now engaged in or available for research work; the raw materials required for our industries; the bye products produced but not at present utilized; and other matters required in the development of its work. In securing this information, the Council will work in close co-operation with the Manufacturers' Association and with the various technical societies of the Dominion. It is expected that the replies to the questionnaires will show many lines along which the Council may assist in the development of Canadian industries.

In order to develop in Canada a body of men who have been thoroughly trained in science and its application to industry—such as that which has aided so greatly in the industrial development of Germany in recent years—the Council will recommend the establishment of twenty or more studentships and fellowships in our universities and technical schools, which will be given to men who have completed their regular course of study and have displayed a special aptitude for scientific research. These will enable such men to pursue a course of advanced work at college for a further period. Arrangements will also be made by which men after graduation will be placed in one or other of the great manufacturing establishments of the Dominion, where they will continue their training under the conditions of actual commercial practice. They will thus be fitted to aid in the development of the industries of the Dominion.

In order to furnish direct assistance to the manufacturing industries of Canada at once—the Council is recommending the establishment at certain of the great industrial centres of the Dominion, such as Toronto, Montreal, and Winnipeg, in co-operation with the Provincial Governments or other bodies, of Industrial Research Bureaus, where a complete set of technical magazines and trade journals will be found, and where technical staffs provided with suitable and properly equipped laboratories, will assist the manufacturers of the district in solving problems which present themselves in their factories or works.

In addition to these broad general movements for the advancement of the industries of the Dominion, the Council has decided to examine carefully a num-

ber of specific projects which have been submitted to it, and which appear to give promise of yielding valuable results. They have also decided to recommend that certain of these be at once taken up and work upon them be at once started.

Among these latter, two may be mentioned:

The first has for its object, the provision of an adequate supply of good fuel for the Western Plains, more especially in the provinces of Saskatchewan and Manitoba, by converting lignite, of which there are large supplies, into a briquetted fuel of better heating and storing qualities.

The other piece of work has to do with the preservation of the forests of eastern Canada. These, contrary to the opinion which prevails generally, are not inexhaustible—they have already been seriously depleted and are rapidly deteriorating in character. In most of the leading countries of Europe the forests, whether owned by the Government or by private interests have, by the application of modern scientific knowledge been immensely improved in character, and instead of being plundered and then abandoned, have been converted into assets of enormous national value, and which year by year yield large revenues to the Government, or to their private owners, which are as regular and as continuous as those from any other gilt edged investment, the forest all the time being maintained with its capital unimpaired.

Different methods of forest management have been adopted in different parts of Europe to secure this splendid result. The Canadian forests present special problems of their own. The Council has recommended that certain investigations be at once carried out through the Forestry Branch of the Department of the Interior, to ascertain which of these methods can best be applied to the Canadian forests for the purpose of stopping the destruction which now threatens them, and making them a great and permanent source of wealth to the people of the Dominion.

As has been mentioned, other important problems are now under consideration by the Council, but require further examination before the Council is in a position to take action with reference to them.

This excellent work which will all help in giving to Canada the place which she should occupy in the industrial world, should receive the hearty support of the whole public of the Dominion.

A NEW BOOK ON PAPER.

Paper. — By Harry A. Maddox, London and New York: Isaac Pitman & Sons, Limited, 1916, pp. VIII x 159, 26 illustrations cloth bound. Price, 85 cents.

This book is one of a series on Common Commodities of Commerce, gotten out by Sir Isaac Pitman & Sons, Limited. It is nicely printed on super calendered book paper. The ten chapters are as follows: History of Paper Manufacture; The Evolution of Paper-Making; Cellulose and Its Compounds — The Characteristics of Fibres; Treatment of Materials: Rags-Esparto-Straw; Manufacture of Wood Pulp—Soda Recovery; Treatment in the Beater: Beaters and Refiners—Loading, Sizing, Coloring; The Paper-Making Machine; Hand-Made Paper; The Various Finishes Imparted to Paper; Coated Paper; Testing.

This book is, on the whole, a good one for those who wish a general knowledge of how paper is made. The chapter on Hand-Made Paper is very well done, as is the one on Cellulose and Characteristics of Fibers. The manufacturing processes are fairly well presented, although the descriptions do not in some cases represent machinery and processes as employed in Canada and the United States. The chapter on Testing appears superficial as regards water, coal, pulp and bleach. The importance of proper sampling is not mentioned. The rest of the chapter is rather good. Klemm's floatation test for ink penetration might have been included.

One could cheerfully recommend this book for high school and general libraries. In the hands of a paper maker, exception might be taken to the following points: Wood is not prepared in the paper mill as stated on p. 15, but in the pulp mill. Better say formula than formulae on p. 16. Hydro cellulose is made by acid hydrolysis of cellulose, not by hydration in the beater, p. 18. No mention is made of viscose. Fir should be included in the coniferous woods, p. 30. Bleaching powder is not a mixture of chloride and hypochlorite but a complex salt, p. 47. Nascent oxygen should not be confused with ozone, and oxidation is not always a removal of hydrogen, p. 48. Electrolysis, p. 51 is wrong; the current breaks the salt into sodium and chlorine and the sodium breaks up the water. On pp. 62 and 64, fir and balsam should read "balsam fir," which is the species used in the pulp mill. Birch and beech are not commonly used, as might be inferred.

The loss in knife barking is nearer 20% than 10%, p. 65. The drum barker is not mentioned. Wood is not chipped by crushing between rollers, and we are not aware of lead lined digesters for soda pulp, p. 69. On this continent, pulp is bleached in the form of slush, p. 70. The rotary black ash furnace, to which the concentrated black liquor is fed directly, should be mentioned, p. 73. Bisulphite liquor is also made with lime water, p. 74. The statement on p. 75 that pines alone are used for sulphate pulp is contradicted on p. 76. The sulphide in the cooking liquor is produced during incineration, not in cooking, p. 76.

A medium sized beater in this country holds ½-ton, p. 82. The Horne, Duplex and Mills beaters are not mentioned, p. 84; nor is the Jordan engine, p. 85. Satin white is not simply precipitated calcinum sulphate, but this plus aluminum hydroxide, p. 86. Resin is usually added before the color, p. 91. There is nearer 99% than 90% water in the stuff on the wire, p. 101. The wire is more likely to slope down than up, at least on this side of the Atlantic, p. 103. The writer would like to see a paper machine with six calenders, p. 108. The wet machine is described but not named; the cylinder machine should be described, p. 111. A description of the dry loft and the sheet calender is missing.

In spite of these criticisms which are offertd in the way of friendly suggestions for the next edition, we are glad to see a new book on Paper, at a popular price. It may help to give the public a better appreciation of our industry.—Editor.

JAPAN WILL SHIP SULPHUR AGAIN.

A notice in the Trade and Commerce Weekly Bulletin from the Acting Trade Commissioner in Japan, Mr. E. F. Crowe, states that sulphur can now be exported. The export of this commodity, largely used by pulp mills on the Pacific Coast has until December 23rd been prohibited. A pulp mill superintendent who has used Japanese sulphur says it is superior to the Louisiana article.

New Laboratory of Wallace & Co. The Smallest of Kraft Pulp and Paper Mills

A visit was made recently to the miniature pulp and paper mill that has just been built by Joseph H. Wallace & Company, the well known Industrial Engineers of New York and Montreal. This plant is located on Mr. Wallace's farm at Stamford, Connecticut, within one hour of the Grand Central Station in New York City, and the following description and illustrations will be of interest to our readers. It is



THE LABORATORY BUILDING.

unique in many respects, being probably the only complete miniature Sulphate Pulp Mill in the World, and is so arranged as to permit practical tests of materials on a small scale, and with apparatus similar to that of the modern sulphate mills. The sulphate pulp machinery was made by Pintsch & Co. of Berlin, Germany, from designs of Carl P. Carlson of Sweden. Mr. Carlson had a prominent part in the development of the sulphate process, and with him Messrs. Wallace & Company were associated up to the time of his death. This apparatus was used in connection with the development of The Southern Paper Company, and tests were made on the woods available in the vicinity of this Company's plant at Moss Point, Mississippi.

Determinations of yield and character of product, as well as study of possible by-products can be made

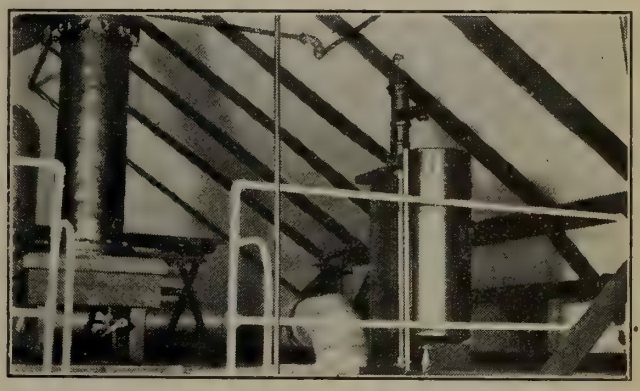


THE CHEMICAL LABORATORY

on a small scale. This miniature mill is well worth a visit on the part of all those who are interested in the possibilities of developments in sulphate and soda pulp, to both of which processes it is well adapted.

The power plant includes a steam boiler delivering steam up to 150 lbs. pressure, a kerosene engine for motive power, and an electric plant which supplies electricity for the laboratory and adjoining buildings.

This Company has in the past done a large amount of work in the investigation of paper making materials from various parts of the world, and the equipment it now has, combined with its laboratory, will greatly facilitate and enlarge its scope in research work.

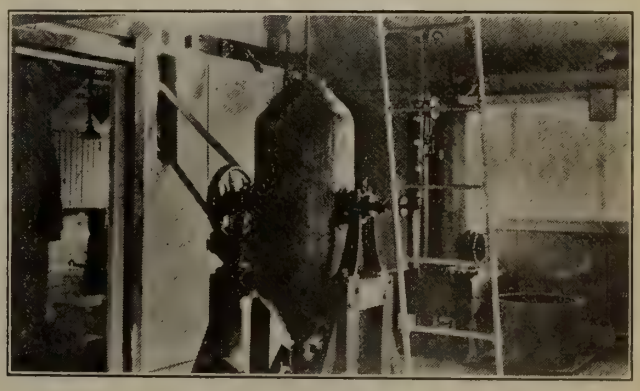


THE LIQUOR SYSTEM.

Examination of vegetable fibres under the microscope are made, and photomicrographic apparatus is used for making permanent records of these examinations.

It has accumulated a large number of paper and pulp samples of which records are in its possession, as to their composition, and process of manufacture. These samples form an exceedingly interesting and valuable exhibit, and are evidence of the extended experience gained by its members during the past decade in the paper making industry.

The bringing together of the various pieces of apparatus constituting this miniature mill is unique in many ways. Situated as it is among the hills of southern Connecticut, with quick transportation to New York City, the desirable features of freedom and quiet-



THE DIGESTER AND DIFFUSER

ness of the country are combined with the necessities of close contact with the business world. Adjoining the building which contains the laboratory and paper machinery, is Mr. Wallace's cottage, in which his guests enjoy every comfort of the city house. In the

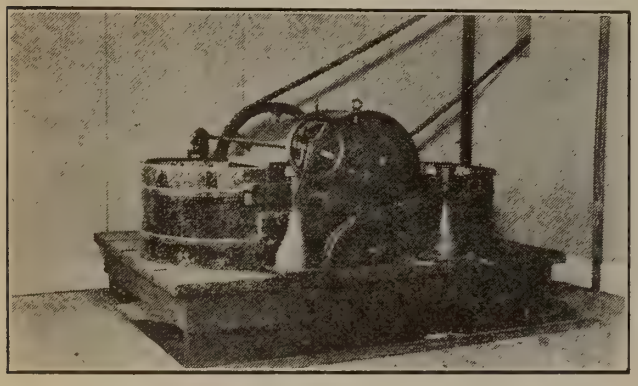
laboratory are facilities for reproducing the processes and conditions existing in the commercial sulphate and soda mills of the present day, and for applying these to new products of manufacture. Power is there for beating to any degree desired; steam is available from a boiler which serves no other purpose than for the laboratory's use; it is, therefore, under the complete control of the operator to secure the desired pressure and quantity of steam for the experiments in hand. Electricity is produced from the company's own electric light plant located in the same building with the laboratory equipment.

The making of caustic liquor for cooking pulp materials is affected in a complete system of dissolving tanks, filter and storage tanks. Analysis of cooking liquor is made for each experiment to determine its ingredients in exact quantities.

The digester in which the cooking is done has a capacity of 2 tenths of a cubic meter. It is supported on trunnions and geared to rotate as in the case of the rotating digesters of the larger commercial mills, — in fact it is an exact reproduction of a modern seamless steel digester.

The blowing of the digester is through a diffuser, in which the pulp is also freed from black liquor.

Volatile by-products can be condensed as they come



THE BEATER.

off in the process of cooking, and black liquor can be retained from the diffuser when desired. All of the elements of the successful commercial sulphate pulp mill are embodied in this small mill, which is the result of untiring efforts on the part of Mr. Wallace and his associates for years, to put together a plant on a small scale and yet large enough to give results comparable with the larger scale commercial mills of modern design.

While the purely technical laboratory features are retained, and are necessary in the fullest investigations, the practical operations pertaining to the manufacture of pulp predominate in this miniature mill.

The experience of this firm in the pulp and paper development for the past 20 years, their contact with manufacturers in United States, Canada and Europe, and their close observation and extensive travels in connection with the paper making industry, places them in an enviable position to continue the valuable work which has been so well started.

Chief among their many aspirations in these times when conservation is uppermost in the minds of the industrial world, is the utilization of those materials which are destroyed as waste, and there are few industries to which this applies with greater force than in the saw mill operations of the southern part of the United States. Here vast quantities of sound wood in the form of slabs and edgings are destroyed by fire for the sole purpose of getting them out of the way. This material is excellent for the manufacture of paper, and to this firm no small amount of credit is due for the advancement of the industry in this particular field.

Many other fields are equally promising, and this firm is now equipped with the means for carrying still further this investigation and research work.

Mr. Joseph H. Wallace, C.E. is President of the firm, and associated with him are W. E. Truesdell, C.E., F. E. Greenwood, M.E., Joseph Perry, C.E. and A. W. Waern, M.E. Mr. Waern was for some time associated with Carl P. Carlson in the development of apparatus for sulphate mills, and afterwards was Superintendent of the sulphate mill at Billingsfors, Sweden.

DRAIN ON CANADA'S PULPWOOD SUPPLY.

The splendid progress that Canada is making toward becoming the world's centre for the manufacture of pulp and paper is indicated in figures recently published by the Department of Trade and Commerce. For the year ended July, 1916, the exports of paper amounted to $21,678,868, of which 88 per cent went to the United States and 5.2 per cent to the United Kingdom. This total is an increase of 31 per cent over the figures for the year previous. The rate at which this business has grown in Canada will be appreciated when it is realized that the first export shipment of paper from Canada was made in 1892, amounting to a total of $91 for that year. The total exports for 1902 were but $24,000, and for 1913 only $6,327,000.

Of wood pulp, the exports for the fiscal year 1916 were $12,931,681, of which 87 per cent went to the United States and 7.2 per cent to the United Kingdom. The increase over 1915 was 40 per cent. More than two-thirds of the pulp imported by the United States is from Canada.

Similarly, the exports of pulp-wood amounted in the fiscal year 1916 to $6,254,717, all of which went to the United States.

Taking the situation as a whole, the total exports of paper, pulp and pulp wood for the fiscal year ended July, 1916, were $40,865,266, of which the United States received 87 per cent and the United Kingdom 5 per cent. The increase over the previous year was 27 per cent. On the other hand, Canada imported, during the year ended July, 1916, $6,327,298 worth of paper and manufactures of paper. Of this, 69 per cent came from the United States and 12.4 per cent from the United Kingdom.

The foregoing fact, in conjunction with the use of Canadian pulp and paper mills of nearly $9,500,000 worth of pulp wood, indicate the tremendous drain upon our pulp wood resources. This drain is likely to increase rather than diminish, in view of the rapid depletion of accessible supplies of timber suitable for pulp wood in the United States.

Canada has extensive resources of timber suitable for pulp wood but they are by no means inexhaustible, and if this great source of national wealth is to be perpetuated, much more stringent measures than in the past must be taken to prevent destruction by fire and to insure the restocking to valuable species of cut-over and burned-over areas.—C.L. in Conservation.

Digest of the Paper, Mechanical, Chemical Pulp Markets of the World

The following resume prepared by the News-Print Manufacturers Association of the pulp and paper industry in foreign countries contains some very interesting information. This is particularly the case with the reports on new mills in Japan, relations between England and Norway, the move in Russia to promote the industry, the rumor of many new mills in Scandinavia and the statement that newsprint difficulties in France and Italy are due more to high prices than actual lack of material.

There is practically no change of note in the pulp and paper markets in the world. There has been a slight fluctuation above and below last month's levels, but none worthy of note. England has shut off the exportation of coal to Norway, which may cause a retaliation in the form of an embargo on paper and pulp and a curtailment in the production. Satisfaction has been expressed, however, in both England and Sweden in regard to the workings of the Swedish-Anglo Commission on the question of the chemical pulp embargo, and the foremost authorities expect the embargo to be lifted by Spring.

Paper exports from the United States generally have fallen off greatly, South America getting the bulk of the stock cleared. Inquiries for paper are numerous, especially from Southern European and Latin American countries, but the domestic demand coupled with the enormous freight and war risk rates discourage trade. Lately rumours that a great deal of building of pulp and paper mills has been going on in Scandinavia have been freely floated, but this is not the case, as is shown in a letter from a very authoritative source in London, written January 24, 1917, which we quote herein.

"You wrote me a little time back in regard to a statement you had heard to the effect that about forty-two new paper and pulp mills were being erected in Scandinavian countries. I have only just now had an opportunity of meeting my Swedish and Norwegian friends, and they are quite unable to give any confirmation of this rumor. They state that apart from one or two new undertakings, about which we have already read in the Trade Journal there is not, as far as they know, anything in the way of new construction being undertaken, and that in the present circumstances it is most unlikely that there should be any. For one reason that the greater portion of the male population has been called up to join the colours, and for another that even if they wanted the machines there would be no possibility whatever of getting them for a long time to come. I am also informed that in Norway there are quite a number of machines in different mills standing idle for want of orders, although business recently has shown some signs of improvement."

Germany has made sulphite wood pulp contraband of war, and has actually seized cargoes of it, we are advised from a reliable source. Confirming this, the **"World's Paper Trade Review"**, London, states as follows:

"It is reported from Copenhagen that the Danish steamer "Alexandra" on a journey from Sundsvall Sweden, to Boston, with a cargo of pulp and iron was captured by German warships and the cargo seized. This is the first time that a steamer with such a cargo on a journey between two neutral countries has been captured."

ITALY.

The Italian publishers have recently met English and French newspaper publishers in Paris to study the present situation, acording to **"L'Industria della Carta,"** Milan, Italy, and the various subjects bearing on print paper costs, size of publications, issuing of Sunday Editions, and general curtailment of the use of news-print paper, were fully discussed. Papers were classified according to their consumption, and economies urged not only in the number of pages per issue, but also in the number of copies issued. A plan was suggested to educate the public to paying higher subscription and advertising rates. In spite of the fact that it is generally stated that the serious condition in Italy is due to high price of news-print paper, rather than an actual scarcity of supply, the Government commissions are hard at work trying to develop other sources of raw materials than wood pulp.

With a view to stabilizing the paper industry after the war, the supply of white pine in Russia has been carefully studied, and the Russo-Italian Chamber of Comerce will work toward substituting Russian wood for Austrian wood for consumption by the Italian paper mills. The principal difficulty to face in this connection is the question of water transportation after the war, but Russia is making such earnest endeavor to interest Italian capital in forest operations that there is good reason to believe something will come of the movement.

FRANCE.

In a recent Digest we stated that cable advices had been received to the effect that France had prohibited the importation of printing paper. Later reports, however, show that news-print paper is excepted.

The great curtailment in the use of news-print paper in France is due to the high price demanded, rather than actual shortage, according to **"L'Industria della Carta,** Milan, Italy.

"The French Federation of Book Workers, in an announcement given to the press, has protested against the intention expresesd by the editors of newspapers to limit the daily papers to two pages under the pretext of a scarcity of paper. The Federation observes that the paper situation has not been correctly stated, because many paper mills have given assurance that they could furnish regularly the quantity of paper now used. It is out of the question to think of economies by using less paper, because the paper mills would endeavor to show that this reduction to two pages would be detrimental to the interests of printers, as many of them would be dismissed."

SPAIN

As stated in our Digest during September, the Government made an agreement with the news-print paper mills and publishers that the publishers should pay for their supplies of news-print paper the price which ruled in July, 1914, the difference being absorbed by the Government. In order to recover this money the Government will apply an import tax after the war, which we are advised will amount to 5 centimos per 100 Kilos ($8.75 per short ton).

The Government has recently placed a temporary embargo on the exportation of paper stock, according to the "**World's Paper Trade Review**".

JAPAN.

In spite of the fact that new pulp and paper mills are being erected and projected in Japan, and that Japanese pulp and paper have found their way into the United States, Australia, and other distant countries, there is little likelihood of their ever being a real factor in the news-print market outside of the Orient. We are advised that sulphur, coal, and labor are cheap and freight rates low, but it should be noted that the recent growth of the industry is based on very large prices. Forests are also limited, and it seems more natural that the domestic wood would be devoted to higher grade papers.

The Japanese newspapers are still in their infancy, the daily circulation in Japan being about one page to every thirteen persons, and the demands on the manufacturers by the publishers will probably increase greatly in this new era of prosperity. During 1915 China imported over $4.000,000.00 worth of paper and cardboard, 75% more than their imports in 1908, Japan furnishing about 33% of this material.

SWITZERLAND.

The official "**Record of the Laws of Switzerland**" (Berne) of 22nd December, 1916, contains the text of a Decree of the Federal Government, dated 19th December, regulating the paper industry in Switzerland.

This Decree, which came into force on 23rd December, fixes the delivery prices of all classes of paper for home consumption, and empowers the authorities in case of necessity to require the manufacture of paper for this purpose. An Office of Control is established to give effect to this Decree.

AUSTRALIA AND NEW ZEALAND.

A number of articles have come to hand stating that newsprint roll news will be manufactured in New Zealand Wood Pulp and Paper Manufacturing Company, Limited, incorporated in July last, with headquarters at Christchurch, had secured large areas of bush lands suitable for the manufacture of paper in the Rotomanu (Otira) district. It holds on lease and reservations 30,000 acres, and it is proposed to erect a plant, which, together with the cost of harnessing streams for power, will run into six figures. It is estimated that from 23 to 28 short tons of paper will be manufactured daily in the near future, the class of paper primarly aimed at being the roll newsprint paper. Recent statistics show that close to 45 short tons of paper is the amount consumed daily in New Zealand by the press, ahe annual cost being $1.842.141.

According to the "**World's Paper Trade Review**", the closing weeks of 1916 witnessed a fall in price of some descriptions of paper in Australia. This is attributed to various causes. One is that the associated houses, finding that they had surplus stocks, brought down the price of two-ton lots and over in order to bring the stocks within manageable limits. Another alleged cause is that unassociated houses have been cutting prices for some time and have, therefore, been obtaining all the business, the associated houses bringing down their prices to meet their competition when they realized it.

As an instance as how prices have been reduced, it may be stated that supercalendered paper, which is listed at $364.98 per short ton, is now procurable at $263.60 by taking two tons, and art papers, which are listed at $445.94 to $466.21, are obtainable at $344.59. The reduction in printing paper is slight, from $202.-70 to $192.46.

RUSSIA.

Russia has prohibited the export of chemical and mechanical wood pulp from the country, although exceptions to the prohibition may be granted in favor of the Allies and friendly countries.

Russia is taking into close account the possibilities of her position in the pulp and paper market after the war, and the Duma has taken over water power sources for Government development or for the granting of concessions which will further the industry. Pulp wood supplies are almost inexhaustible. New large deposits of pyrites have been discovered, and the production of coal has increased over 50% in the past four years. The Government owns about 75% of the timber lands and they are beginning to realize the great source of income which can be obtained from the paper development of their water power and pulp wood land resources. The great problem with regard to the development is the interesting and obtaining of foreign capital with which to float the industry, and the Russian Commissions in foreign countries are making strenuous endeavors along these lines.

In regard to the actual condition prevailing in the present Russian paper market, H. M. Consul at Ekaterinburg (Mr. T. H. Preston) reports that since the outbreak of the war the paper manufacturing industry in the Ural District has had many difficulties to contend with, chiefly in regard to the high prices of raw materials and the scarcity of labor. Rags have risen in price from $22.82 to $228.16 per short ton and are now practically unobtainable even at the latter figure. Cellulose manufactured in the Government of Volga has advanced in price from $71.30 to $256.70 per short ton, while the Finnish product is slightly more expensive. Lime and resin have also advanced in price.

There have been great difficulties in obtaining wires (for paper making), so much so that one large mill had to close down pending the arrival of fresh supplies.

In order to issue sufficient supplies of raw material in the future, the two large paper mills in the Urals under British control are erecting a wood pulp factory at Bogdanovitch, and cellulose works in the Tavda forests in the North.

A further development in the industry is the erection of a new paper and cellulose factory at Perm.

ENGLAND.

The following figures from "**The Weekly Bulletin of the Department of Trade and Commerce,**" Ottawa, Canada, will give a concise view of England's situation as regards its pulp and paper supply:

	Paper Imports.	
	Short Tons.	Approximative
September 1914	53.455	$2,541,105.00
September 1915	62 620	3 231.530.00
September 1916	35 881	3.262.270.00

According to the "**World's Paper Trade Review**", London, England, there is quite a little speculation in import of licenses, prices ranging from $13.04 to $34.76 per short ton. The Paper Commission have taken steps to deal with the situation, as some people who depend entirely on imported supplies have been very hard pressed.

Of the 1916 supplies of news-print paper in rolls, 55% came from Newfoundland. The total decrease of

imports of 1916 from 1914 amounted to 57,180 tons, while sheet paper showed a decline of 18,347 tons.

Exports, however, were very favorable, as owing to an improved demand from Australia, New Zealand, South Africa, and France 1916 exports were made on a larger scale than 1915. Printing and writing papers constituted 72% of the total exports, the only grades showing a decline from 1915 being packing and wrapping.

The **"World's Paper Trade Review"**, states in regard to Anglo-Norwegian trade relations that British paper makers must view with alarm any incident likely to interfere wit hthe friendly commercial relations of their country and Norway. It appears that dissatisfaction is felt by Great Britain in regard to measures governing certain articles of Norwegian export and as a consequence the export of coal to Norway has been stopped. It is hoped that negotiations now going on will be concluded on a satisfactory basis, as developments on an adverse footing would probably imperil shipments of wood pulp from England's principal source of supply.

The pulp and paper markets are slightly fluctuating above and below the recent levels as quoted in our last Digest, and while almost any rumor will change the tendency of prices, there is always a reaction to normal. Trade journals have had practically nothing to say in regard to paper prices during January, but we understand that news-print paper is bringing about 5¾c per lb. plus war risk, amounting at present to from 5% to 10%, which is usually on buyer's account.

The **"World's Paper Trade Review"**, says:

"Difficulties in the way of obtaining paper supplies in the future are likely to be accentuated rather than mitigated, and the market is already assuming a firmer tone. The scarcity of raw materials and the withdrawal of skilled labor seriously affect home mills, necessitating a reduced output. True, consumption is on a smaller scale, and circumstances point to the urgent necessity of greater economy than has been practiced in the past. Some of the newspaper publishers — and many of them have not materially reduced the size of their publications—are beginning to get alarmed as to future supplies, but the recent deputation, headed by lord Burnham to the Board of Trade, with a view of soliciting a relaxation of present tonnage restriction, obtained very poor consolation: in fact, the deputation received a hint that even further restrictions might have to be imposed."

Chemical wood pulp is very quiet, probably due to the condition of the paper market, and prices show an easier tendency.

Groundwood pulp is quiet but in better demand, and prices are firm. The curtailment of imports is being acted against by the curtailment and high cost of manufacture in Norway, and it remains to be seen how market values will act.

SWEDEN.

According to **"Affarsvarlden"**, Stockholm, Sweden, wet mechanical wood pulp is bringing $36.47 per short ton F.O.B. Gothenburg, and dry mechanical between $48.62 and $49.84 per short ton net cash F.O.B. Gothenburg, an increase over the preceding month of over $1.00 per ton. A reduction of output in Sweden is reported due to lack of water, and prices are firm, with a rising tendency if any. The strong demand for Canadian and Scandinavian mechanical pulp in the United States continues to divert shipments which otherwise might go to Europe, and has helped to stiffen prices.

Sulphite pulp wood is very firm and shows a tendency to rise. Norrland navigation was open longer than usual, which tended to deplete stocks but quieted the market slightly. Both Swedish and English trade publications are looking for a satisfactory settlement of the Anglo-Swedish negotiations as regards the embargo of chemical wood pulp in the near future and a substantial rise in prices.

"Kommersiella Meddelanden", Stockholm, Sweden, quotes sulphite wood pulp at $91.17 to $97.25 per short ton F.O.B. Gothenburg, and $85.09 to $91.17 per short ton F.O.B. the Baltic, at last month's levels.

In regard to sulphate pulp, the demand from Germany and Austria is steadily increasing for use in spinning paper and spinning yarn, with prices rising at $106.98 to $133.72 per short ton cash F.O.B. according to "Svensk Papers Tidning", Stockholm, Sweden.

"Affarsvarlden", Stockholm, Sweden, quotes sulphate at $133.72 to $138.58 per short ton net cash F.O.B.

NORWAY.

The United States Consul General (Mr. Dennison) at Christiana, Norway, reports:

"The tendency of the wood pulp, cellulose and paper industries of Norway in recent years has been toward centralization, with the result that there are now two strong combinations in existence, the one known as the Union Company, and the other as the Borregaard Company. According to reports, the former is now seeking to absorb the latter.

A contest is on between these two groups and the Forest Owners' Association owing to the high timber prices recently fixed by the Association for the coming season. Both sides are well organized and powerful so that dealings between them are subject more or less to compromise. The lumber mills, however, are not so strong, and are compelled to pay the enhanced prices demanded, with the result that the cost of building material has risen considerably.

The pulp wood mills, which in 1914 were paying $12.63 per cord for timber, are now obliged to pay $24.28 per cord, and it is reported that $29.14 per cord has been demanded. Under such conditions it may become impossible for the Norwegian mills to continue to compete in the foreign markets, and some anxiety exists regarding the future of the industries concerned.

A great deal of timber is being cut this year in the Drammen district, but labor is scarce and difficult to obtain even at the increased wages offered. Cutters are receiving $2.70 to $3.20 per day, and drivers as high as $5.40. The large part of the 6,000,000 logs that will be cut this season will be handled through the Forest Owners' Mutual Selling Association."

Business in the paper and pulp markets is quiet with a weaker tendency, mechanical wood pulp alone holding up under a fair demand.

According to **"Farmand"**, Christiana, Norway, "The Norwegian paper markers report a continuation of the scarcity of orders and prices are weak." "One or two of the Norwegian newspapers have suggested that our country might prohibit the export to England of wood pulp by way of reprisals against the British embargo on the export of coal to Norway. We earnestly hope that this suggestion is nothing more than an attempt of the editors in question to act as amateur foreign ministers. In spite of the rather brusque way in which the British Government has act-

ed in this matter, it is to be hoped that it may be amicably arranged.

Strong sulphite wood pulp has been in keen demand and the last sale, according to **"Farmand"**, was 550 tons at $121.56 per short ton net. **"Papir Journalen"**, Christiana, Norway, placed the price at $114.27 per short ton F.O.B. **"Farmand"** states that Swedish prices for chemical wood pulp are slowly tending upward. This authority states that over 2,000 short tons of wet mechanical wood pulp has recently been sold to the United States at $36.47 per short ton F.O.B. and that this is about the price idea of most pulp makers for European contracts.

Dry mechanical wood pulp is sold at $48.62 to $51.06 F.O.B. chiefly to the United Kingdom, according to **"Papir Journalen."**

There has been very little demand for either dry or wet mechanical, according to **"Tidsskrift for Papirindustri"**, Christiana, Norway, bue negotiations have commenced for 1917 contracts. Buyers are, however, restricted in their purchase partly owing to expired licenses and partly owing to the quiet state of the paper market.

BASIS OF TRADE PAPER SUBSCRIPTION PRICE.

W. C. Freeman, general manager of "The Advertising News", addressed the New York Business Publishers' Association at a recent meeting of the organization. His theme was "Subscription and Advertising Rates," and the portions relating to the subscription prices for trade papers are of interest to paper manufacturers as well as to publishers. On the subject of subscription price and the cost of producing the finished periodical, Mr. Freeman said:

"I believe in selling everything at a profit. When trade papers fixed their present subscription prices the paper market justified the charge.

"The subscriber takes a trade paper because of its value to him in business. He does not buy it for pleasure or entertainment; it represents to him a book of knowledge.

"The price of the subscription is not of great importance to him. If it should be $5 a year, that represents a charge of a dime a week, that's all—the price ofa fair cigar. If the price should be $21 a year, it represents a charge of two dimes a week—the price of a better cigar. The subscription price should be based on the cost of production.

"If the price of paper goes up, if the price of labor in the mechanical departments goes up, if the price for editors, reporters, special writers goes up, then the subscription price should go up proportionately.

"The reader of a trade paper wants it, if he wants it at all, because it is an encyclopedia, an assembly of facts which, if he be a progressive man, he must have; and to succeed he must apply them to his business.

"The subscription price has nothing whatever to do with the advertising rates. It should stand by itself. A low subscription price for a trade paper is always a mistake, because it unlike any other publication. It is a necessity to the people in the line of business which it represents.

"If greater editorial reportorial and analytical ability has been developed, then the subscriber will appreciate his trade paper all the more and he will be willing to pay more for it. I repeat that the basis of the proper charge for a trade paper is its value to the reader."—Paper.

Proceedings of the Canadian Pulp and Paper Association

(Continued from last issue).

FORESTRY AND FOREST PROTECTION MATTERS.

ELLWOOD WILSON,

Chief Forester, Laurentide Company, Limited

Mr. President and Gentlemen:

The progress in forestry and forest protection matters during the past year has been remarkable and of great value and importance to the members of this Association.

In the Session of the Provincial Legislature of Quebec held early in 1916 the Honorable Minister of Lands and Forests introduced a bill amending the forest fire laws which gives much greater security for the forests. This bill was passed. Its most important features are, that no one can set a fire at any time, except for warmth or cooking, without a permit from a duly appointed fire-ranger or other officer of the Crown, and this is made to apply especially to settlers clearing land. Settlers must now get permits and the piling and burning of slash is supervised by the rangers. All males between 16 and 60 years of age must help to put out fires when called on by the rangers and the rate of wages is fixed by law. An Order-in-Council was also passed obliging licensees operating along the right-of-way of any railroad in the Province to clear up and burn the debres left after logging within two hundred feet of the tracks. A heavier minimum fine is imposed for deliberate and accidental setting of forest-fires thus preventing the practice hitherto much in vogue with the magistrates of letting a man off with a fine of one dollar.

In New Brunswick the commencement of a forest survey and inventory by the government is a long step forward. 375,000 acres have been surveyed, the timber estimated and the land classified. This is being done with a degree of accuracy never before attempted by any of the Provincial governments and will be of great value in determining what lands are fit for settlement, how much timber should be cut in given areas and what regulations and rates of stumpage should be imposed by the government.

In British Columbia, the introduction of civil service rules in the forestry branch and all other branches of the governmnent is a tribute to the practically patriotism and common sense of the New Premier and a most important measure for the future development of the Province.

In Ontario, the placing of the fire-protection service under a trained forester, the re-organization of this service and the promise of the Minister of Lands that there will be no patronage in appointments to it, is a most important step and one which will place the lumber and pulp and paper industries on a much sounder footing.

The Dominion Forestry Branch and the Dominion Department of Indian Affairs have issued regulations compelling licensees to properly dispose of the debris left after logging by burning. This is an important measure for the preservation of the forests as it materially lessens the danger from fires and insects.

The Governments of Saskatchewan, Alberta and Manitoba have under consideration the passage of settlers burning permit laws, and it is hoped that such legislation will be completed at the next Session.

The better preservation, closer utilization and perpetuation of the forests are receiving more attention at the hands of our members. Three of our constituent Companies have complete maps and inventories of their timber resources, and another is contemplating such work. Two have commenced large scale planting operations and a third is thinking of commencing.

The question of inventories of timber resources is a very important one, for no company which is ignorant of the amount of timber it possesses can be said to be well managed or in sound condition and cannot lay out its work for the future in a business like way.

The utilization of our timber resources is still, with three or four exceptions, carried on in an old fashion-



ELLWOOD WILSON.

ed and wasteful manner to the detriment of the forest; and the logging costs of the future will be greatly raised by such methods.

As cheap wood and cheap power are vital to our industry it may not be amiss to call the attention of our members to the close connection between the removal of the timber and the impairment of the water powers. The forests undoubtedly regulate the run-off, distributing it throughout the year and decreasing the difference between extreme high and extreme low water and they probably increase the total run-off by preventing evaporation. It is said too that they increase precipitation. Therefore the removal of forests by fires and by over cutting is a great menace to the future of our industry and should be made a matter of study by a committee of this Association and recommendations made to our members.

Our members should be urged to join and form well managed Co-operative Associations for protection from forest fires.

As several of our members have begun to plant trees on a large scale the question of taxation where they are planting on their own lands should be studied. Also the question of guarantee by the government that those who plant on licensed lands will cut the trees they plant and will be properly reimbursed for their investment by reduction of stumpage dues at the time of cutting must be taken up.

The Government of Quebec should be urged to compel all licensees to take better measures for protection of the forests against fire. During the past season the territories patroled by the Co-operative Associations were in great danger from fires originating on lands adjacent.

Also the question of opening up lands for settlement in timber limits should receive attention and laws be passed forbidding this on lands which are unfit for agriculture. The interests of the settler and the licensee are not antagonistic as the latter needs the settlers to furnish labor for his woods operations and the former needs such work to tide him over the winter. But the settler who is permitted to take up land too poor to give him a decent living is a menace to the community, he steals timber and must trap and hunt out of season for a living and is not able to properly educate and rear his children. This is a matter which calls only for a little common sense and new townships and parishes should not be opened until they have been examined and laid out by experts. At present settlers have only to ask for lands in certain sections to have them granted and experience shows that very often such lands must be abandoned after cropping for a few years.

The Government should also publish the work done by its Forestry Branch and should as rapidly as possible make a complete inventory of the forest resources of the Province.

A standing Committee should be appointed by this Association to study the questions of better preservation, closer utilization and perpetuation of our resources and should make recommendations to this Association for the guidance of its members. These questions which concern our raw material are vital and fundamental to our industry and have been too long neglected.

* * *

Mr. Wilson continued: The most important thing in regard to the pulp and paper industry is most certainly the raw material, and the progress which has been made in taking care of this raw material — or the source of this raw material is lagging far behind the the rest of the work that is being done. You have a good Technical Section which is discussing the chemical side of the question, but you have nobody whatever who is showing any care of your woodlands.

Now, the woodlands of the Canadian manufacturers are only just beginning to be taken care of at this late date, as they should be taken care of. The waste in the woods is certainly very large, and the knowledge which the manufacturers in Quebec and Ontario have of their resources is, with a very few exceptions, almost nil. You have relied for years upon the reports of men, who are supposed to know the conditions. The Governments are taking certain steps which they hope will conserve the forests, but they are putting all the burden of the expense of the work on you. You are required to pay for fire protection; you are required to pay for your own maps, and are required to do some other things which, licenses and renters of lands, you

should not be required to do, but on the other hand, these things are absolutely necessary and until such time as the Governments are willing to take their share of responsibility, it will have to be borne by the paper manufacturers.

I have been asked to say a few words in regard to the forest lands at the present time. This is a question which certainly demands attention, and I would suggest that a committee be appointed by this Association along the line of your other technical committees, to examine into all the things which refer to the products and protection of your raw material. This is a very important thing and such a committee could be of very great assistance and use to you.

In regard to the devastation of the forest lands: the cutting which has been carried on in the sections with which I am familiar, has caused a great deal of devastation, and I think we should take some action before it is too late. The indiscriminate cutting of the forests and the taking of the raw material which was the handiest and cheapest to log at the time, has certainly contributed to the low prices which you have been able to charge for your paper, but the taking of this easily accessible supply is now practically at an end. You will be forced from this time on to go much further for your timber, and to cut it from places very inaccessible, and your logging costs are bound to increase, not gradually, but with a jump. The way in which the forests have been cut over, and the carelessness in regard to fire, which existed up to five years ago, have left waste many large districts which should have been useful to you for many years to come.

The way in which the cutting has been carried on, taking the timber from the borders of lakes and running streams has practically come to an end, and the method of cutting by which choppers have been allowed to go into the woods and practically select the timber which they were cutting and leave the rest, has left it so scattered that it will be very expensive and very difficult to cut up.

The time has come when this question should be taken up and examined carefully. In the woods there is no reason whatever for competition, but as a matter of fact should only compete with each other in trying to get your logs out as cheaply as possible. This can be done more efficiently by co-operation. There is no reason why you should compete in the question of labor or provisions, but by getting together and planning your operations together, and planning them with some idea of the preservation of the forests, and you can certainly have some great economics and economies which will preserve the forests over the greatest term of years.

The scarcity of pulp wood is an important factor in the high price of paper, andthese will increase from time to time, and some steps or measures must be taken to prepare the forests for the future, and also the question of the waste of material in the woods should be taken up, as the way the waste is allowed to accumulate now is one of the most serious fire hazards that we have; makes easy the starting of the fires, and the extinguishing of them much more difficult, and destroys the reforestation which you should be getting.

I would suggest that you appoint a committee to look into all these questions and take concerted action to end a condition which prevails at the present time in the woods — the logging end of your business (applause).

The News Print Investigation Up-to-Date

(Special by Rowland W. Jolly).

New York, February 24.

The news print situation became more interesting early this week when it became known that President Wilson was beginning to look into the matter personally. According to official information said to have been given out, the news print manufacturers only agreed to allow the Federal Trade Commission to act on prices when confronted with the alternative of personal action by the President and a special session of Congress to pass remedial legislation. According to a rumor, Secretary McAdoo, at the President's direction, summoned one of the manufacturers and informed him that inasmuch as the government itself is not permitted by the constitution to impose prohibitive restraint upon the press, the administration did not intend to remain idle while an alleged monopoly through extortionate price for print paper effectually imposed greater restraints than the government ever contemplated. The manufacturer was told that with many daily newspapers in the country threatened with being forced to close up, a special session of Congress would be called, if necessary, to pass legislation to restore prices and supply a normal level. All of this is said to have been at the President's instigation—to help to bring the situation about to a normal one.

In the meantime, the trade is waiting rather anxiously to see what will be contained in the report of the Federal Trade Commission, which is soon to be made to Congress. Possibly, the action of the news print men in offering to allow prices to be regulated by a Federal Board will mitigate the contents of this report —and it may even be submitted too late for consideration by the present Congress. For it must be remembered that the session of the present Congress expires automatically on March 4th, unless a special session is called.

The trade commission is still witholding the names of the manufacturers who have proposed that the commissioners arbitrate their differences with the publishers and fix an equitable price. The names will not be announced until all manufacturers have an opportunity of joining in the arrangement. They are expected to be heard from within a few days. Members of the commission explained, however, that the group which has agreed to the price adjustment is sufficiently large to control the market rate, and that there is little doubt that the other who were in Washington at the time will come in.

It is said that the commission will take into consideration the fact that there is a difference in the cost of manufacture on the part of different concerns, when it is adjusting its price. Already, it is understood several small manufacturers desire to present evidence that they cannot produce paper at so low a rate as the larger companies, which buy supplies in great quantities and have better facilities generally. In this connection, however, the commission, by a prolonged painstaking investigation, has obtained an approximate schedule of cost prices in all parts of the country, and will hear the manufacturers on the subject, but will not allow prolonged hearings so as to settle the matter as soon as possible.

The proposition made by the manufacturers named March 1st as the day for the reduced price to go into effect, and the commission will make every effort to

(Continued on Page 231)

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

C. P. Pearson, as trustee has just secured the deed of the old Parker mill at Gardner, Mass., and will use the property as a paper manufacturing plant. The new company which will operate this mill is known as the Gardner Paper Company. This concern was incorporated several months ago by John O'Brien and others. The securing of the deed by Mr. Pearson is the latest development of the new enterprise.

The Central Ohio Paper Company, of Toledo, is now comfortably settled in its new home on Ontario Street. Local papers last week carried full page advertisements announcing the move to more spacious sales rooms and warehouse.

The paper industry was well represented at the second annual banquet of the Typothetae of Washington (D. C.) last week. Among the well known Paper men who gave impromptu addresses were: C. W. Cabot and Norman Wilson, of the Hammermill Paper Co., Erie, Pa. Mr. Wilson told why rag and sulphite and all rag papers were not as uniform as heretofore; while Mr. Cabot devoted his few words on how U. S. mills assist printers.

An announcement just received in the trade states that the Paper Mills Specialty Co., of 222 W. Kenzie St., Chicago, has completed arrangements to supply the trade with all grades of oiled and waxed papers.

Though the matter of establishing a co-operative paper mill by Tennessee publishers is seriously contemplated, no action was taken at the meeting of the East Tennessee Press Association, held at Knoxville, on February 19th. Committees of the organization are making careful investigations and it is expected that a full report on its findings will be made at a meeting to be called in the very near future.

The officers of the Western Paper Box Manufactures elected at a meeting held a few days ago in Chicago, are: W. C. Carlson, of Milwaukee, president; G. N. Snyder, of Chicago, vice-president; G. J. Kroeck, of Chicago, treasurer; and J. F. Kalleen, of Indianapolis, secretary.

Paper mills throughout the country are being hard hit by the coal shortage and the railroad embargoes. High prices are being demanded, and coal is held at a premium.

The Chambersburg (Pa.) Reporter states that the Hollywell Paper Mill on the Conococheague Creek has been sold by E. J. Bonbrake to D. A. Rosenthal of New York City. It is understood the new owner will remodel the will and place it in operation at an early date. No announcement has yet been made as to the capacity of the mill or what kind of paper it will turn out.

The Bird Machine Company, of East Walpole, Mass., announce that T. H. Savery, Jr., of Chicago has been made associate engineer, representing them in the Middle West. Mr. Savery is well known in paper machinery circles and his long experience and large acquaintanceship will enable him to render a great service to the Bird Company.

The sulphite mill of the International Paper Company at Sewall's Island, near Watertown, N. Y., was burned to the ground on Sunday morning of last week. It is estimated that the loss will exceed $100,000. Though the mill was fully insured, the company will suffer a heavy loss on account of loss of production.

The Folding Box Manufacturers' National Association has been organized by New York paper box makers. The local manufacturers recently got together and formed this association to establish uniform trade customs, to standardize cost accounting systems and to foster and advance the progress of the industry

Though the investigation of the News Print Manufacturers by the Federal Trade Commission has been given National prominence during the past few weeks, little has been said about the progress being made in the investigation of the book paper industry. This is going on, however, slowly and considerable field work has already been completed. The report is no where near ready, but it is understood that some interesting things have so far been unearthed. Commenting on the subject one of the local trade papers says: "It is said on good authority that up to this time the agents of the commission have not found that the paper jobbers of the U. S., in so far as the investigation has proceeded, have been receiving any unduly large profits, due to the present prices. On the other hand it is intimated that these agents have found that the mills are geting large prices, even in proportion to the increased cost of raw materials, than they really should be getting. This applies almost entirely to those mills who have their own sources of raw materials, it is understood."

The Northern Michigan Pulp Company has filed an application for a charter to do business at Petoskey, Mich. The new company was organized at Boston, Mass., by R. W. Fernald, L. D. Cole, and C. G. Guild. Mr. Fernald holds the controlling interests. The company—it is understood—will maintain offices at Petoskey and Grand Rapids.

G. H. Hammond, formerly general manager of the Harvey Paper Co., at Wellsburg, W. Va., has been made general superintendent of the Taggerts Brothers Company at Watertown, N. Y. Mr. Hammond has already assumed his new duties.

A dispatch from Aberdeen, Ore., states that that town is jubilant over the assurance of a $1,000,000 mill to be erected there. A group of mill men last week purchased from the city the water rights and control of the banks of Charley Creek. Construction of the mill, it is understood, will be begun very shortly and it is hoped to have the mill in operation early next year.

The Washington correspondent of the Paper Trade Journal states that it is understood in Washington circles that all of the Paper Mills in the United States have been listed and information relative to them is in the hands of the War Department to be used in connection with anything that can be done with the mills in case of war with Germany. The tabulation of the mills, especially of those which have sulphite plants of their own, has been done under the direction of the National Council of Defense.

PULP AND PAPER NEWS

The annual meeting of Ritchie and Ramsay, Limited, coated paper manufacturers, Toronto, was held recently when very satisfactory reports were presented for the past year. The prospects for the coming season were reported as most promising. F. A. Ritchie was re-elected president, C. N. Ramsay, vice-president, and J. M. Finlay, secretary-treasurer. The firm has entered upon the twenty fifth year of its history, having established the first coating paper plant in Canada in 1892. Both Mr. Ritchie and Mr. Ramsay, previous to launching out for themselves, had been for several years in the employ of the Canada Paper Co., Montreal.

At the annual meeting of the Interlake Tissue Mills, Limited, which was held in Toronto, on February 21st, the most encouraging year in the history of the company was reported while the outlook for the next twelve months is viewed with every confidence and assurance. The plant is operating at its fullest capacity and, during 1916, a large three storey addition was completed which is devoted to finishing and specialties. George Carruthers was re-elected president and manager; I. H. Weldon, vice-president, and S. F. Duncan, secretary-treasurer. The old Board of Directors was re-appointed.

W. N. Hurlbut, assistant to the President, George H. Mead, of the Spanish River Pulp and Paper Mills, who has been residing at Sault Ste. Marie, ever since the head offices were removed from Toronto, will in the near future take up his residence in Dayton, Ohio. Mr. Mead recently left Dayton for Los Angeles, Cal., where he hopes to enjoy a vacation and a much needed rest after several months of sternuous work in connection with the Federal Trade Commission and other matters.

There is a vigorous campaign on in Toronto and other cities for old rags and waste news and book papers. One firm have sent circulars broadcast asking for one thousand tons of rags and two thousand tons of newspapers and books bundled in one hundred pound bundles. One cent a pound up is offered householders for mixed rags of all kinds, three cents a pound for tailor clips, thirty cents, per hundred pounds, for bundled newspapers and books, and twenty-five cents loose.

Miss Margaret Isabel Logie, eldest daughter of James Logie, paper mills representative, of Toronto, was married in Eglinton Presbyterian church, Toronto, on February 21st, to John Wilson Arnold of Washington, the ceremony being performed by Rev. W. G. Back.

The salary of E. J. Zavitz, director of forestry for the province of Ontario, has been increased by the Provincial Government from twenty-six hundred to three thousand five hundred annually.

R. S. Waldie, of Toronto, President of the Toronto Paper Mfg. Co., and wife are spending a few weeks in Florida and other southern states.

W. T. Robson, representing Andrew Whyte and Son, Limited, of the Bothwell Paper Works, Scotland, who has been coming to Canada for many years, will discontinue his visits for the present. The firm announce that they have taken this step owing to the continual depletion of their staff, the restricted importation of raw materials and their limited capacity at the present time for executing new orders. Mr. Robson will assist the firm at home. They express the wish that the war will soon be over and conditions be more favorable before very long.

Thomas Y. O'Neill, who for many years has been Montreal branch manager of the E. B. Eddy Co. has resigned to take position with another house in an tirely different line of business and carries with him the best wishes of the firm for his future success. Mr. Belwl, who has been in the employ of the Eddy Co. as salesman in Montreal, has been appointed successor to Mr. O'Neill.

The Donnacona Paper Co. of Donnacona, Que. were recently fine one hundred dollars and costs for having opened their plant on Sundays and having called the men to work on that day.

The Provincial Paper Mills Co., Limited, held its annual meeting at the head office in Toronto last week, when very gratifying reports on the operations of the past year were made. President, I. H. Weldon, in his remarks, stated that 1916 had been a trying one so far as the supply of raw materials was concerned. There were many other difficulties which had to be overcome such as the scarcity of labor, abnormal demands of customers and uncertainty of deliveries until at times the manufacturer did not know what to do in order to meet the situation. The company had done the best that it possibly could under the circumstances to satisfy all patrons and the returns, he was pleased to state, were very satisfactory. Conditions had now become more settled and the outlook for a splendid business for 1917 was most encouraging. All the plants of the company are rushed to the limit and contracts made covering a long period. During the year just closed; the three tour system has been instituted at all the plants which have been kept up to the highest point of efficiency in the matter of equipment and production. I. H. Weldon, was re-elected president; T. A. Weldon, vice-president, and S. F. Duncan, secretary-treasurer. The Board of Directors is composed of Alex Fasken, Toronto, C. B. Gordon, Montreal S. B. Monroe, A. B. Connable, Ralph Emery and W. M. Loveland, Kalamazoo, Mich.

Mr. A. P. Costigane, recently appointed Safety Engineer of the Ontario Pulp and Paper Makers' Association, paid a visit to the Montrose Division of the Provincial Paper Mills Co., Ltd., at Thorold, and made an inspection of the plant. He expressed his satisfaction at the many ways in which Safety First had been taken up by the mill since the short time it had been introduced, and is quite confident that every assistance will be given him by Mr. F. M. H. Cushing, secretary of the mill committee, who has worked tirelessly with "Safety First" methods since its installation.

The Raymond Concrete Pile Co., Limited, of Montreal, has been awarded the contract for the foundations of the slasher mill and pulp wood conveyer towers for the Belgo-Canadian Pulp & Paper Co., Limited, at Shawinigan Falls, Que. The work has progressed very satisfactorily. The soil is firm blue clay, in which the piles are sunk to an average depth of thirty feet.

Arthur Bohémier, a young man while at work in the factory of the Patterson Manufacturing Co. St. Hubert St. Montreal, was hurt by a heavy roll of paper falling on him and suffered serious internal injuries.

A. P. Costigane, the new Safety Engineer of the Ontario Pulp and Paper Makers Safety Association, Toronto, paid his first official visit to the mills in the Niagara Peninsula district last week, and received a hearty welcome at all the plants.

The fourth machine which was recently installed at the plant of the Toronto Paper Mfg. Co. at Cornwall, Ont., was put in operation last week. The machine is 82 inches wide and increases the output of the company to thirty tons a day.

At the annual meeting of the F. N. Burt Co., Limited, Toronto, which was held last week, a statement was presented showing an increase of fifty per cent in net earnings over the previous year. The shareholders also authorized an increase in the common sahres of the company by $750,000. S. J. Moore, of Toronto, President, stated that it was not proposed immediately to dispose of any part of this stock but that the rapid growh of the business might make it desirable to issue the shares at a larger date. He also stated that a new record was established last year for both volume of business and net earnings. The various factories of the company are taxed to capacity and a considerable amount of profitable business had to be declined.

NEW HEAD OF INTERNATIONAL BROTHERHOOD.

J. P. Burke, of Franklin, N. H., has been elected president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers to fill the unexpired term of John H. Malin, of Fort Edward, N. Y., who resigned as president in December.

* * *

A news item published in the "Boston Globe" tells of the collection of more than sixteen tons of old papers and magazines by the school children of Brattleboro, Vermont, in a four week's contest. They were paid by a junk dealer $248.99 for this amount

ST. MAURICE HAS FOUR SOLDIERS.

Secretary, Canadian Pulp and Paper Association:

I find that on November 2nd last I wrote you that we had only one man from the St. Maurice Paper Co., Limited, at the front. I quite forgot that we had three other men there.

Robert Tyhurst, who left in the Spring of 1915. The last we heard of him was that he was captain of a Platoon of Bomb throwers and was alive and doing well.

Albert Hall from our Charlemagne mill also left here in 1915 and Demasse Ethier. The last two are both reported killed.

Your very truly,

A. MacLaurin, Vice-President,
St. Maurice Paper Co., Ltd.

NASHWAAK PAPER CO. EXPANDING.

St. John, N. B., January 29, 1917.—It is announced that the Nashwaak Pulp and Paper Company has arranged for increeased capacity of its plant (formerly the Partington pulp mill), at the Falls.

Excavating for a new, improved wood room has been begun by B. Mooney & Sons, contractors, who are to erect on the site of the old Cushing mill a two-story brick building with concrete foundation. It is expected that the contractors, with favorable weather, will complete the concrete substructure within a fortnight, and that the new building will be ready for use within two months.

BELL TAKES O'NEILL'S PLACE AT EDDY'S.

T. Y. O'Neill who has been manager of E. B. Eddy's Montreal Office has resigned to go into a different line of business. His place is taken by Mr. H. E. Bell, who has been in the sales department for 14 years. Before that he was with the late Royal Paper Mills Co., at East Angus.

THE NEWS PRINT INVESTIGATION UP-TO-DATE.

(Concluded from Page 228)

put the result of the arbitration into effect on that day. The position taken by the commission is that of a board of arbitration and not as a public utility commission. Thus, it is argued, legal power of the commission will not be involved. The proposition made by the manufacturers for arbitration of prices applies to 60% of the industry and will settle the question for the entire country, according to the commission.

It will be interesting to read some of the statements which have been credited to large newspaper publishers by reliable authorities. The New York Evening Post is credited with the following statement; Newspaper publishers are inclined to be skeptical of the good faith and practicableness of the offer of news print manufacturers to have the Federal Trade Commission fix a reasonable price for their output.

"There is a disposition to believe that the offer, upon analysis, will be found to be so hedged about by conditions and crammed with jokers that it will prove, not a step forward but an actual step backward, in the sense that it may be planned to perpetuate present objectionable conditions in the paper trade.

There is also the apparent fact, say the publishers, that the manufacturers made their offer at a time when manufacturing costs were increasing with the evident hope that the commission would be influenced by the condition to approve a high price. Moreover, what the publishers are seeking is not a fixed standard price, which would deprive the manufacturers of incentive to speed up production by competition, but a return of the market to a normal basis. The fixing of a standard price, it is felt, would only serve to continue the present situation of a combination to maintain prices. There is a distinct feeling, too, that the manufacturers' offer was made in the hope of averting the exposures which the publishers anticipate will result from the Federal grand jury investigation of the charges that the manufacturers have conspired to violate the Sherman Anti-Trust act.

All of the publishers, however, do not take this view of the matter, for there are a number of the larger concerns which are inclined to look with favor upon what has been offered by the news print manufacturers.

The Markets

CANADIAN MARKETS.

Toronto, February 28.

General market conditions have shown a tendency to become quieter. New business has not been placed in any considerable volume as the trade seems inclined to hold back orders. The freight situation has improved considerably, due to the comparatively mild weather of the past two weeks. If a cold snap does not set in for another week the situation will be very well straightened out. Engines that were tied up on snow ploughs and double header passenger service are now released for freight traffic and the greater ease in making steam permits of heavier trains and faster service. There are still many cars to be brought east, and their appearance will be a great help to paper makers in getting their supplies and marketing their product.

The following quotations prevail, f.o.b., Toronto.

Paper.

News, from jobbers, as high as	5½c
News (rolls), at mill, in carload lots on contract	$3.00
News (sheets), at mill, in carload lots, smaller lots higher	$3.75
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila, B.	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

Pulp.

F.O.B. Mill.

Ground wood ppulp	$45.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	1.90
Heavy ledger stock	3.40
Soft ledger and writings	1.60
No. 1 magazine	1.85
No. 1 book stock	1.75
No. 1 manila envelope cuttings	2.60
No. 1 print manila	1.40
Folded news	.90
Over issues	1.00
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.70
Tailor rags	1.70

NEW YORK MARKETS

New York, February 24th.

All eyes seem to be centered on the result of the offer of the various news print manufacturers to submit the matter of regulating prices to the Federal Trade Commission. There are some people in the local trade who seem convinced that the immediate future of the entire industry is dependent on the decision of the Board which will regulate the price of news print. The class of people referred to are of the opinion that the Federal Board will look to Canada for precedent —which means that the price named will be somewhere about 2½c, or, at all events, not much more. This, it is argued, would have a tendency to bear the market decidedly. However, this is only one side of the story—and by far the least probable side, so a good many say. It is conceded that the Federal Board may set the price of news print at 2½—just as was done in Canada, and probably following the footsteps of the Dominion government. But, it is maintained, this will be the worst blow that could be given to the news print industry—to say nothing of the publishers and the other consumers.

Of course, this is all calculation, for we have no certain knowledge as yet, what the Federal Board will do, but it is on such reckoning that conditions are today balancing themselves. If the tendency is for mills to take their machines away from news print, the result must be a curtailment in the production of this commodity. In this event, no matter what the Federal Board were to do, it would be difficult to keep the price of news from climbing much higher than the highest point to which it has already attained. As a matter of fact, the shortage of wood is becoming so acute that it seems inevitable that it must affect the price of news.

The ground wood situation has become much stronger during the past week, because of the realization of

the many difficulties confronting the market. The question of getting wood is growing more and more serious all of the time for it is impossible to get the labor necessary to get sufficient supplies. Then again, the weather has not been such as to favor getting the logs to the streams to be floated down the mills. Freight conditions are, perhaps, one of the severest factors in the situation. To make matters worse, it is understood that the Canadian roads have placed restrictions on theri cars not allowing them to cross over into the United States, for fear that it will not be possible to get them back into immediate use. As the manipulation of cars is of the greatest importance in a situation like the present, there is no telling when it will be possible to get pulp shipments from Canada as freely as they have been coming. Domestic grinders are working at their best capacity, but they are looking forward to anchor ice troubles within the next few months, which means a further detriment to production. The rumors printed last week that sales have been made at $60, are still going the "rounds." The market this week is quoted at about $45 to $50, at the grinders mill.

Further advances were this week noted in foreign sulphates. The ruthless German U-boat campaign is one of the chief factors in this market. In view of the fact that it has been reported that Swedish pulp ships have been held up by the Germans, there is fear of shipping more stock. Importers have no hesitancy in saying that the prospects of getting stock from Scandinavia are growing less all the time, basing this belief on the attitude of the foreign shippers being unwilling to take the risk. Stocks on dock here are of practically no account, and the result has been most natural—a strong tendency to advance. The same tendency is noted with domestic stock although actual manifestations have not been noted—still the sympathy is felt.

In rags, a sort of dormant condition is reported. The market does not appear to be affected by the present conditions and is not sharing in the general excitement. Buying by the mills is being done cautiously and only for immediate needs. With the dealers, things seem to be slow. There is undoubtedly considerable stock available—and comparatively little or no fear of a shortage. The mills are still reckoning on the coming Spring collection of rags which will add to the present supply and, possibly, be a strong factor in keeping the market from advancing to any other levels. New white shirt cuttings are still holding to about 9½c; old white cuttings, are now at about 5½c; house soiled whites, are at 3½c; street soiled whites, at 3c; thirds and blues, at 3c and black stockings hovering around 3c.

Bagging does not seem to take on any added life in the face of the usual events now developing—acting no doubt, in sympathy with rags. It is true that no stock is coming in and is not likely to come in, for England is firmly holding to her embargo on this stock, when for paper making use. Today's quotations are about 3¼c for gunny; 3c for bright bagging, sound bagging, at more than 2½c; mixed bagging, at about 2⅛c. Rope continues fairly strong and in good demand at about 6 cents and a little less.

No one seems to know what is troubling waste papers. Despite the predictions of a good future for this market, and despite the high prices and scarcity

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y.

of most raw materials, a noted slump was reported in waste papers during the past week. Hard white shavings are down to about 6c, at the highest; soft white shavings, are at 4¾c to 5c; magazine stock is hovering around 2c; ledger stock is at about 2¾ to 3c; old krafts are a little over 3½c; overissue news has taken on strength and is up to 1½c. Mixed papers are still around 80c to 85c per hundred pounds.

News print has been taking on firmness, despite the Federal Trade Commission's activities. Wrappings—that is krafts and manillas—are strong and in good demand. However, fibers are still a bit behind. Tissues are picking up very well and it is predicted that the jobbers will either have to buy or pay the higher prices a little later on. Book papers continue firm with a fair demand current. Boards are strong with the tendency of prices still upward.

New York Quotations.

(These are a nominal range of prices).

Ground wood, f.o.b. mill ..... $46.00 to $50.00
Foreign bleached sulphite, ex-dock, New York ..... 11c and higher
Foreign easy bleaching sulphite, ex-dock, New York ..... 6¼c and higher
Domestic bleached sulphite, f.o.b. pulp mill ..... 8¼c and higher
Foreign unbleached sulphite, ex-dock, New York ..... 6c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York ..... 5¾c and up
Easy bleaching, f.o.b. pulp mill ..... 6c and higher
Kraft pulp, f.o.b. pulp mill ..... 6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York ..... 6½c to 7c
Bleached soda pulp, f.o.b. pulp mill ..... 5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York ..... 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. ..... 6½c to 7c
Bond papers, sulphite ..... 12c and way up
Best grade writings ..... 20c and higher
Regular superfine ..... 18c and higher
Ledgers papers ..... 13c and way up
News, contracts, f.o.b. mill $3.10
News, spot lots 5c
Book, super ..... 9c and higher
Book, coated ..... 8c and higher
Tissues, good sulphite, bleached, per ream $1.30
Tissues, ground wood, manila, per ream $1.30
Kraft ..... 9c and higher
Manila ..... 7¾c and higher
News board, per ton, f.o.b. New York $70.00
Straw board, per ton, f.o.b. N. Y. ..... $60.00 and higher
Chip board, per ton, f.o.b. New York $65.00

R. W. JOLLY.

CANADIAN CHEMICAL MARKET.

There has been no changes of price in chemicals and similar lines during the past week. While freight is moving a little more freely it has not yet helped this line much.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb. ..... 5½c@6c
Alum, potash, lb. ..... 7c—7
Blanc Fixe, paste, lb. ..... 4c@4½c
Blanc Fixe, powder, lb. ..... 5c@5½
Bleaching powder, lb. ..... 5¼c@5¾
Brimstone, f.o.b. New York, long ton $32.50—$35.00
Casein, lb. ..... 25c@30c
Caustic Soda, 76%, lb. ..... 5¼c@5¾c
China Clay, No. 1 white, ton $20.00
" " " 2 " " $15.00
" " " 3 " " $12.00
Lime, ton. ..... $7.52@$8.00
Sal soda, bags, 100-lbs. ..... $1.25@$1.30
Sal soda, bbls. 100-lbs. ..... $1.35@$1.40
Salt cake, 100-lbs. ..... 75c@90c
Soda ash, lb. ..... 3c@3¼c
Starch, lb. ..... 4¼c@5½c
Sulphate alumina, technical, lb. ..... 3c@3½c
Sulphate alumina, iron free, lb. ..... 4½c@5c
Talc, American, ton ..... $15.00@$20.00

RECENT INCORPORATIONS IN U. S. A.

Philadelphia Supply Manufacturing Company, Philadelphia. Capital, $5,000. To carry on wholesale and retail paper business. Incorporators, F. R. Hansell, Philadelphia; George H. I. Martin, S. C. Seymour, Camden, N. J.

Rainy River Pulp and Paper Company, Spokane, Wash, capital, $1,000,000. To operate lumber mills, pulp mills, etc. Incorporators, M. J. Sweeney, J. M. Bengel Spokane, Wash.; H. L. McNair, Wallace, Idaho.

Albany Perforated Wrapping Company, organized under the laws of the State of New York. The company has a capital stock of $120,000, of which $1,700 is to be used in Missouri with office in St. Louis.

J. S. Lunenschloss, Inc., New York. Paper bags, products, etc.; capital, $25,000. Incorporators: J. S. Lunenschloss, W. W. Bock 115 Worth street; J. A. Arnold, 251 West Ninety-second street, New York City.

Dragon Paper Manufacturing Company, Inc., New York; paper, specialties, twine; $25,000; B. G. Bernstein, G. S. and M. Bleyer, 48 West Fifteenth street.

Nida Hellmuth Corporation, New York; printing inks, dry colors, varnishes; capital no par value, begin business with $500; B. Wright, H. G. R. Finne, J. Nida, 233 Broadway.

Ever Ready Roll Label Company, Inc., labels, seals, printing; 10 000; H. C Lewis, S. Hollander, M. Scooler, 419 West Forty-second street, New York.

DOUBLE PURPOSE OF U. S. GOVERNMENT MILL.

Representative Tavenner, speaking in favor of the proposed $1.000.000 paper mill to furnish sufficient paper for printing congressmen's speeches said:—

"The bill which I have introduced in Congress providing for a government paper mill is intended, not only to free the government itself from the grasp of any paper combine that may exist, but to also save the publishers of the country from a repetition of the present intolerable situation as regards the supply of paper necessary for the maintenance of a free, and fearless press."

PRICE BROS. DECLARE DIVIDENDS.

Price Brothers declared a dividend of 3 per cent payable April 2 to shareholders of record March 15, making a total distribution of 6 per cent for the past year. Books close from March 15 to April 2.

AN ANCIENT COMPLAINT.

The scarcity of paper? As long ago as the reign of Tiberius the dearth of papyrus was so alarming that the Roman Government took over the distribution of the available supply.—Boston Herald.



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Review of Recent Articles of Interest to the Pulp and Paper Industry

Forest Telephone Erection Costs. — W. N. Miller, Canada Lumberman and Woodworker, Vol. 37, No. 3, p. 28, (1917). Practical tests show a cost of $27.75 for labor and $25 for material, per mile. Cost should be reducable by at least $4.00 per mile for labor.

Important Forest Problems of Canada.—Commission of Conservation, Canada Lumberman and Woodworker, Vol. 37, No. 3, pp. 44, 46, (1917). Progress made in 1916 in fire prevention, technical research, resources, etc.—H. N. L.

Why Fourdrinier Wires are Shortlived. Paper Vol. 19. No. 21, Jan. 31, 1917, p. 13.

Some of the causes of deterioration of fourdrinier wires, besides the present metal conditions are:— 1. Destructive action of couch rolls through (1) actual wear; (2) impressing pitch into the wire; (3) foreign substances passing through; (4) clearing of wires with acids and brushes as a direct result of deposits by couch rolls; (5) breaking of jackets. 2. Accumulations of stock on wire and breast rolls through use of imperfect deckle straps and carelessness. 3. Sand and foreign matter in shower pipe water. 4. Improper bearings on rolls and unbalanced rolls. 5. Rolls out of alignment. 6. Imperfect wire guides and guide rolls. 7. Floods on wires, on machines without suction rolls. (Good clutches, attention to belts and good vacuum breakers on flat suction boxes usually obviate flood trouble). 8. A deep pond over the apron puts a heavy load on the wire. E.K.M.

Residual Liquors from Sulphite Cellulose. The Paper Maker and British Paper Trade Journal, Vol. 52, No. 1, 1917, p. 36. (From a contribution by Herrzs Kertiész, Chemiker Zeitung). The residual liquors were prepared for fermentation by the following methods: — 10 litres were mixed (1) with powdered chalk and aerated for 1 hour; (2) with 5 grms. of ammonium sulphate and aerated for 2 hours; (3) with 1 grm. of manganese sulphate and aerated for 3 hours. After neutralization (in the case of 2 and 3) the liquids were filtered, mixed with 10 grms. of yeast and fermented for 5 days, shaking frequently at 20°, 25°C. They are made slightly alkaline on the sixth day with lime and distilled. Folowing are the yields of alcohol (including methyl alcohol, and acetaldehyde) per litre obtained: —(1.) 8,94cc; (2.) 8,74cc; (3.) 8,68cc. By distilling the first sample in a column still without previous neutralization the distillate contained formic acid, acetic acid, and acetates, sulphur separated in the still (reduced from sulphur dioxide by acetaldehyde and formic acid). Such reducing actions may cause a loss of sulphur dioxide in the cooking process. On diluting sulphite spirit with water an emulsion is formed. With sulphuric acid it gives a red coloration (cymene, terpenes) and it shows the purpural reaction with aniline and acetic anhydride. E.K.M.

How Quebec Associations Rid the Forest of Settler's Hazards.—Canadian Forestry Journal, Vol. 13, No. 1, (1917).—More than 2,400 settlers took out permits but only one fire got away to cause a very slight damage.

Large Part of British Columbia Forest Lands Devoid of timber.—R. D. Craig, Canadian Forestry Journal, Vol. 13, No. 1, (1917).—Total area of the province of British Columbia is about 250,000,000 acres; two-thirds of the total stand of timber is in the coast area which forms only one-quarter of the total area. Sixty per cent of the province is waste land from the standpoint of agriculture or forestry. Only thirty-five per cent of the forest lands carry stands of commercial value at present. It is estimated that this province can supply 250 million cords of pulpwood.—H. N. L.

Fuel Value of Coal vs. Wood.—United States Forest Service. Canadian Forestry Journal, Vol. 13, No. 1, (1917).—The fuel value of two pounds of wood is roughly equivalent to that of one pound of coal. One cord of seasoned hickory, oak, beech, birch, hard maple, ash, elm, locust, longleaf pine or cherry equals one ton of good coal. Equal weights of dry, nonresinous woods have practically the same heat value regardless of species; the average heat value is 4,600 calories per kilogram. Resinous woods have a higher heat per kilogram.—H. N. L.

Better Apparatus for Forest Fire Fighting.—H. C. Johnson, Canadian Forestry Journal, Vol. 13, No. 1, (1917).—An illustrated description of the use of portable gasoline pumping units in Canada.

WANTS AND FOR SALE ADVERTISEMENTS.

TO SULPHATE PULP MANUFACTURERS.

FOR SALE.—Four second hand Diffusers, 10-ft. in diameter by 15-ft. long on body, cone top, about 22-ft. overall, flat bottom and wash outdoor 2 by 3-ft. Address, "Diffusers", Pulp and Paper Magazine, 35-45 St. Alexander Street, Montreal, Que.

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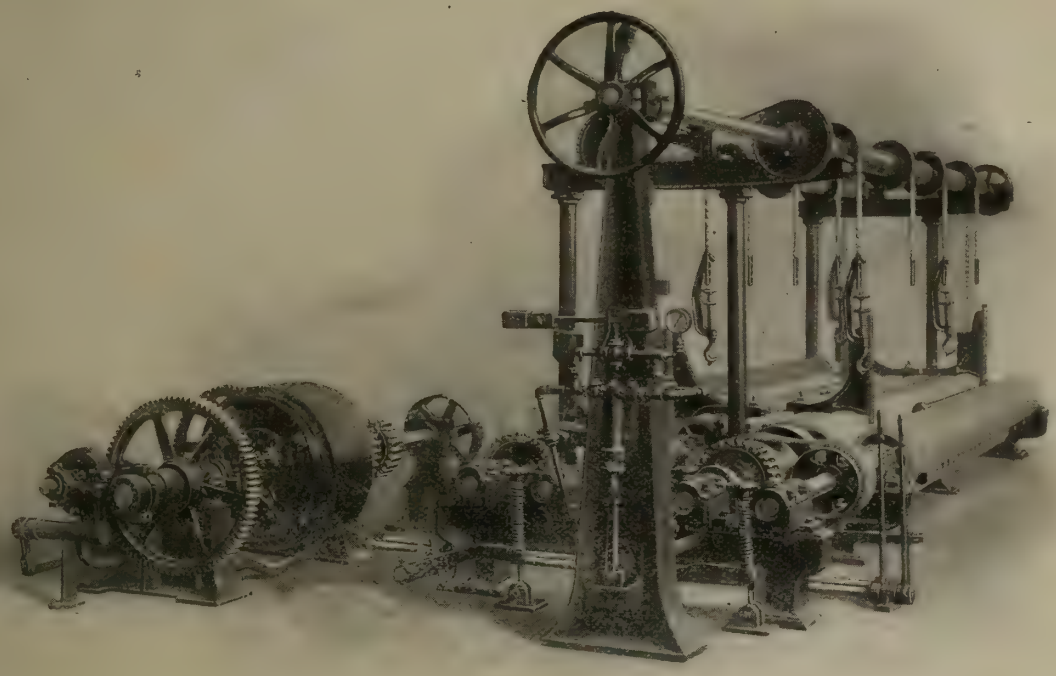
WANTED.—Back tender for wrapping paper machine. Steady position. State salary and experience to Box No. 143, Pulp and Paper Magazine, 35-45 St. Alexander Street Montreal.

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We have designed an Automatic Lift that may be applied to any type of Drum Winder, being specially designed, however, for the "M. & W." Four-Drum Winder, which controls the pressure on the drums automatically, not allowing the pressure to increase as the roll becomes larger in diameter. In other words the pressure on the drums is the same after the roll becomes 16" diameter until it is finished.

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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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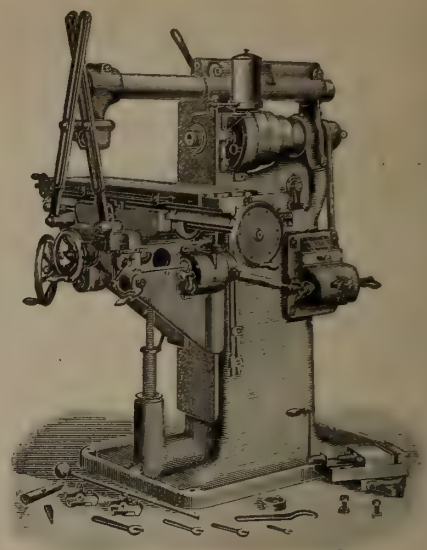
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EDITORIAL

SUBSIDIZE THE PAPER MILLS.

We solemnly and seriously predict that inasmuch as the proposed and reported action of governments in placing a maximum price on newsprint, one of the most important industries of American continent will suffer very severely. When our Governments seriously consider a ship subsidy, appoint commissions to investigate foreign trade possibilities, even showing where and how to market a product, the throttling of all incentive to development and growth is simply tragic. What inducement is there for a man to make a product that has a certain clearly defined market value, only to have his hopes of success knocked into a cocked hat?

A recent instructive example of Government hampering has been furnished by the railroad situation in the United States. In that case, we know, there was a reason for Government regulation. This should have been directed at correcting an unsound basic financial organization and a prevention of its recurrence. A fundamentally good idea was carried too far and resulted in giving the prospects of fair returns from railroad securities such a black eye that it was difficult to get funds for legitimate and normal growth.

"A chain is no stronger than its weakest link," and must be judged and valued accordingly. The paper industry is not prosperous, nor is it stable, if its least favored mill is prevented, artificially, from making money. Any action that makes it impossible for an industry to make a fair living is a degrading influence. To make it impossible for a paper mill to afford a new winder when an old one is worn out or inefficient is just as wrong as for the mill to pay wages that prevent a workman from being able to have sugar in his coffee, yes, or curtains at his windows.

Talk about helping the small publisher! What about the small paper mill? Hasn't it a right to live? Where is the publisher to get his paper if the mill cannot make it? How can the mill make the paper if it cannot pay for its pulp, its power, its plant and its labor? How can it pay these expenses if it cannot charge at least enough to cover its costs? And this is not all the industry must do. It must not only break even, but make a decent profit. Why? Because the **newspapers want more paper** and they **will not get it** if the industry does not show sufficient returns to invite, or rather attract, capital. Capital will not invest in a losing game, or in any unwisely hampered and restricted industry. The railroad affair has proved that.

Before the law tells a farmer he must sell his milk for three cents a quart, it would be a good plan to see if the price of grain, hay, labor, farm machinery, etc., does bring the cost of production up to three cents and a half. Else he may say, "I won't sell milk, there is more money in butter or beef."

If the price of a commodity is to be fixed by law at a figure less than the cost of production, plus a reasonable profit, we move a Government subsidy to make up the difference.

"SOME SET AND THINK."

When a certain native of Maine was asked what the farmers did with their long winter evenings he replied, "Some set and think, and some jest set!" And so it is with other people, publishers included. It is intimated that of those who think, some believe that there is a real basis for the present price of paper other than greed on the part of the maker. Several instances have come to our attention of publishers who had contracts for paper at the old prices, but who said to the manufacturer, "See here, I am paying more for my ink, metal, labor, food and clothing. You must be paying more for coal, oil, wires, labor, etc. You must be selling me paper at a loss. I won't see you go down on my account; you add so much to my price." The price has thus been voluntarily raised by the publisher as much as $8 a ton. The increase was not always enough to cover the difference in cost of production, but it showed that the buyer had a heart as well as a brain—for this was a good business move. Such a man will not likely be the one cut on deliveries if production at the mill should fall off for some reason.

If there were more men with that kind of appreciation of what is a perfectly general situation there would be no need of investigations, prosecutions, etc. It seems incredible that an ordinary business man cannot realize the effect on the final product when the principal raw material has more than doubled in price and labor, what there is, costs 36 per cent more than about a year ago. Wood costs as much now as mechanical pulp did two years ago. Logging costs more, due to distance and difficulty of operations, increased cost of labor, hay, oats, flour, bacon and beans (Boston papers please copy). It making sulphite there

are the same primary items, plus coal, sulphur, limestone, felts and wires. The paper mill must absorb all these items, besides those in addition which are peculiar to the conversion of pulp into paper.

And yet "Some jest set!"

MORE INCONSISTENCIES.

A public man should at least be consistent, so it is only reasonable for us to expect that Sir Thomas White, who has put in force a legislation affecting the price of newsprint, will carry on this work and enforce legislation in regard to the prices of all commodities. The people of the country are complaining about the cost of food stuffs, coal, clothing and many other necessities. Manufacturers of steel rails, forgings, etc., are to-day receiving two or three times the prices for their outputs that they were able to get in pre-war days. Big industrial corporations are announcing profits of from 60 per cent to 100 per cent on their capitalization, yet Finance Minister White does nothing in the matter.

Six years ago Sir Thomas White broke with the Liberal Party over the question of Reciprocity with the United States. He was one of that very loyal group who waved the old flag and used as their warcry, "No truck or trade with the Yankees." In the last few years we have had more intercoursse with the American people than at any time in our history. Sir Thomas White himself has borrowed hundreds of millions of dollars from the "despised Yankees." More than that he has just concluded arrangements with the American Government by which similar prices and terms have been fixed by the two Governments for newsprint. From having "No truck nor trade with the Yankees," Sir Thomas White is now a great apostle of closer co-operation with our big neighbor to the south.

At the same time Sir Thomas is preaching thrift and announces from pulpit and platform the desirability of self-sacrifice. These exhortations hardly go well from a man who has not shown these qualities in connection with his own public life. If he were as thrifty as he urges us to be, he would not grant huge subsidies to such derelict railways as the Quebec and Saguenay. Further, he should see that it would be far more profitable and patriotic were he to allow the paper-makers to charge what they consider a reasonable price for their output, and then take their excess profits from them as a contribution to the country's wartime funds.

Instead of that he picks out an isolated industry because the consumers of newsprint have a big voice, and are using it to the best of their ability. Such a measure is illogical, inconsistent and unjust. The only way Sir Thomas White can justify himself in the sight of the paper manufacturers and other fair-minded electors in this country, is to put in force similar legislation for the farmer who is getting more for his grain and cattle to-day than he was two years ago; for the clothing manufacturer who finds his raw materials have advanced and who is charging more; to the maker of steel forgings, and a hundred and one other manufacturers who have increased the selling prices at which they sell their commodities. Until he does that he will be branded as an inconsistent political opportunist. Another movement on his part will have to do with the attitude he adopted with the United States in the reciprocity fight of six years ago and his subsequent extensive connections with the Republic to the south of us.

ORGANIZED PROTECTION FOR FORESTS.

The Upper Ottawa timber limit owners are to be congratulated on their progressive move in getting together recently to establish a co-operative system of forest protection. This new area in the Province of Quebec to come under the system of protection, already so successfully demonstrated in the Lower Ottawa and in the St. Maurice calleys, comprises some twenty thousand square miles of forest lands. Added to the Lower Ottawa Protective Association area this will bring under one organization over 30,000 square miles of timber lands in the Province of Quebec.

So capably has Mr. Arthur H. Graham organized and managed the Lower Ottawa system that he has been asked to take in this new area as well, thus giving the benefit of his recent organization experience and successful management of the Lower Ottawa. To assist Mr. Graham a committee has been appointed composed of men familiar with the new region. It is estimated that the co-operative system under one management will save a good deal on the former cost of patrol by individual effort. But not to burden the Lower Ottawa system with the cost of now organization the new area will be kept separate as to cost.

CAPTAIN LIEUT.-COLONEL SIR WM. PRICE.

Lieut.-Colonel Sir William Price who recruited and took a battalion overseas, has accepted the rank of Captain in order to get to the front. When he got to England, his battalion was broken up into drafts, but unlike many of the officers who insist on going to the front with the rank they hold, Sir William Price showed he was a true patriot by taking a lower rank. Sir William is head of Price Brothers and Company, Limited.

"A. B. C." OF SAFETY FIRST.

There is a tradition that the man who compiled the "Stop! Look! Listen!" admonition was well paid for his philological efforts. . . . A resident of Georgetown calls attention to signs in a workshop in that section of the city bearing the letters "A. B. C." One is placed over each machine. The proprietor explained that this stood for "Always Be Careful." Perhaps the psychology of the initialed warning lies in the fact that the curiosity is bestirred enough to inquire about it—a little trick that advertisers know well.

The Schoop Metal Spray Process of Plating. A New Way of Treating and Forming Metals

Paper Given Before the Technical Section of the Canadian Pulp & Paper Association. January 30th, 1917.

By T. STANSFIELD-WORTHINGTON.

Few engineers are familiar with the subject-matter of this work. To the laymen, it no doubt appears at first a paradox. For the term "Spraying" implies a liquid body, that is rent asunder, and dispersed in small blocks, or particles, by the force of a strong current of air or some other gaseous medium, whereas the chief physical qualities of metals as they appear in their ordinary state, are solidity and rigidity. To spray a metal implies that it is in the molten state while exposed to the effect of the gaseous current. The process of spraying the metal, is in itself not a new invention. Some thirty years ago patents were granted on it, as a means of reducing the metal sprayed to a dust like powder. In the first crude attempts of applying it for this purpose, the molten metals were simply poured in a fine stream, into a rapidly moving current of stream, expanding from a high pressure. This primitive way of executing the process was very unreliable and eventually entirely abandoned.

Attempts were again made by melting the metal in a pot, forcing it through a fine nozzle, under high pressure air, and spraying it unto a surface. The apparatus developed for this purpose was in many ways troublesome and cumbersome, and the use of it was practically confined to metals and alloys, of low melting point The spraying medium was kept hot by various devices, and an attempt was made to keep the metal molten, right up to the moment of application.

The fact, however, was observed that under conditions of temperature and expansion of the gases, such that the metal could not have been molten throughout the process, adherent coatings were sometimes formed. These experiments, and careful observation of the spreading and adhesion of bullets, fired at an iron plate, suggested the next stage of development.

Metallic Powders were driven at high velocity against the body to be coated by means of gaseous jets expanded from considerable pressure.

The results achieved were a great improvement on the older method. To produce the metallic powders the metal had, of course, to be subjected to one of the known pulverizing processes, such as distillation, grinding or spraying. The suggestion that the pulverization and deposition could be combined in one apparatus was then made by the inventor Schoop; and his researches resulted in the perfecting of various apparatus covered by numerous patents.

The essential parts of the machine, or "Pistol" as it is called, are a combined melting and spraying jet, and a feed mechanism. The metal, in the form of rod or wire, is fed to the melting flame. The flame can be formed by coal-gas, water-gas, acetylene, hydrogen, etc.; burning in air or oxygen according to the metal used. The gases are supplied at such pressures, as to prevent blowing out and to insure a highly deoxidizing flame. The spraying jet can be of carbon dioxide, nitrogen, air, steam, etc.; it is fed at such a pressure as to produce a sufficiently high velocity for successful coating. The various pressures must be carefully kept constant by accurate guages and reducing valves.

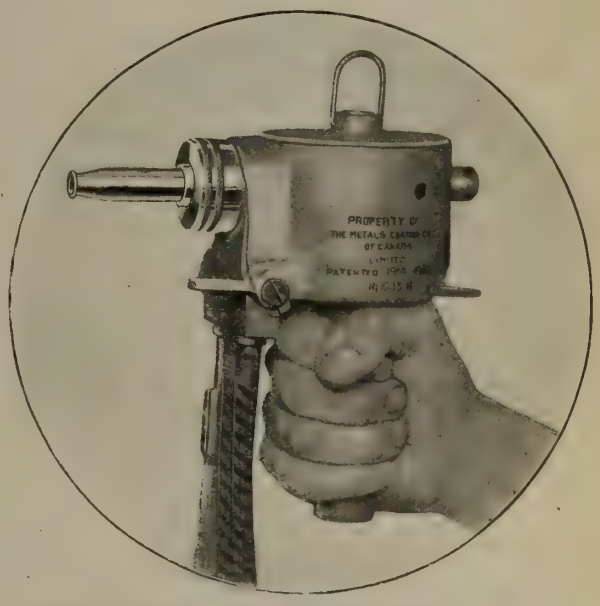
The feeding of the wire is accomplished by a small pneumatic motor, driven by the spraying medium, either in series or parallel with the main jet.

The dimensions of the wire nozzle and feed mechanisms are so designed as to be readily interchangeable.

For small work, hand operation is sufficient; but probably when large work is undertaken, it will prove convenient to have mechanical traverse and control.

To obtain the best adhesion, the surface onto which the metal is sprayed must be thoroughly clean and of an open nature to give a key for the deposit. Blasting with Steel Grit, has been found best. Shot gives too polished a surface. Such surfaces as fabrics, wood, ungazed earthenware and asbestos require only freedom from grease, as their surfaces give a natural key.

The mention of wood and fabrics as suitable substances to coat by means of an apparatus in which an intense flame is used may cause some surprise, which will be increased by the statement that celluloid, and even explosives, can be safely metal sprayed.

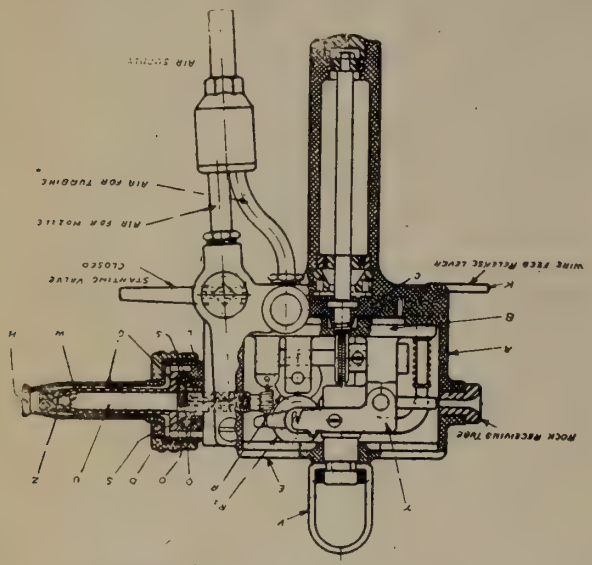


Complete Metal Spraying Pistol, Weighing 3 lbs. 2 oz.

With a given design of jet there is only a certain volume left by the air-jet which can be filled with flame, and this flame has a limiting temperature which cannot be exceeded. The wire, passing through this cone of flame, receives heat, partly by radiation, but chiefly by conduction, and becomes melted; and there is a definite limit to the amount of heat which can be picked up by the wire passing through the flame, and a definite limit to the rate at which it can be melted This cannot be increased by forcing more gas into the air-jet. It is possible to increase the rate of melting

by shaping the nozzles so as to leave room for a larger cone of flames, and experiments are in progress on this point. There is therefore, a definite most economical quantity of gas which should be used in the pistol, this quantity being about 1.5 cubic foot of hydrogen or acetylene per minute and 0.5 cubic foot of oxygen; or about 0.8 cubic foot of coal-gas to 0.65 cubic foot of oxygen for the present standard designs.

In refractory metals these quantities may be increased slightly, as a slightly higher temperature can be obtained if the burning gases are under a pressure greater than atmospheric, and this occurs if the gas



Details of Commercial Metal Spraying Pistol now in use, showing turbine, wireful mechanism, etc.

quantities are increased, the inner surface of the air-jet acting to some extent as an enclosing wall to the flame. On the other hand, for the more easily fusible and oxidizable metals, such as tin, lead and zinc, it is advisable to keep the gas quantities rather below the figure given, so as to avoid any possibility of overheating and burning any portion of the wire.

The outer jet performs a threefold purpose; it keeps the wire and nozzles cool, it cools the object, and it produces the requisite velocity.

The velocity of the air leaving the jet will be independent of the volume discharged, and depends only upon the pressure at the jet, so long as there is no dis-

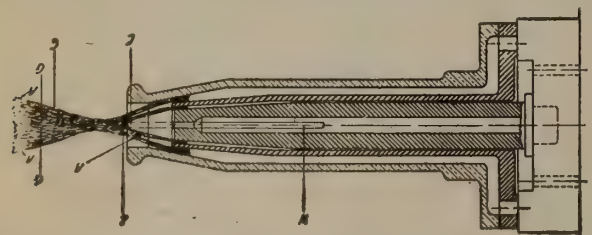


Diagram Illustrating Application of Reducing Flame (Z) to Metal Wire in the Pistol.

turbance due to the entraining of air from the surrounding atmosphere. This, of course, will actually occur in practice, and the layer of air must have a certain thickness in order to prevent its being broken up, and its velocity destroyed by mixing with the surrounding atmosphere.

In addition to this, the air-jet has to atomize the molten metal and accelerate the particles up to its own velocity, so that to perform this a certain mass of air is required.

As at present constructed the standard pistol uses about 0.35 to 0.4 cubic foot per minute for every 1 lb. per square inch air pressure, so that with an air supply at 60 pounds per square inch, which is a very suitable figure for ordinary spraying, the air consumption will be from 30 to 35 cubic feet per minute.

The mass of this will be from 830 to 920 grammes, and the mass of metal sprayed by this air will be from about 8 grammes in the case of iron, to about 200 grammes, in the case of lead.

How effective the cooling is, is readily shown by the fact that the hand can be held in the jet, so as to receive a coating of metal, without inconvenience.

Samples were shown of wood and fabrics coated with metal and quite undamaged.

The action of depositing is probably a complex one. The minute particles of solid metal are driven with such force against the object that, in some cases, they fuse ,owing to their small relative size are promptly chilled by the object to which they adhere. If any of



The "Gravitas" Metal Dust Spraying Apparatus..

the particles are molten or gaseous they will adhere. In addition, the suddenly chilled particles are possibly, ore even probably, in the state of unstable equilibrium found in "Prince Rupert's Drops", and act like so many minute bombs, bursting on impact into almost molecular dimensions, and penetrating the smallest cracks and fissures of the object.

The process requires some care in manipulation, as by varying the conditions it is possible to spray porous on non-porous coatings and, with some metals, anything from a pure metal to a pure oxide. With care, however, non-porous, oxide-free, adhering coatings can be produced of almost any metal on almost any solid.

In addition to metals, it is possible to spray fusible non-metals or by standard wires, alloys of metals, or mixture of metals, with non-metals.

The process is so new that its uses are still partly to be developed but it is easy to see that it may have far-reaching value for protective coatings against weather or fire, for ornament, for electrical resistance and conductors, for the production of special alloys, for joint making, and for many other purposes.

Quite in a different category comes that of very fine

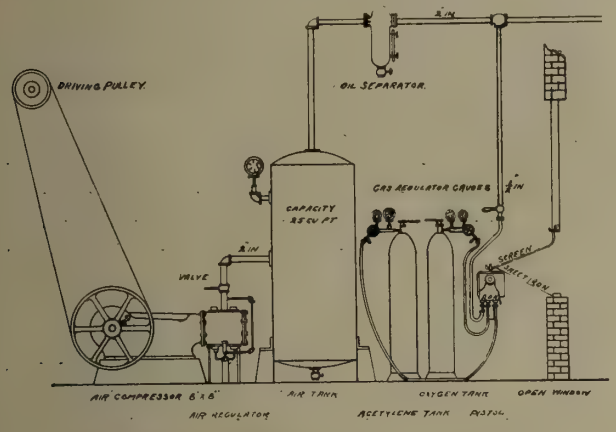


Diagram of Supplementary Equipment.

casting. The surface of a pattern polished or slightly greasy is most minutely copied, and it is possible to produce process blocks very rapidly. It may be useful to line moulds before pouring in the metal. The application of the process to the production of very fine or coarse metallic powders has been investigated and proved highly satisfactory.

The costs of the process are not prohibitive and while higher than alternative processes, the great range and adaptability of this apparatus and its independence of muffles, pots, etc., may make it preferable.

Experienced and extended use on a commercial scale should soon reduce the cost of operation.

The research of the lower melting point metals has been greater than on the others and undoubtedly the economy with them both will eventually be improved. Preheating of gases and air, supplementary flames acting in front of the main jet, and electrical methods of heating are still the subject of experiment.

It might be interesting to note that at this particular time the numbers of instruments on record in use in the following countries are approximately:

Russia 3,000.

France 2,500.

England (This process is now under control of the British Government and we are therefore not allowed to give you the figures or facts in our possession.)

United States 500.

A Newspaper clipping of the London Daily Telegraph dated Saturday February 12th, reads as follows:—"The point of the new Zeppelin has a metallic polish or brilliancy for 1-5 of the entire length of the airship, Count Zeppelin having acquired the Schoop patent for metallization and employing it for the envelope."

The rudder gear is smaller and more compact, and the motors have been reinforced but make a louder noise. The trial flights on the lake are interesting, and it is noticeable that the zeppelins have improved their speed and power of manoeuvring in all directions, but the addition of this latest invention has been of material benefit in increasing the speed and strength of the envelope by coating it with metal."

The patents covering this particular process are very numerous and cover not only the process but the numberless methods and instruments actually employed, which cover all known units of power.

DATA SHEET.

Table I.—Detail Cost of Using Pistol One Hour, Based on Metal Prices, June, 1914.

Metal.	Diameter. Inches.	Speed of Wire in Feet per M.	Pounds per Hour.	Oxygen: Gauge Pres'e.	Oxygen: Cost at $.02 Cu. Ft.	Oxygen: Cubic Feet.	Blau Gas Gauge Pres'e.	Blau Gas Cubic Feet.	Cost at $.008 Cu. Ft.	Labor per Hour.	Cost of Air per Hour.	Cost of Spray.	Wire Cost per Hour.	Total Cost per Hour.	Total Cost per Minute.
Copper	.032	12	2.15	27	24	$.48	25	13	$.104	.30	$.20	$1.08	$.366	$1.446	$.0241
Brass	.032	12	2.15	28	21	.42	26	14	.11	.30	.20	1.03	.335	1.365	.0228
Bronze	.032	12	2.15	27	24	.48	25	14.4	.116	.30	.20	1.09	.432	1.522	.0253
German Silver	.032	12	2.15	28	23	.46	26	14	.11	.30	.20	1.08	.545	1.625	.0271
Aluminum	.0375	16	12	19	36	.72	16	13	.104	.30	.20	1.32	.44	1.76	.0127
Zinc	.0375	18	4.3	15	20	.40	13.5	10	.08	.30	.20	.98	1.23	2.21	.0368
Lead	.076	25	30	14	20	.40	12	8	.064	.30	.20	.964	3.00	3.964	.0661
Tin	.061	25	15	13	24	.48	14	10	.08	.30	.20	1.65	10.50	11.56	.1933

Table II.—Cost to Cover One Square Foot by Spraying.

Metal	Diameter, Inches.	Speed of Wire in Feet per Min.	Time to Cover One Sq. Foot. Min.	Time to Cover One Sq. Foot. Sec.	Thickness, Inches.	Cost of spray.	Cost of Wire.	Total Cost.
Copper	.032	12	1	10	.001	$.021	$.0076	$.0286
Brass	.032	12	1	10	.001	.020	.0071	.0271
Bronze	.032	12	1	10	.001	.024	.0101	.0341
German Silver	.032	12	1	10	.0089	.024	.0105	.0345
Aluminum		16	..	40	.001	.0128	.0042	.0170
Zinc		18	..	30	.0015	.0081	.0115	.0196
Lead	.076	25	..	25	.002	.0064	.021	.0274
Tin	062	25	..	30	.002	.0088	.0875	.0963

Table III.—Cost of Spraying One Pound.

Metal.	Feet per Pound.	Speed of Wire in feet per Min.	Time to Spray One Lb. Min.	Cost of spraying.	Cost of Wire.	Total Cost.
Copper	340	12	28	$.50	$.1725	$.6725
Brass	250	12	28	.47	.1625	.6325
Bronze	344	12	28	.52	.2225	.7525
German Silver	330	12	28	.51	.25	.76
Aluminum	761	16	48	1.075	.37	1.445
Zinc	283	18	14	.277	.33	.557
Lead	50	25	2	.032	.10	.132
Tin	105	25	4	.07	.70	.77

(Continued on next page).

LEAD LININGS FOR SULPHITE AUTOCLAVES.

It may be of interest to those who attended the demonstration of the Schoop Metal Spray Process on January 30 and to others as well to know that this process has been used successfully by the Forest Products Laboratories of Canada for lining sulphite autoclaves. The apparatus which has been lined by this process consists of a cast bronze autoclave, steam jacketed, used for indirect cooking by the sulphite process. Originally the autoclave was lined with sheet lead but so much trouble was experienced from leaks which developed in the bronze jacket, allowing steam to pass from the jacket to the inside of the autoclave, as well as from leaks in the lead lining itself that it was finally decided to remove the lead lining and spray the inside walls of the digester with lead. Through the courtesy and kindness of the Metals Coating Company of Canada the walls, cover, thermometer wells etc. were all coated with lead by the Schoop Process and since this was done absolutely no trouble from leaks has been experienced. So satisfactory has this method of lining been that additional autoclaves now on order will be lined by the same method.

O. F. BRYANT,
Chief, Division of Pulp and Paper.

CANADA THE WORLD'S PAPER CENTRE.

That Canada is rapidly becoming the world's centre for the manufacture of pulp and paper is indicated by figures published by the Department of Trade and Commerce. For the year ended July, 1916, the exports of paper amounted to $21,678,868, of which 88 per cent went to the United States and 5.2 per cent to the United Kingdom. This total is an increase of 31 per cent over the figures for the year previous.

Taking the situation as a whole teh total exports of paper, pulp and pulpwood for the fiscal year ended July, 1916, were $40.865,266, of which the United States received 87 per cent and the United Kingdom 5 per cent. The increase over the previous was 27 per cent. On the other hand, Canada imported, during the year ended July, 1916, $6,327.298 worth of paper and manufactures of paper.

The foregoing facts, in conjunction with the use by Canadian pulp and paper mills of nearly $9.500.000 worth of pulpwood, indicates the tremendous drain upon our pulpwood resources, according to a statement issued by the Conservation Commission. This drain is laikly to increase rather than diminish in view of the rapid depletion of accessible supplies of timber suitable for pulpwood in the United States. If this great source of national wealth is to be perpetuated, much more stringent measures than in the past must be taken to prevent destruction by fire and to ensure the restocking of valuable species of cut over the burned-over areas.

ENGLISH WEEKLIES INCREASED IN PRICE.

Owing to the increased cost of manufacture the London Illustrated News has been increased in price from 15 to 20 cents, the subscription price being raised from $7.00 to $8.00. The Graphic, The Sketch and The Bystander have also been raised from 15 to 20 cents, retail, the subscription price from $6.00 to $7.00.

The Manufacturers' Stationery Company, and W. V. Dawson, of Montreal, have amalgamated under the firm name of W. V. Dawson, Ltd.

THE INDUSTRIAL EVENING CLASSES.

George Carruthers, president of the Interlake Tissue Paper Mills Co., and chairman of the industrial advisory committee of the Thorold high school board, which committee has in charge the night classes now being held in the High school, was in town Tuesday, and desired to meet the committee, so the secretary, D. J. C. Munroe, called a meeting for the noon hour, and there were present the following members:

George Carruthers	D. Daverin
James Battle	H. Bonis
Charles Howell	J. H. Thompson

D. J. C. Munroe, secretary.

A report presented verbally by Mr. Bonis showed a falling off in attendance, some of which was naturally accounted for, and some of which was, of course, due to loss of interest. There was now in all $288 due to teachers, nothing having yet been paid. He said some were asking that the nights be changed from Tuesday and Thursday to Monday and Wednesday, and it was possible this would somewhat restore the attendance.

The understanding upon which the classes had been started had originally been that the high school board should be asked to equip the building for the purpose, which was done, the chief item being the electric lights, and that the industries at whose request the classes had been established would support them financially to an amount equal to the difference the government grant for such classes and the full amount required for salaries for the season of 1916-17. In line with this, Mr. Carruthers, representing the industries, agreed to have deposited to the credit of the High school board the sum of $400, subject to adjustment after the Government grant had been received and the accounts audited.

Mr. Carruthers, in reviewing the work, said the Thorold classes, in spite of the falling off, had maintained their standing for attendance better than the average, which was only about 33%, while Thorold had kept up to 50%.

The chairman and principal were empowered to change the teaching nights if they found it well to do so after full enquiry.

It was arranged that the committee as a whole should visit the classes Tuesday evening, February 27th, if not rearranged, and the meeting adjourned.

ST. REGIS COMPANY MAKES WELFARE PLANS FOR EMPLOYEES.

A community farm for the exclusive use of the employees of the Deferiets mills of the St. Regis Paper Company, Watertown, N.Y., is the present plan of the officers. Manager C. C. Burns presented this suggestion to the men at a meeting held recently for the purpose of celebrating the breaking of all previous records in the sulphite mill. The reduction of the high cost of living is the object the company desires to attain in providing the employees with a farm on which to raise produce. A farm of very fertile land near the village is proposed, where each family with a worker in the mill can have a plot of land without charge. The plot can be planted to whatever table vegetables the workmen may desire. The scheme closely resembles some of the German industrial village community practises where it has worked very satisfactorily — Paper Trade Journal.

Suggestions for Fibre Box Manufacturers

[It is difficult to realize the extent of the present use of fibre containers, boxes made of the various kinds of pulp. The following notes from a paper read by Mr. N. F. Rehm at a meeting of the National Association of Corrugated Fibre Box Manufacturers give an idea of the present scope and future possibilities of this industry. Mr. Rehm's suggestions should furnish considerable inspiration for makers of various kinds of board.—Editor].

Many shippers of commodities, for which the fibre container is well adapted are not yet using fibre boxes. In most cases though, those shippers are about ready to adopt the fibre box for the reason that their competitors are using them so successfully. It is only a question of time until the fibre box will be recognized as the only suitable container for numerous products. In the meantime fibre boxmakers might bear in mind such points as the following:

Quantity of Commodities.—Almost all commodities within the weight and size limits have been shipped in fibre boxes. It is not a matter of hoy many commodities are shipped or can be shipped now, but rather how much of each commodity is shipped.

Requirements of Commodity. — Boxmakers must manufacture their boxes to meet requirements of the commodity to be shipped. The right strength of board, the right shape of box and the right style of box. Any box will not do for any product.

Packing of Fibre Boxes.—While it is an easy matter to design a fibre box to carry a given number of cartons, it takes a boxmaker to design fibre boxes to carry products that do not completely fill the boxes. When products do not fill the boxes completely, they must be protected by the proper inside packing in boxes of the right sizes and styles.

Printing on Fibre Boxes.—Every boxmaker should encourage shippers to print advertisements on their containers because the possibility of the fibre box in this respect is a distinct advantage. Shippers realize that the appearance of the shipping container is of considerable importance in their relations with their customers.

Good Will of Salesmen and Customers of the Shippers.—In many cases, the salesman and customers decide for the shipper whether or not he shall use fibre boxes. Their good will is gotten by well-built, well-printed, well-sealed containers.

Storage of Fibre Boxes.—Fibre boxes save valuable storage space and this is an important matter to the greater percentage of manufacturers, even those in small towns who cannot devote considerable space for the storage of boxes for the shipping department.

Sealing of Fibre Boxes. — Boxmakers do not give sufficient attention to the instruction of their customers in the matter of sealing containers. More fibre boxes fall down because they are not properly sealed than for any other reason. Recommend good tape (not the cheap variety), good silicate of soda (not the grade used for manufacturing purposes), and if it is at all possible let your salesman show your customer just exactly how to seal the boxes with ease, neatness, accuracy and speed.

Pilferage from Fibre Boxes. — Recommend reasonable methods to prevent pilferage. Recommend the printing of tape because such tape cannot be duplicated by thieves. Recommend silicate of soda, besides the printed tape.

Saving in Freight.—The saving in freight charges is an important item to most shippers, even where the consignees pay the bill, especially because the consignees are to consider the saving in freight charges.

Saving in Time of Assembly.—It takes less time to handle fibre boxes and to seal them than it does for wooden boxes.

Standardization.—Fibre boxes and the interior packing for such boxes should be standardized for all commodities. The time has come when co-operation among the manufacturers will benefit each and every one of them. No single manufacturer knows it all or can fail to benefit by co-operation.

What Shippers Have to Say.

Some good ideas may be gleaned from the remarks of shipper who have written us relative to the use of fibre containers for their products.

Advertising Novelties—"We ship mostly calendars and advertising novelties and use wooden cases almost exclusively. Although some of our goods pack just as well in corrugated cartons, the railroad companies put such prohibitive rate on them that we are forced to use wooden cases. We used corrugated cartons for shipping muslin caps. We shipped probably eight or nine thousand cartons and did not enter one claim for damages; in fact, we received compliments from customers on good packing and neatness. Last year the railroads raised the rate to read, "Hats and caps, other than millinery, not otherwise indexed by name: in fibreboard, pulpboard or corrugated strawboard boxes meeting the requirements of Rule 42—D1. In wooden boxes—1. This ruling proved quite a hardship on us, as the wooden cases must cost more than twice as much as the corrugated cartons, besides taking a great deal more space in our box department."

Laces—"Our shipments range from 1 gross (72 pairs to the box) to 200 gross. We do not believe that we are stretching it when we state that there are hardly two packages that go out of our factory a week that are the same size and description. Now if you have any idea to offer and know of any kind of an adjustable packing case that can be made to fit our condition we will be very much pleased and we will thank you in advance for the information. It is quite a problem and the best that we have been able to figure out is to use corrugated paper boxes of two standard sizes and wooden shoe boxes which we obtain from the retail shoe dealers in this city, and on the smaller packages corrugated paper together with wrapping paper tied with heavy twine."

Buttons—"We are at present using a corrugated fibre board container made of 200 lb. test material. As we are having no complaints from our customers on account of the condition in which shipments were received, we have concluded that our container is satisfactory."

Canned Goods.—"The method of packing and shipping is about the same throughout the state and the goods are universally shipped 24 cans in the box. The boxes thus far in use are the ordinary wooden boxes

of varying quality, ranging from a box made from rough hemlock and tamarack to a box made from the finest selected pine wood. About one-half of the canners buy the boxes in shook form, paying from six cents to nine cents per shook delivered. It costs about three-fourths of a cent for labor and nails to nail up the boxes. At various times it has been attempted to use fibre cases, but thus far this package has not found foothold in the industry. The principal objection to the fibre case is that the packer must use the box during the canning season in which to store his goods and later the goods are removed from these cases and labeled."

Canned Goods.—"We use in the neighborhood of 650,000 wooden cases a year and about 200,000 corrugated and fibre cases. For the most part our customers require the wooden case in preference to the corrugated, but we have a number that we are gradually winning over to the corrugated and fibre cases."

Canned Goods.—"We employ fibre containers for packing canned pork and beans and canned corn. We have used them because they are cheaper than wood and on account of the saving in weight, incidentally in freight."

Chemicals.—"We used wood boxes for the large size and corrugated boxes up to 30 or 40 pounds."

Chinaware—"We use corrugated boxes as containers for our chinaware, using straw for packing. The chief reason why we use cartons is on account of pilfering in transit."

Cigars—"When we first adopted a container for shipping cigars we were solicited by a fibre shipping case manufacturer and upon examination found that their production answered our purpose better than any other."

Cigars — "The shipments we make by freight are almost without exception 5,000 and 10,000 cases of cigars. The dimensions of the framed edge cases we use for 5,000 shipments are 17¼ x 27¼ in. long by 24⅛ high,, and weigh 33 lbs. Five thousand cigars in themselves weigh 130 lbs. Of the 10,000 cases the dimensions of the single edge cases used inthese shipments are 27¼ in. wide by 34⅛ long by 24⅝ in. high, and weigh 50 lbs. The dimensions of the 10,000 framed edge cases are 27 in. wide by 34⅝ in. long by 24¼ in high, and weigh 55 lbs. Ten thousand cigars in themselves weigh 260 lbs."

Clothing—"We are at the present time using both corrugated and fibre containers. We consider that the fibre containers are somewhat cheaper than ordinary light cases, easier to pack and just as serviceable."

Clothing—"For express shipments we find that corrugated paper slottet cartons sealed with gummed tape, and for larger size shipments corrugated paper boxes reinforced with wood, are the most desirable, both for safety in transportation and for economy in time in packing, as well as keeping contents in good shape, and we think in the long run do not cost more than the old style of wrapping and tying."

Clothing—"We are and have been using for the past ten or fifteen years a jute box. The first two sizes are taped in order to keep the garments from shifting to and fro in the box while in transit. The latter size is not taped, for the reason that only one garment is shipped in this container and the size just accommodates one garment, so that there is no room for the garment to slide back and forth in the box. From the standpoint of economy both in the initial price of the box and in the labor necessary to properly pack this box, we find it superior to anything we have ever used. We have tried the corrugated box as well as the solid fibre box, and the principal complaint we have to find with this style of box is its lack of flexibility. The jute container which we are using telescopes top into bottom. We will say that a shipment comes down containing 6 or 7 garments. We will also say, for instance, that the box when completely telescoped will contain 5 garments, which would be in the capacity of either the solid fibre or the corrugated box. You will readily see that when you have reached the number 5, your corrugated or your fibre box has reached the limit of its capacity, whereas, the jute box which telescopes and has the cover raised an inch or two inches without interfering with the package whatever, inasmuch as the package is wrapped and sealed by us before being shipped, and this will hold the entire 7 garments. In order that you more readily appreciate what we are trying to get at, I am shipping you a sample of our last size container by express prepaid. We have made a very thorough investigation of the shipping problem during the past three or four years, and must say that the style of box which we are shipping you is the best adapted to our needs. It not only is more economical, but more easily and better packed, and will carry considerably more than either the fibre or corrugated in transit."

Coffee—"We use the corrugated fibre shipping cases, for the reason that in the first place they are lighter; secondly, they are cheaper and can be packed and stored in a smaller space than wooden cases, and when sealed up they make nearer air-tight packages. We use these exclusively for the shipment of coffee and have had absolute satisfaction wherever we have made any shipments in these containers."

Confectionery—"We are sending your our specifications for corrugated fibre shipping cases. We have not been using these very extensively, but what we have used we find to be economical and satisfactory, and will probably use these a little more extensively in the future."

Confectionery—"We use corrugated shipping containers wherever possible on account of saving in cost and also in freight."

Crackers—"We use corrugated containers in which we pack our package goods. For package goods they cannot be beaten."

Dental Supplies—"We use several different kinds of containers, as you already know. For shipment by mail of small stuff, such as teeth, gold and other items, we use small set-up boxes made of ordinary binder board covered with enamel paper. For large parcel post packages we use corrugated board containers to some extent. For the shipment of laboratory cases, sets of teeth and so on, we use wooden boxes similar to cigar boxes. For large express packages we use folding corrugated board boxes. For heavy freight shipments we use both corrugated and wooden boxes. We also use tin and fibre cases and at least a dozen different kinds of cartons, both set-up and folding; mailing tubes, both wooden and fibre, with metal ends and screw tops; bottles, cases, pails and what not."

Drugs—"Our merchandise is of such miscellaneous character that we have used to ship it a rather assorted line of shipping packages. We are gradually com-

ing to the use of the corrugated box, however, where it is feasible to use this style of package."

Drugs—"For the line of proprietaries which we put up we use corrugated fibre boxes almost exclusively, excepting for some light weight materials which we package in set-up boxes. For the major portion of our regular lines we use corrugated boxes of express weight."

Drugs—"If there is made a light weight fibre or paper box suitable for making parcel post shipments, we would be interested in that. It, however, must be strong and not heavy enough to add materially to the transportation charges."

Electrical Supplies—"We use a large quantity of corrugated paper cartons for the general packing of our goods. We have several styles and sizes which may be used in varying quantities throughout the year."

Fisheries—"We put up more or less canned goods and glass jars, and for these we use, to a greater extent, corrugated cases."

Gloves—"For express shipments we use corrugated cases with separate tops and bottoms reinforced with a wooden strip. For freight we use both wooden and the 'Cochran' case."

Hardware—"We pack our seed sower in a corrugated container, which is about 13 x 12 x 11, and the gross weight is about 8 lbs. These go by freight in this country quite successfully, but they are not suitable for export. We pack our various kinds of small apple parers in corrugated boxes, but most of these we put in a crate. We have not found it to our advantage to send cutlery in corrugated boxes except in small lots for mail or express shipments."

Hosiery—"The greater part of our product is shipped in solid fibre cases. The larger units are shipped in wooden cases, in which we receive our yarn. The smaller units are merely wound with corrugated paper, which are wrapped with a light kraft paper and sealed with gummed tape. For very small shipments, we use a manila mailing envelope. Our standard package of hosiery is a strawboard box, with printed cover and box labels, containing a parchment or tissue flyleaf."

Hosiery.—"Our merchandise is packed in paper cartons holding three and six pairs, according to style, and these in turn are packed for shipping in lots of 10 and 15 dozen in corrugated containers; lots of 30 dozen in solid fibre containers, and those in larger lots, such as 60 and 100 dozen, in veneer cases. We use this style container because we find that they are the lightest in weight and the goods reach the customer in better condition and with less expense than any other style package."

Incandescent Lamps—"We are using entirely corrugated boxes for packing our material. In the first place, they are cheaper than eht wooden boxes and serve our purpose equally as well. The gross weight of same when packed in a corrugated box is less than when packed in a wooden box, and therefore considerable saving is made in transportation charges. They look neater when packed in corrugated boxes and are more easily handled. Then, again, there is to be considered the great economy in storage space when corrugated cases are used."

Jewelry—"The character of the containers we use in our shipping department consists of small mailing boxes with clip on covers, up to large packers, which are wrapped in paper and sealed, or collapsible fibre cases."

Mackinaws—"We are using a one-piece folding container, made from corrugated paper. We find these adapted best to our line of merchandise. They are very light in weight, but are sufficiently strong enough to carry merchandise to destination in good shape. Besides, they are inexpensive, considering the weight they will carry."

Mail Order House—"We use double-cover corrugated boxes and corrugated cartons of various sizes for our merchandise which it is necessary to box. The merchandise is fragile and weighs very little, mostly toys, dolls, etc., silverware and curtains. The double-cover box is particularly useful because we can cut the bodies to any desired height and with a few extra covers of each size on hand we can often make two boxes out of one body."

Matches—"We have just begun to look in to the fibre case packing proposition."

Medicines — "Our business, mainly homeopathic medicines and supplies, is almost entirely with the small consumer direct, mostly with physicians. Shipments are not bulky and we find the ordinary collapsible corrugated paper boxes, of the smaller and medium sizes, best suited to our needs; they are space savers, light in weight and economical to use. We have some mail order business chiefly for a single one-ounce bottle, but have not found a suitable contained for this size that is economical enough for our use, so we simply roll the bottle in two or three thicknesses of corrugated paper, wrap in fairly heavy wrapping paper, and find this does quite well, though at some little cost for additional time in handling."

Medicines—"We use corrugated paper shipping cases, as we find them for our purpose entirely satisfactory both in price, weight and storage room required."

Medicines—"We handle a line of flavoring extracts and proprietary medicines. We are using the corrugated shipping containers in sending these packages in dozen lots to our salesmen, but also fill several mail orders per day by parcel post."

Medicines — "We pack our bottles in pasteboard cartons. The cartons are then packed in wooden boxes, twelve to a box. We have had an idea that we might be able to use to better advantage the fibre container, but have not as yet satisfied ourselves on that point."

Millinery—"The containers which are giving us the most satisfactory results are the double-cover collapsible corrugated boxes. They are serviceable in transit, protecting the merchandise thoroughly, and the fact that they are collapsible is of great importance to us on account of storage space."

Roller Skates — "We are not yet in position to advise you what kind of a container will be best adapted to our use. We have, however, just purchased a few thousand of the corrugated containers which we are most certain will answer all our requirements."

Rubber Goods—"We have found a one-piece corrugated box the best for our business. This box we seal with the gummed tape. Our goods are rubber goods which weigh quite a little and we have no complaint from our customers in regard to goods not coming to them in good condition."

Safety Razors—"Our product is shipped in matched wood and fibre cases; the wood cases being used with a tin lining for foreign shipments and the fiber cases

for domestic express shipments. We find the fibre case, sealed with gummed tape, isthe cheapest and safest method of transportation for express packages, after considerable experience with corrugated and paper wrapped bundles."

Shirts—"We use corrugated paper boxes for our merchandise. We seal them with plain three-inch tape and to our stenciling across the tape, which precludes the possibility of a concealed loss."

Shoes.—"As to the containers used by us, will say that we do not, from what we can learn, follow the general practice of shoe manufacturers as to the type of containers used for shipping this commodity. We make women's and children's shoes, and find it entirely practicable and economical to use corrugated containers, whereas the average shipper of shoes uses solid fibre cases. We have used corrugated cases for nearly two years and have not in a single instance been obliged to apologize to our customers for the use of this type of case. We adopted the corrugated box on the theory that it would satisfactorily meet all requirements, and our supposition has proven to be correct. We merely give you this bit of history on account of the fact that we understand that most shippers of shoes seem inclined to regard corrugated cases as being too frail for their purpose, whereas our experience has proven the opposite."

Shoes—"We use the regular paper or strawboard carton for packing our goods in and use the solid fibre container, for shipping. We use the solid fibre containers because we think that they are stronger and will stand more rough handing than the corrugated container and also because it is as strong as a wooden container, is lighter and can be scaled much more quickly than a wooden one can be nailed."

Tires—"We are using corrugated fibre boxes because we find them of sufficient strength ta carry our product and yet are not heavy enough to make the cartage and freight charges excessive, and we also find this type of container to be a time-saver, as one of these boxes can be made ready for use while a wooden box was being gathered together for nailing."

Watches—"We buy corrugated fibre shipping boxes of the double-slide type. We pack in these our watches, which are first wrapped in tissue paper and slipped into compartments of a pasteboard container which fits the corrugated box. Our watches when shipped in these boxes are sent by express only. We are required to seal them with our stamp on sealing wax and the express company handles them in the same manner as they do money."

Wholesale Groceries—"We use the corrugated cardboard pasteboard boxes for our 30, 50 and 100-pound packages of coffee, also for rice in 48 one-pound and 16 three-pound packages. We find that the corrugated boxes are lighter, cheaper and better looking than the old style wood boxes."—Fibre Containers, December 1916.

PASTING MACHINE OPERATION.

In 1916 the Kellogg Toasted Corn Flake Company of Battle Creek, Michigan, handled on their pasting machine, manufactured by the Beloit Iron Works, a total of 15,471,944 pounds of paper. The majority of this paper was 41-inch three ply. In handling this quantity of paper, they used 621,331 pounds of silicate of soda.

"AWAKENING OF BUSINESS."

In "The Awakening of Business," Edward N. Hurley, chairman of the Federal Trade Commission, treats at greater length than he has been able to heretofore numerous subjects on which he has been recently making interesting addresses throughout the country. In the initial chapter he says that intelligent cost accounting lies at the basis of efficient management, and a little later along he remarks that "ignorant competition is the most dangerous to the development and success of our country." Thoughts like these of vital importance to every manufacturer and business man have been most interestingly expanded and amplified throughout the volume which, among other subjects, has chapters on "Better Business Methods," "Trade Associations," "The Price Fixing Bogy and Its Substitute," "Trade Associations in Germany," "Foreign Trade Opportunities and the Passing of Our Provincialism," etc. In Part II of the book, dealing with Government and Business, there are chapters on "The Sherman Law from the Standpoint of Efficiency," Constructive Policy of the Federal Trade Commission," "Going Into Business Intelligently," etc.

In the chapter on "Better Business" Mr. Hurley pays the following compliments to the American trade journals:

"In last analysis success in business depends upon the intelligence of the individual manufacturer. If he does not understand both the details and the broad aspects of the industry of which he is a part, he cannot expect to be successful. American business men do not realize the value which trade journals and technical magazines may be to them in increasing the efficiency of their factories and in giving them a broad and comprehensive view of their business. Our foreign competitors read almost every article published upon their business with great care and thoroughness. Many of them have duplicate copies of their favorite trade paper sent to their homes so that they may read them away from their business without being disturbed. Many foreign manufacturers contribute articles to these journals on phases of the business with which they are most familiar. Such articles are bound to be helpful and have a constructive effect. Our trade journals and technical papers are the best in the world, and they should be encouraged and supported by our business men. Copies should be placed where employees can see them and they should be urged to read and study them. These papers are preaching the gospel of sound business on practical lines, and are helpful not only to business, but to the country as a whole. If the suggestions made by them in the past had been followed by our business men it would not be necessary at this time to point out some of the fundamental weaknesses in American business."

Mr. Hurley's book will be certain to be read with keen interest by American business men who appreciate that in order to be most successful they must constantly shape themselves to changing conditions.

The volume is published by Doubleday, Page & Co., New York, for the Associated Advertising Clubs of the World. Price $2.

NO DOUBT ABOUT IT.

Hon. Warner Miller, whose interest in paper making began in 1860 and who made ground wood in 1867, says, "Canada seems destined to be the home of paper making from wood."

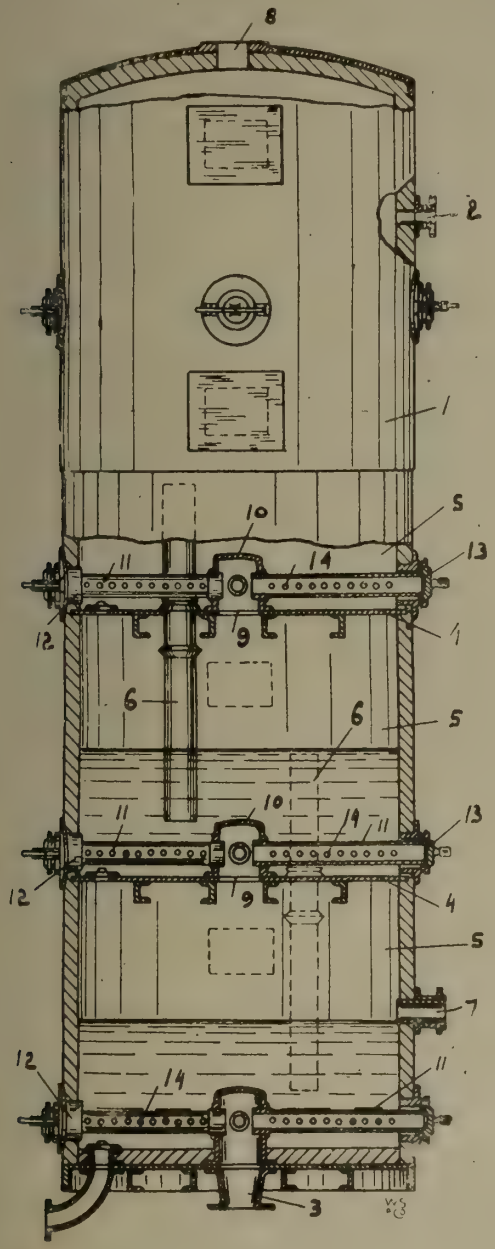
New Bisulphite Apparatus

A description of a new apparatus for making bisulphite solution has been mailed to all of the members of the News Print Manufacturers' Association by Secetary G. F. Steele. The description is a translation from Tidsskrift for Papirindustri and follows:

The idea of the present invention is an arrangement whereby this inconvenience may be avoided and is shown on the illustration herewith.

The figure is a sketch of the apparatus.

The lime water is supplied as usual at 2 in the upper part of the tank 1, whereas the sulphurous acid gas enters through the bottom at 3. The tank is divided by horizontal bottoms, 4, into a number of partitions, 5, one above the other, each of them getting the fluid from the partition above through the overflow pipe 6, which empties a little above the bottom, 4, and reaches up a little higher in the partition above, as seen from the sketch. The finished solution is drained off at 7, whereas the gas not absorbed leaves at 8.



Instead of making the bottoms, 4, perforated, they are in the new invention made of a whole plate, which has in the center a great opening, 9, covered by a bell shape, 10. This bell has four side openings, in which are placed four wide pipes, 11, which reach out to corresponding bearings in the wall of the tank, 1, closed by a lid, 13. The pipes, 11, are provided on the sides with one or several rows of holes, 14, so that the gas from a partition beneath, 5, can enter the opening, 9, pass through the bell, 10, the pipes, 11, and the holes, 14, up into the partition above.

When the holes, 14, become clogged, it is no longer necessary to enter the tank for the cleaning, because the pipes, 11, simply can be taken out through the bearings, 12, and be cleaned outside. Or the holes can be cleaned by putting in a suitable tool, without taking out the pipes. Besides, through the openings of the bearings, 12, it is easy to rinse the partitions free from mud which has gathered on the bottoms, 4. Finally it is possible by turning the pipes, 11, from the outside, to place the holes, 14, so that they come in the most useful position, because they can be turned upward, to the side, or downward.

The apparatus is especially suitable in localities where it is difficult to procure limestone, which can be used by the methods now most generally in use.

Less valuable limestone can be burned and used for lime water in this apparatus.

The apparatus has such great power of production that one is sufficient for a production of 22,046 short tons of cellulose annually.

AMERICAN BARKING DRUM SUCCESSFUL.

Fibre Making Processes, Inc. was organized on Sept. 1st, 1916, with a capital stock of $25,000.00, by H. Guettler, H. Helin, O. L. Berger and Jno. M. Hartnett.

Immediately after the organization of the company the American Barking Drum Company was absorbed by the Fibre Making Processes.

Eighty (80) barking drums have been sold in the United States and Canada up to the present time, representing a total annual barking capacity of about 2,000,000 cords, or about one-third of the total annual consumption of pulpwood in both countries. In Wisconsin 5 per cent. of the mills are using American Barking Drums.

The Company has a Canadian base of manufacture, at Bridgeburg, Ontario.

The barking drum has been successful in barking all kinds of wood under all kinds of conditions. A slab barker has recently been put on the market.

The saving effected in wood and labor with this process has proven very high; up to $2.00 a cord.

SULPHITE-ALCOHOL IN SWEDEN.

According to "Svensk Papperstedning" the Swedish Pulp Manufacturers Association has expressed the opinion that if the sulphite industry shall venture to place money in the erecting of alcohol plants it is necessary that the state guarantee a market and a market price, that secures depreciation and interest of the plant.

If the state cannot make use of the alcohol in its own various plants it is suggested that the monopoly of the state be extended to the import and distribution of foreign fuel oils. In this case the state is able to regulate the import of fuel oils so that the consumers are in the first place directed to the use of sulphite alcohol, and it will not be necessary to raise the prices on the oils through increased import-duty.—B. J.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Hints on Packing.—The World's Paper Trade Review; Vol. 67; No. 1, January 5, 1917; p. 26. Open end packing would result in greater economy in paper. With the exception of gummed and fugitive dyed stock there is no drawback in this method of wrapping. Apart from the expense and trouble of packing with closed ends, a considerable amount of time-waste and inconvenience is caused to the printer in packing and unpacking such reams. It is usually necessary to trim paper either before or after printing.—E. K. M.

Wood Pulp Industry in the United Kingdom.—The World's Paper Trade Review, Vol. 67; No. 1, January 5, 1917, p. 31. Through the Times Engineering Supplement—referring to Imperial resources. Bamboo cane gives a good quality of pulp and it grows to a suitable size in three to four years. Bamboo pulp is very soft and when mixed with wood pulp gives a paper which is almost ideal for printing purposes. The whole of Burma, Assam, Upper, Bengal and many other places in Northern India can supply bamboo cane in quantities which would insure raw material in unlimited quantities. In the southern and eastern part of Africa stout and suitable grasses in great variety are to be found equal in quality to esparto.—E. K. M.

Canada's White Pine Possessions are Threatened with Extermination.—H. T. Gussow, Canadian Forestry Journal, Vol. 13, No. 1, (1917). — An important article describing the nature and the means of preventing the white pine blister rust.

Reclaiming Waste in White Water.—Paper Trade Journal, Vol. 64, No. 7, February 15, 1917, p. 54. A large part of the total shrinkage from raw stock to finished paper consists of fibre and filler washed out in water from the paper machine. The only way to reclaim all the lost stock is to use all the waste water over again, but this is rarely practicable. There are two general methods: (1) Using all the water possible. (2) Straining the water through mechanical strainers called Save-Alls. For (1) it is necessary to install a series of tanks. The water at the bottom will, of course, be richer in fibre. An investigation of this system shows that 50 per cent. of the best stock is lost due to the circulation of water. The long fibres have a tendency to float because their specific gravity is less than that of the short stock and filler. The Save-All reclaims the best part of the fibre for immediate re-use in the paper machine. Therefore a combination system would give a larger return than either apparatus used alone. It is claimed that a combination system will save 70 to 90 per cent. of all stock which the water contains. The save-all, however, is the important feature. Four points are essential for reclaiming loss at the paper machine: (1) Continuity of operation without incurring a labor charge or taking time of men who ought to be somewhere else. (2) Low operating cost. (3) High efficiency. (4) Handling recovered stock. (Points in order of their relative importance).

NEW PATENTS.

(Courtesy of Chemical Abstracts).

Paper. J. A. De Cew and R. J. Marx. Brit., 13,588, Sept. 24, 1915. In the production of paper resembling waxed paper by treating the pulp in the heating engine with a permanently emulsified compound of rosin and wax, the method employed for producing the emulsion of rosin and wax is, in some of its features, substantially the same as that described in 2,142; 1915 (C. A. **10**, 2049), for producing dilute solutions of resin soap. The rosin is cooked in the usual way with soda-ash, and to this is added an amount of wax representing from 15 to 75% of the weight of the rosin, and the compound of rosin and wax is liberated under considerable pressure into a body of H_2O. The compound is placed in measured quantities in a closed tank, and the pressure raised by means of steam to about 60 lbs. per sq. in., when the compound is caused to issue from the bottom of the tank through fine orifices into a pipe through which hot H_2O flows, the temperature of the H_2O being kept below 100°, and the flow thereof regulated so that the mixing of the compound with the H_2O takes place as uniformly as possible and the ultimate size contains from 1 to 5% of the compound. Either mineral wax or carnauba wax may be used. The paper produced usually contains from 2 to 5% of its weight of rosin and wax and is suitable for the manufacture of waterproof bottles, cups, and other articles which have been hitherto made from rosin-sized paper immersed in, or coated with, molten wax.

A product made from wood refuse. "Portolai" Holzmasse. Holl., 782, Dec. 15, 1916. Cellulose is converted in part into viscose which upon addition of H_2O, is converted by the action of CO_2 into gelatinous cellulose, and the resulting mass is compressed.

Cellulose. A. C. Vournasos. Brit., 17,348, July 22, 1914. Cellulose for use in paper-making and in chemical industries is prepared from the tow or fibers of the bast of "Hibiscus cannabinus" and other species of the natural order or family Malvacae by retting, scutching and combing. The fibers may be exposed to the sun's rays for some days and are then bleached by treatment with hypochlorite solution, obtained either by mixing chloride of lime solution with a solution of K_2CO_3, or by electrolyzing NaCl solution. The cellulose, after being washed, is dried by exposure to sunlight, and may be mercerized with NaOH.

Sizing paper. R. Clavel. Brit., 101,855, July 27, 1916. The sizing and fixing baths are applied to the paper mass in the form of foam. The foam is produced by compressed air or other gas diffusing from porous bodies, such as porous clay or porous graphite, into the liquid. Where formaldehyde is used for the fixing-bath, the foam may be produced by diffusing formaldehyde gas into a liquid containing saponin, and thus adapted to foam.

Bulky sized paper. N. Statham. U. S. 1,209,221, Dec. 19. A bulky sized wood-pulp paper is formed containing over 20% of light precipitated $CaCO_3$ which when dry has a weight of not more than 20 lbs. per cu. ft. and hence does not materially change the specific gravity of the paper.

Waterproof wrapping paper. J. Ishii, K. Kohashi and T. Kao. Jap., 29,896, Aug. 16, 1916. A mixture of ammoniacal solution of casein, starch, and antiseptic is applied to the paper, and fixed with formalin. The paper thus treated is coated with molten paraffin or with alcoholic solution of resins.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The Board of Directors of the Grand Rapids Paper Company at a recent meeting at Grand Rapids, Mich., ammended the company's charter, increasing its capital stock from $20,000 to $50,000.

News received in this country during the past week state that several London newspapers have been forced to decrease their size owing to the scarcity and high price of print paper. The new arrangements, it is understood went into effect on Monday of this week. Another dispatch from abroad states that all papers will shortly suspend publication in Hungary.

Advices from the Secretary of State of Michigan state that the Delta Paper Company has been organized at Saulte Ste. Marie with a capital of $10,000.

The Eddy Paper Company. will shortly build a raw stock house at its mill at Three Rivers, Mich. The st ucture will be four stories high and 236 by 45 feet in dimensions.

The Shortsville Paper Company has been organized at Shortville, N.Y., with E. M. Hall, as president. The mill has been under construction for some time past and was put in operation several weeks ago. The production will be confined to tissues and light paper. M. D. Nutting, of Watertown, is general manager, and B. F. Hall, also of Watertown, secretary of the new company.

Returns from 160 wood pulp mills throughout the country received in connection with the census of pulpwood consumption and wood pulp production being made by the Forest Service in co-operation with the News Print Manufacturers' Association, show that the reporting mills used in 1916—3,419 000 cords of wood and had an output of approximately 2,229,000 tons of pulp. It is expected that by the middle of this month reports from practically all of the mills in the country operating in 1916 will have been received. Complete figures are to be made public as soon as the remaining mills have been heard from.

The "Rag Exchange" established by the Associated Dealers in Paper Mill Supplies of New York, which meets every Friday in the Temple Court Building, has proven very successful in spite of the dull market. Daniel M. Hicks is acting as chairman of the exchange.

Extensive improvements are being made at the plant of the Union Bag and Paper Company. The improvements are designed to decrease the cost production, and increasing the output of the plant. The wood room is to be supplied with steam heat and from this building a new elevator is being constructed for conveying the chips to the top of the sulphite mill.

The Kimberly-Clark Co., of Appleton, Wis., is offering a new profit sharing plan to its 2,500 employees. Judging from the interest the plan has so far attracted most of the company's employees will avail themselves of turning $1 and $2. If 75 per cent of the employees of the company enter the plan and remain the scheduled period of ten years, every one of them will find at the expiration of that period that every dollar he invested will then be worth 2 dollars.

John F. Ryan, President and General Manager of the Liberty Paper Company, of New York City, has sold his interests in the company to Stuart W. Webb, of Boston, who has been elected president of the firm.

The United States Envelope Company of Springfield, with branches throughout the country, reports a very successful business during the past year. At the quarterly meeting of the Board of Directors, an extra dividend of 2½ per cent on the common stock in addition to the regular semi-annual of 3½ per cent on the preferred and common stock was declared payable March 1.

The Eastern Manfacturing Co. of Bangor, Me., through its president, F. W. Ayre, has offered a prize of $100 to the employee who submits within the next few weeks a suitable trade mark title to apply to the company's writing paper products. The company is making every effort to secure a word that will indicate the nature and value of the paper it manufactures.

The Paper Box Credit Association, which includes about 75 of the larger manufacturers, met several days ago in New York City and decided to take action to break up alleged graft paying and collusion on between manufacture s and buyers. S. L. Wallerstein, counsel for the Association says that the increase in price of strawboard from $20 to $80 a ton since the war began facilitated certain crooked practices and made them extremely profitable for the buyer of bones but were unprofitable for the manufacturer.

Publishers of this country are of the opinion that the Federal Trade Commission will find $2.50 to $2.60 as a maximum price of newsprint paper for the International Paper Company's product. There has been no announcement up until Saturday of last week, however, as to whether the same price will be set for all mills, or whether prices will be used on the cost of production.

The high cost of paper is one of the reasons for an important publication consolidation in Chicago last week. The International Trade Press, Inc., will hereafter publish The Electrical Review, Western Electrician, Electrical Blue Book, Cement World, International Trade Metal Mining Catalogue, and Index of Current Literature. This represents the consolidation of the technical publishing interests of C. W. Price. C. A. Tupper is President and L. A. Sisley, secretary-treasurer of the new corporation which also represents large foreign publications in this country.

The International Paper Co., at Orono, Maine, has and is having much trouble in receiving freight. It gets sidetracked on the road and there stays for weeks. The crisis came last week when Supt. Stinchfield had to go to Portland and stir things up. There he found several car loads on side track. They were immediately started for Orono, reaching there next day. This shows that to get things a going these critical times you have got to be a "Johnny on the Spot." There are many plants probably suffering from the same trouble.

The Secretary of the State of Michigan reports the dissolution of the $300,000 corporation known as the Niles Board and Paper Company.

The Penobscot Chemical Fiber Co., of Great Works, Maine, has added to its staff of chemists, Leroy Williams, a graduate of the University of Maine.

H. B. Bailey, another graduate of the University of Maine, has entered the employ of the Aroostook Fibre Co., at Van Buren, Maine, where sulphate pulp will soon be produced. Mr. Bailey is a chemical engineer who has had experience in the lumber industry as well as in a chemical factory. He holds the American intercollegiate record for throwing the 16-pound hammer.

The General Roofing Manufacturing Company will hereafter be known as the Certain-teed Products Corporation, the change in name coming about as a consequence of a reorganization and expansion of the business recently perfected. Under the reorganization plans the Mound City Paint and Color Company and the Gregg Varnish Company, both of St. Louis, and the Lockport Paper Company, of Niagara Falls, are purchased. The headquarters of the new concern will continue in St. Louis.

Arthur C. Hastings, president of the American Writing Paper Company, of Holyoke, Mass., in discussing the blockade of the North and Baltic Sea by the new German U-boat campaign says that it will not seriously effect for many months the importation of sulphite pulp. "If importation is cut off entirely the prices of imported pulp will undoubtedly go skyrocketing with increases all around. The condition, however, would not be expected locally until the spring season. Though dye stuffs and other raw materials continue to be short and prices high, these conditions seem to be more satisfactory at Holyoke now than any time since the outbreak of the war."

OHIO PUBLISHERS MAY HAVE NEWS PRINT MILL.

The extent of the widely-varying prices paid for newsprint was discussed at the annual meeting of the Associated Ohio Dailies at Columbus the past week, a number of the smaller publishers participating in the conference.

While a great variety of subjects were discussed and there were speakers of renown present, the principal topic pertained to the paper situation, and the matter of establishing a paper mill for the benefit of Ohio publishers was taken up seriously. Proper steps were taken and a committee appointed to investigate the feasibility and advisability of the project. Whether anything will come of this movement is not known. It is altogether probable that the project will "die aborning," but the fact that the consumers of print are greatly exercised, and have gone this far indicates the seriousness of the situation. Then, the Ohio legislature has been asked to set aside its lands for the use of the States so that timber may be cut for a possible State paper mill. It is feared, also, that this is idealistic rather than practical, as it would require many years to secure a sufficient supply of pulp wood from State lands.

Probably the most feasible plan of the publishers is one that was brought up at the convention, viz., the purchase of a print mill and the employment of a manager to run it. Col. F. M. Reitzel, of Warran, Ohio, offered the suggestion. It made such a hit that President G. W. C. Perry named a committee to investigate the practicability of the proposition. Col. Reitzel was made chairman of the committee. Other members are W. B. Galvin, of Lima, and Mrs. Zell Deming, of Warren. It is said that some success has been achieved in the search for a mill, and that the committee has its eyes on a plant in northeastern Ohio. This plant is now devoted to wrapping paper, but could be changed to news print, it is said. If it can be bought and plans reached the financial point, a company may be organized with a capital of $200,000.—Paper Trade Journal.

REJECT ALL BUT TWO BIDS FOR THE U. S. PUBLIC PRINTER.

At an executive meeting of the Joint Committee on Printing held last week in Washington, all of the paper bids for the second opening, last Saturday, for the Government Printing Office were rejected except two lots. The bids were rejected, it is said, after a conference with representatives of the Federal Trade Commission, who told the committee of some of its findings as to cost of production among the book paper mills.

The Perfect Safety Paper Company, of Holyoke, Mass., was awarded the contract for Lot No. 66, which is for U. S. M. O. writing paper, 20,000 pounds, the price being $.1375 per pound.

The other award went to the R. P. Andrews Paper Company, of this city, for Lot No. 97, being U. S. M. O. blue safety paper, 400,000 pounds, at $.167 per pound.

To Buy in Open Market.

At the meeting the committee gave the Public Printer authority to purchase such paper as he needs on the open market. It also took action in regard to the weight of paper to be used for the bound edition of the Record, allowing the Public Printer to purchase for use 35 pound instead of 40 pound, used at present.

This is the first time in fifty years, it is said, that the Government Printing Office has been without contracts for paper for the year.

The committee received a telegram last week from the Champion Coated Paper Company, offering the entire output of its mills, 250 tons daily, for the use of the government in case of "war" or "emergency." The committee expressed its appreciation.

It is assumed that the committee refused to make the awards and to allow the Public Printer to buy on the open market on the assumption that the Federal Trade Commission will take some drastic action with the general paper trade in the not far distant future, which will reduce the price of all kinds of paper.—Paper Trade Journal.

NEWS PRINT PRODUCTION IN 1916.

During 1916 there was produced in the United States by 31 mills (32 for 5 months), 1,068,741 tons of news print. This is an average of 3,447 tons a day, or 89.2 per cent. of the maximum capaciy. Shipments were 1,100,244 tons, the excess drawn from mill reserves.

In the same period, 12 Canadian mills made 1,772 tons a day, making a total of 532,251 tons for the year. They produced at 95.6 per cent. capacity and shipped 542,564 tons. The 12 Canadian mills therefore make one half as much as is produced by 31 mills across the line. Few mills in the United States have as good equipment as the average newsmill in Canada.

PULP AND PAPER NEWS

The James W. Sewall office of Old Town (Maine) reports exceptional activity in timber lands, especially in pulpwood circles. This timber cruising concern has crews out on over 500,000 acres of land, located in Maine, New Brunswick, Nova Scotia and Quebec. Activity so pronounced is the exception in winter, and reflects the interest being felt in spruce lands.

J. H. Thickens, superintendent of the pulp and paper mills of the Bathurst Lumber Co., has returned to Bathurst from Montreal, where he recently was operated on for appendicitis.

William P. Hughes, the well known McGill hockey player, is now secretary of the Canadian Manufacturers' Association at Montreal. He succeeds Roy Campbell, who resigned to take a position with the Riordon Pulp and Paper Company.

Joseph T. Mullen of Bangor leaves soon for up-river where he will build a sixteen mile lumber railroad for the Great Northern Paper Co. Mr. Mullen had charge of the building of that great big Ripogenous Dam that has just been completed and that is so fearfully and wonderfully made, the wonder of the Maine Wilderness. The Mullen Bros. have been guilty of doing many big things in Central and Northern Main, viz. Millinocket, West Enfield, etc. Give us more men of their calibre!

It is stated that the head office of the Port Arthur Pulp and Paper Company will be located at Port Arthur, Ont., after the middle of March.

In reference to the new sulphite mill which the Riordon Pulp and Paper Company, will erect at Kipawa, Carl Riordon, managing director of the company, states that they hope to build this year a mill to produce about one hundred tons of bleached sulphite equal in quality or superior to anything else that is produced anywhere in this line, in order to overcome the shortage in the production of this kind and grade of fibre in North America. The company believe that the experience they have had in the manufacture of sulphite fibre and the low cost of the production of it in Canada should enable them to replace with Canadian production the pulp that has heretofore been imported from Europe. It is reported that the ultimate capacity of the plant will be five hundred tons of bleached sulphite.

Dr. Henry Hough, who passed away in Toronto last week, in the eightieth year of his age, was one of the pioneer figures in Canadian journalism and publishing. He learned the trade of typesetting on the Guelph Mercury, and in 1864 established the Cobourg World, which he conducted for twenty-one years. In 1885 he removed to Toronto and for some years was connected with Grip, Limited, after which he founded the Hough Lithographing Co., from which he retired some time ago. He was a member of the Canadian Press Association for twenty-five years and was created an honorary member. The late Dr. Hough was much interested in church and welfare work.

T. A. Weldon, vice-president of the Provincial Paper Mills Co., Limited, who for some years has been at the head of the Montrose Division at Thorold, is now spending all his time at the head offices in Toronto, assiting I. H. Weldon, president of the company, in the selling and executive ends owing to the work becoming too heavy for the President. The latter is devoting considerable time to the Port Arthur Pulp and Paper Co., which will soon start the erection of a hundred and fifty ton sulphite plant at Port Arthur.

James Thompson, M.P.P., of Havelock, Ont., President of the Monteith Pulp and Timber Co., who some weeks ago lost two fingers of his left hand and severely injured his left knee and right arm while attempting to board a train on the T. and N. O. railway, is still confined to the hospital in Toronto but is making good progress toward recovery. He expects to take his seat in the Legislative Assembly in a short while.

Thomas Gain, the veteran sales manager of the Don Valley Paper Mills, Toronto, has three sons engaged in the paper business. One son, C. Nelson Gain, superintendent of the Don Mills, is the proud possessor of another boy, making three in all—"another trio of paper men," say his friends.

The Donnacona Paper Company probably will have their six new grinders in operation by the time this is read, the erection of the new digester is going forward and will be making pulp some time in April. This additiontal equipment will enable the mill to run entirely on its own pulp supply, but will probably not leave any excess of pulp for the market.

Gerald W. Dickson, who has been for a number of years connected with the Laurentide Company in the Ground wood and engineering departments has resigned to take a position with the Riordon Pulp and Paper Company. He is with the engineering staff at Hawkesbury. Mr. Dickson is one of the "live wires" of the Technical Section and an occasional contributor to the Pulp and Paper Magazine.

On the application of the Bryant Press, printers and binders, 131 Jarvis Street, Toronto, who were creditors to the extent of several hundred dollars, an application was made to the courts for a winding-up order of Metropolitan Theatres, Limited, Toronto. An order was granted placing the concern in liquidation, Osler Wade being named as interim liquidator.

The famous Sandbanks in Prince Edward county may soon be converted in a big reforestration plot. The drifting sand has covered several hundred acres of farm lands adjoining rendering the property useless. A deputation last week waited upon Hon. G. Howard, Minister of Lands, Forests and Mines, Toronto, with the request that the Ontario government establish a reforestration scheme upon this barren waste. The Minister seemed favorably impressed with the suggestion and promised consideration.

The large barge owned by the Powell River Pulp and Paper Co., Powell River, B. C., has had a freight elevator installed for the quick discharge of large rolls of news print. The new arrangement will handle five tons a hundred feet per minute. The barge is used for bringing paper from Powell River to Vancouver and is the first craft on the Pacific to have such a device.

A recent despatch from Vancouver says that one of the largest pieces of steel ever loaded at the C. P. R. dock in that city was a roll grinder bed for the paper mill at Ocean Falls, B. C. The weight was over thrity-three tons and special mechanical devices would be used for unloading the big piece of equipment. The freight charge alone was eight hundred dollars.

A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, was at Hawkesbury this week where moving pictures were shown in the interest of the work. The films were kindly loaned by the National Safety Council and were the same as those displayed some time ago at Thorold, Ont. The attendance of the employee of the Riordon Co., was very large.

F. J. CAMPBELL ELECTED.

At a meeting of directors of Canada Paper Co., F. J. Campbell, general manager of the company, was elected a director to fill the vacancy caused by the death of the late Hon. Robert MacKay.

There is apparently a movement to place more manufacturing men on boards of directors. No one knows the business better than the technical man. The tendency is a good one.

VISIT OF THE EDITOR TO THE MILLS AT PORT NEUF, PONT ROUGE AND DONNACONA.

The Editor recently had the opportunity to visit a few paper mills between Three Rivers and Quebec. Arriving at Port Neuf at breakfast time, he found the Maison de Pension which the station master said was a hotel and endeavored to ask for breakfast. In the part of his cranium occupied by memories of college days the Editor finally found the word for breakfast and the matron of the Maison served a very satisfying meal.

By walking six miles over the well-packed roads it was easy to visit the four mills of the Fords' and that of the Montreal Paper Co. The visitor was fortunate in meeting Mr. Joseph Ford as he was setting out on his morning rounds. Mr. Ford proved an excellent and interesting guide. He showed his guest through the mills and explained the process of making felt and the several grades thereof. The arrangements are well along at the lower mill for the delivery of Shawinigan power, which will be used in the beater room. This room is to be enlarged by doing some additional concrete construction. The beaters are to be faced about and all driven from a single motor-driven main shaft. Mr. Brown, superintendent was just recovering from the grippe. Six new dryers are being put in, which will bring the production up to 14 tons daily. Other construction is contemplated for one of the upper mills also. One of these mills was making scribbler and the other running on manila bag paper. The mill of Mr. Roland Ford was temporarily shut down due to a broken cylinder mould shaft. This mill makes roofing felt. The old iron found in the rags for making felt would delight the eyes of a junkman but the chunks of concrete from the same source have no market value. Mr. Brown related his surprise in discovering in the rags two perfectly good cats, all spoiled.

A pleasant half hour was spent with Mr. Bishop, superintendent of the Montreal Paper Co.'s mill. He believes it is better to keep a large squad of rag sorters than to suffer from shut-downs due to bolts, etc., getting into the tackle. This mill is also putting in Shawinigan power. After a further stretching of a small knowledge of French, the Editor got a fine dinner and moved on to Pont Rouge. Here Mr. Gibaud did the honors in the absence of the superintendent, Mr. Cowan who was seen later. The mill seemed more like a mine, being built on the side of a steep cliff. The office and mill are quickly and easily reached by laying aside one's dignity, if one has any, getting astride the stair rail shooting a hundred feet or so to the lower level. One climbs the wooden hill to get back to the shipping floor. This mill is making a fine grade of roofing felt and a lot of it.

From Pont Rouge it was a fine seven mile drive to Donnacona, where Superintendent Dickinson showed the visitor around the plant. There is considerable work in progress, putting in the additional power units and new grinders and digesters. Mr. Dickinson is very proud of his fine machines, which he has to hold back for lack of pulp. These 162 inch twins are certainly a beautiful sight, capable of running well over 600 feet. They frequently run half the week without a stop. Who wouldn't be proud of them?

The shortage of cars and coal has been hampering all these mills. One of them had actually run for two days on green wood. When the Editor showed one man the "Gazette" with the report of the probable action on news-print at Ottawa his terse and expressive remark was, "Oh, hell!"

At Quebec, Dr. G. C. Piche, Chief Forester for Quebec, showed the class rooms, libraries, museums and drafting rooms used by the students in the Forestry School and outlined the forward policy that is being planned and followed by the Forest Service of the Province. Hon. Jules Allard, Minister of Lands, Forests and Mines was away, but the visitor was favored with an introduction to the Premier, Sir Lomer Gouin and a visit with the Deputy-minister, Mr. Dechene.

CORRESPONDENCE.

Crichie Bank,
Invernrie, Scotland,
January, 31, 1917.

Editor, Pulp and Paper Magazine:

Please allow me to say how much I enjoy reading Mr. Robert B. Wolf's (Burgess Sulp. Co.) article, "Mill Efficiency," in your valuable publication, "Pulp and Paper Magazine," for January 4th. That is the spirit we want in business; I think it is just fine!

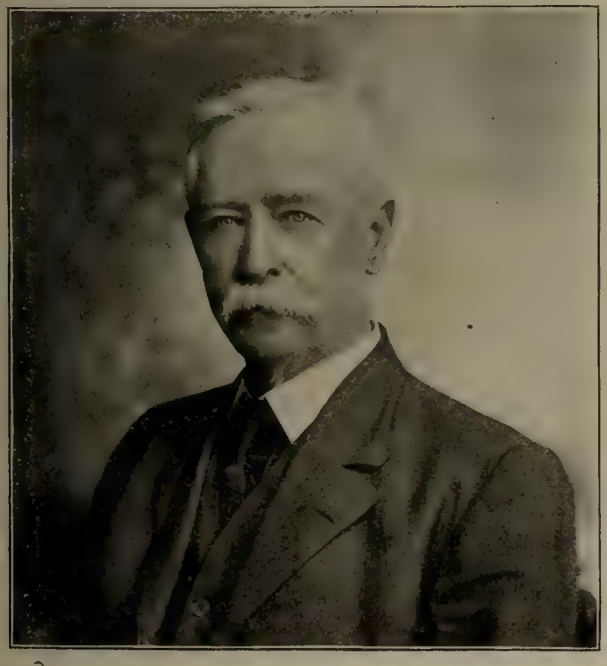
You may have read an article in an American magazine some years ago by the late Mr. Robert Taylor, of the Frick Steel Co., in the States, where he worked on similar lines, but his gang handled pig iron, coal, etc., and the work had to be planned in advance and when the gang were offered and accepted higher wages elsewhere where the work was not thought out the men went all to pieces and went back to their original employer, Mr. Taylor. Again thanks.

Yours faithfully,
J. LESLIE TAIT.

DEATH OF JOHN R. BARBER, DEAN OF THE CANADIAN PAPER TRADE.

The death of John R. Barber at his home in Georgetown on Saturday, March 3rd in the seventy-sixth year of his age, after an illness of several months, marks the passing of one, whose name was literally synonymous in Canada with the word "Paper". He enjoyed over fifty years active connection with the trade, retiring in 1912 after a useful, upright and honorable business career. Courteous, kindly and approachable at all times, he leaves a record of service and achievement that time and history will not soon efface.

Among his oldest and staunchest friends were John F. Ellis, of Barber-Ellis, Limited, C. F. Mansell, sales manager of the Toronto Paper Mfg. Co., and George E. Challes, sales manager of the Riordon Pulp and Paper Co. For over thirty years Mr. Barber had an office in the Mail and Empire building and his presence there had become well nigh a landmark, up to the time of his withdrawal from daily business life. In June, 1876, Mr. Barber formed a partnership with Mr. Ellis and in the long and intimate association of forty years there had never been a hitch or an unpleasant word spoken.



The late John Roaf Barber.

The first sulphite fibre plant in Canada was established at Cornwall by Mr. Barber and his associates after the merit of various processes had been investigated by him in Europe where he spent the best part of two years. The next sulphite plant was started at Merriton by the Riordons and the third at Hull by the E. B. Eddy Company. It was in 1880, in company with Richard Brown of Brown Bros., Limited, now in his eighty-third year, Rev. Dr. Briggs, book steward of the Methodist Book and Publishing Co., now in his eighty-first year, Charles Riordon, President of the Riordon Pulp and Paper Co. and the late Edward Trout, that Mr. Barber launched the Toronto Paper Mfg. Co., whose plant is located at Cornwall. It started with one machine, seventy inches wide and the output was about five tons daily of book and writing paper. Today the plant has four machines and a production of thirty tons a day. For many years Mr. Barber was president and manager of the company and guarded its destines with all the care, faithfulness and devotion that a fond parent bestows on a child. Mr. Barker later founded the Canada Coated Paper Mills at Georgetown, and with others, established the big ground wood pulp mill at Espanola. He was also an ex-President of the Nipigon Pulp and Paper Co. His interest in all these enterprises he transferred a few years ago to young men, the Provincial Paper Mills Co., acquiring the historic Barber mill and coating plant at Georgetown, the Spanish River Pulp and Paper Mills, taking over the ground wood and news print enterprise at Espanola, and R. S. Waldie and others the industry at Cornwall. But Mr. Barber, before his retirement, had rounded out over fifty years of business life, being then over seventy years of age and having borne the burden and heat of the day, he felt that others could well take up the responsibility and operation of the busy projects which he had guided so long and so successfully.

Mr. Barber was a personal friend of many rural newspaper publishers in Ontario whom he assisted in a practical manner. Not a few proprietors today are in business owing to the liberal treatment accorded them years ago in paper and credit by the decreased, who was generous to a fault. Considerate, frank and open, he often kept his mills going at a loss when trade was depressed, for conditions in the paper market then were the very reverse of what they are now and prices were low. The average figure for book paper was four to five cents while the same grades sell today at considerably over double this quotation. His benefactions were ceaseless and rarely if ever did a solicitor for any worthy object call at his office at the Mail building without a contribution from the verteran paper manufacturer.

Although of a quiet and unassuming disposition Mr. Barber had public spirit and for ten years was Reeve of Georgetown and also a member of the High School Board and Warden of Halton county. He subsequently served one term in the Ontario Legislature under the Premiership of the late Sir George Ross and then retired from public life. For many years he was an officer in the Georgetown Light Infantry and the 20th Halton Rifles, latterly holding the rank of Major. A veteran of the Fenian Raid days he wore a long service decoration.

The Barber mill at Georgetown was founded in 1853 by one David Forbes who finding the undertaking too heavy for him, it was taken over by James Barber the father of the subject of this reference. Afterwards the firm became William Barber and Bros. and finally John R. was the sole proprietor. At the time of the reciprocity campaign in 1911, Mr. Barber was one of the most prominent Liberals, who came out squarely against the proposition on which the Laurier administration went down to defeat.

Previous to his last illness he had been given up on three different occasions by his physicians, who declared that he could not live but Mr. Barber survived, and it was thought by his hosts of friends in his late attack that he would once more emerge triumphant. Although he put up a gallant fight, his constitution was so weakened that all hope was finally abandoned and "the dean of the Canadian paper trade" as he was affectionately styled, passed to that bourne from which no weary traveller returns.

The Markets

CANADIAN MARKETS.

Toronto, March 6th.

The freight and coal situation in the pulp and paper arena which has been very acute is improving. Embargoes are being lifted by the railways and cars, which have been held up in yards and on sidings are being unloaded. The advent of milder weather has brought about the much desired change and shipments are now going forward more freely. If March is fairly considerate in temperature, by the end of the next ten days, much of the trouble, which has been to the forefront practically since Christmas, will be cleared away.

All the mills are busy and operating to capacity and with the coming of spring it is felt that conditions which have prevailed in the matter of price will be unchanged. Now that the news print strife has practically ended, although not to the satisfaction of all parties concerned, things are assuming a more stable basis but there is still considerable speculation in regard to quotations.

The sulphite situation is a little stronger than it was although prices are unchanged and there is very little domestic being offered. In the opinion of those, who have closely studied the trend of affairs, there will be no shaving off in prices for this product this spring. Shipments from across the water have been resumed although Germany has declared chemical pulp contraband. The submarine campaign is not meeting with the success which the instigators hoped for and, although shipments are difficult and dangerous, there may not be any great falling off.

One leading manufacturer of special lines of paper stated this week that he thought his prices on all grades would remain much the same as they are for some time. The demand for kraft, manila and fibres is fair and sellers say that it will improve within the next few weeks. Consumers have been hanging back, thinking there would be a recession in prices but as this has not come, orders from this out should be more numerous. Printers in Toronto are not very busy except in a few shops and some trade publishing houses, who have been using book paper have had to employ more expensive stock and cut down their runs from sixteen to eight pages a run as paper of the required size could not be secured.

There is some talk of forming a paper jobbers association and the matter has been taken up by two or three prominent houses. It is believed that an association for the whole of Canada would be too large and unwieldy, and that the interests of the men in the West are dissimilar in some respects to those in the East. The proposal now is to have a Western and an Eastern jobbers association. The western would include all the provinces from Manitoba to the Coast while the eastern organization would embrace Ontario and all the provinces to the Atlantic. Both associations would be affiliated. What encourages the wholesale dealers to take this matter up at the present time is the success which has attended the Canadian Pulp and Paper Association. Although organized only five years, that body has made remarkable progress until its strength is today recognized on all sides. The jobbers association would not be for the purpose of regulating prices in any sense of the word but to correct many abuses in the way of shipments, freights, rebates, etc.

The centre of interest, just now is in ground wood pulp and last week as high as twenty-three dollars and a half per cord was paid for rossed wood delivered at Niagara Falls, Ont., from Quebec. This is a record figure and shows how scarce is the supply of raw material. Another mill is reported to have offered thirty dollars per cord for five thousand cords of rossed wood to be delivered within the next three months and the offer was declined. With the cut not more than seventy-five per cent of normal while some experts declare that it will not be sixty per cent, one wonders how high prices for rossed wood and mechanical pulp will go. The shortage in wood is caused by so many men going overseas, and still recruiting for forestry and construction battalions continues. The situation is becoming little less than appalling in some centres, and the worst is feared.

News print prices in Canada have, it is understood, been agreed upon, on a new basis which is as follows: News rolls, carload, two and a half cents; less than carliad, two and three-quarter cents. News, carload, sheets, three and a quarter cents; two tons and over, three and a half, less than two tons four cents. These figures are f. o. b. mill, net thirty days, and are for Canadian publishers only. The new quotations went into effect this week.

According to word received from Washington fixing the price of news print at two anda half cents a mill, this will mean a decided falling off in the revenue of several Canadian plants which have been doing a large export business, as fully fifteen hundred tons of news print cross the border every day. The exporting mills in Canada resent such a figure. If the proposed American schedule goes into effect all mills in Canada, whether doing an export or local trade, will be in the same position.

"It looks as if the Canadian government had been acting in collusion with the authorities at Washington in this matter," said a large manufacturer this week.

"I hold that the whole thing is an unjustifiable interference with vested rights, and the law of supply and demand. The result may be that no more news mills will be erected in Canada. In the whole of the United States there was only one new news print plant put up last year and, when governments step in to curb legitimate enterprises such as the paper line, they are taking unwarranted liberties. How is it that the paper mills are singled out and no other industry? It requires millions of dollars to build and equip a paper mill nowadays and I know for a fact that some concerns which have to buy all their pulp and have no available limits, cannot make make newsprint for less than three cents a pound. The result is that they will lose money, or will produce other lines of paper. If a

paper mill does an annual business of the amount of the capital invested, it is doing remarkably well, but at present fixed prices this appears impossible."

The following quotations prevail, f.o.b., Toronto.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $45.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.05
White blanks	2.10
Heavy ledger stock	3.00
Soft ledger and writings	2.30
No. 1 magazine	1.60
No. 1 book stock	1.50
No. 1 manila envelope cuttings	2.80
No. 1 print manila	1.45
Folded news	0.95
Over issues	1.25

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y.

Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	5.00
Thirds and blues	2.60
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.70
Tailor rags	1.70

CANADIAN CHEMICAL MARKET.

MONTREAL, March 6th.

The chemical market is still very firm. The railway situation has improved a little, but stocks are low and prices for spot deliveries are advancing. Brimstone for spot delivery, New York is quoted as high as $45.00 a long ton. Otherwise prices are as listed last week.

NEW YORK MARKETS.

New York, N.Y., March 3, 1917.

Despite unsettled conditions, there is visible to those who are in a position to know the true facts, a steadily strengthening of the markets in general. Interest in the news print question is still absorbing considerable attention. As was stated last week, the publishers are looking forward in the expectation that the Federal Trade Commission will fix the price of news print, i.e., on the production of a number of mills, at about 2½c, or possibly a trifle higher. At the present time, there is an absence of any real facts to allow one to make any definite assertion as to what really will be the case. However, there is no doubt that everyone is waiting to see what the outcome will be—what the commission will agree is a reasonable price for news. In some sections, it is recognized that the bearing on the other branches of the industry is more than a little. For, having succeeded in compelling submission on the part of the news print manufacturers, an effort will be made by other interests, to carry on the same sort of game with the rest of the paper makers. An indication of this is clearly shown in the investigation, now current, into the doings of the book paper men, and in the hints, from various sources, that the same measures be taken with respect to other papers.

The worst in ground wood pulp is now feared. So decidedly has this market strengthened during the past week and so certain is it that this tendency must continue for some time—an indefinite period—that many consumers have had just cause to be a little alarmed. The shortage of wood supplies, which has already been referred to in these columns as one of the chief factors in the situation, is making itself more keenly felt that heretofore. Everywhere, especially in Canada, the labor question is so affecting the supply of wood, that it is now realized that the cut for the coming season will be decidedly less than what is required for the needs of the grinders. Already reports have come from certain districts, that the mills have been compelled to reduce their production because of inability of replenishing needed supplies of wood. The freight congestion has materially aggravated this unusual situation. To make matters worse for the United States trade, the Canadian Government has taken a hand in its own freight troubles and has found it advisable to forbid cars loaded with pulp wood to cross its borders into the United States. This sufficiently limits our supplies to make the figures for ground wood take a somewhat fair leap. Added to these facts, domestic grinders look forward to other factors hurting the market within the next few months, so that the prospects are for a continued ascendency of prices. Present quotations are considered to be about $47.50 to $50.00 per ton at the grinders plant. However, the manufacturers do not appear anxious to get rid of stock at this figure. This may be because there is comparatively little to be had for new business. A sale has been reported at much higher than the figures mentioned here—near to $60.00. It is needless to say that the effect on news print is bound to be felt. There are also many other papers in the manufacture of which, concerns have resorted to ground-wood to displace sulphite as much as possible. However, with ground wood soaring the way it is and becoming more difficult to get all of the time.

Judging from present indications, no relief appears in sight for the chemical pulp market. As a matter of fact, the further complications between the United States government and that of Germany, during the past week, makes danger of a conflict more imminent than ever—hence the likelihood that shipping will receive the greatest blow it has been given since the start of the European war. At the present time, it is known that the Scandinavians will not send pulp to this country because of the almost certainty that they will fall victims of the ruthless submarine compaign of the Germans. Ocean risks have risen to the point where it is considered ridiculous to think of meeting them. Thus, it can readily be understood why the prospects for future supplies of chemical pulp from abroad are very poor, indeed. The domestic mills are doing their utmost to work at capacity to take care of their obligations, but find themselves handicapped in many ways, all of which tend to hinder getting the production desired. The freight congestion is affecting the pulp manufacturers just as it is hurting the others. It is only natural that conditions should have given the tendency of the market an exceedingly acute upward "look." With domestic pulp makers unable to take care of the demands being made upon them with comparatively little foreign stock on docks and none expected to arrive, and with the prospects of sufficient Canadian stocks rather dubious, one can expect to see "things happen" in the near future. Only a curtailing in the demand for paper can afford any relief. Quotations for foreign bleached are purely nominal for it is understood that there are merely some odd lots available and these are being held for impossible figures. Dealers are asking more than $ for domestic bleached and even at this figure, it is unlikely that one could corall a large quantity of available pulp—nŏt because the manufacturers would not care to take the price, but because they haven't got the goods. A good demand is reported for easy bleaching, but there is a decided scarcity of this commodity. The situation in kraft is about as bad as one can describe it. The pulp is very difficult to get in any quantities.

Absolutely no stimulus has been noticed in the rag market. General appearances are dull and there appears to be little or no interest manifested by the paper manufacturers. Dealers are at a loss to understand the situation for they calculate that the mills have been busy right along and are still active, but have, at no time, so the dealers say, shown any decided interest in the market. It is understood that considerable stocks are held in store by various dealers. Apparently, this is known among the consumers—so well,



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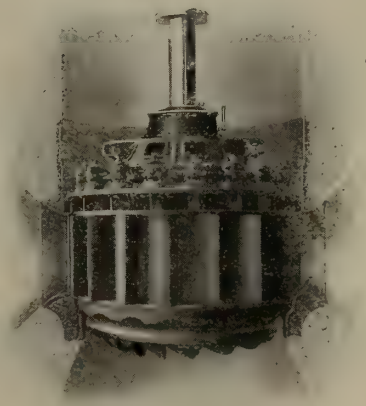
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that even the excitement of war possibility has not disturbed them in the least. Then again, as we have already stated in a previous issue, there is the prospects of a spring collection. True, the collection this year will not measure up to standard because of the lack of labor to take care of this particular work, but enough stock is expected to dampen any hopes of a material rise in the market for a short time to come. No change has been noted in new white shirt cuttings, the better grades of which are still hovering above 9c. Old white rags, No. 1, have been sold as high as 5½c; house soiled whites, at about 3½c; street soiled whites, as high as 3c; thirds and blues, at from 2½c to 3c, and black stockings around 2½c.

A better feeling is reported among the dealers of bagging. They state that interest shown by consumers has taken on a little more animateness and that the immediate future is brighter than it has been in some time. Gunny is quoted at about a little over 3¼c; bright bagging as high as 3¼c; sound bagging, at from 2½c to 3c; mixed magging, at around 2½c. Manila rope is in fair demand and continues to be quoted at about 6c.

Dealers report fairly good buying in most grades of waste papers although they state that prices are not as high as they were a few months ago. However, more satisfaction is expressed with present conditions for they are regarded as nearer to normal than has been experienced in some time. With prices slightly lower, the tendency to buy has been increased, so that the movement of stock has been quite steady during the past week. Prospects for the future are bright, for, with the difficulties in the pulp markets, more mills may resort to waste papers than have been doing so up to this time. Selected hard white shavings are quoted at 6c to 6¼c; soft white shavings at 4¾c to over 5c; magazine stock at over 1¼c; ledger stock at 2¾ to 3c; old krafts, at over 3½c; strictly overissue news, at 1¼c to 1½c; mixed papers, at 80c to 85c per hundred pounds.

General conditions in the paper market have not changed materially from the reports we gave last week. But, it is becoming evident that some one is in the wrong—and, as was the case last year, it was the paper jobber. It is true that the jobbers are still keeping out of the market and holding off in their buying—apparently in efforts to "bear" prices. Nevertheless, prices seem to be growing firmer. This is, perhaps largely due to the freight congestion which is delaying deliveries and, in some cases, isolating mills from means of access to the consuming centres. Manufacturers are emphatic in their beliefs that prices will be compelled to go higher — because of the tendencies in pulp are decidedly in that direction. News print is reported firm and all eyes are at present on the Federal Trade Commission, awaiting the result of its deliberations regarding the price of news. Certainly, despite any decision of the commission, conditions in the news print market are bound to grow more stringent, if only on the ground of the raw material situation. It is understood that there are a number of mills which are having difficulty keeping up the continuity of their operation because of inability to get pulp. Tissues are strong. New buying is reported somewhat limited, but manufacturers are holding firmly to their quotations and predict a still higher market. Krafts and manilas continue in fair demand, with prices still as high as ever. Book papers are firm, with mills working on contracted business. The urgent demand for boards is a little curtailed, but quotations are still "away up."

New York Quotations.

(These are a nominal range of prices).

Ground wood, f.o.b. mill ..... $46.00 to $50.00
Foreign bleached sulphite, ex-dock, New York ..... 11c and higher
Foreign easy bleaching sulphite, ex-dock, New York ..... 6¼c and higher
Domestic bleached sulphite, f.o.b. pulp mill ..... 8¼c and higher
Foreign unbleached sulphite, ex-dock, New York ..... 6c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York ..... 5¾c and up
Easy bleaching, f.o.b. pulp mill ..... 6c and higher
Kraft pulp, f.o.b. pulp mill ..... 6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York ..... 6½c to 7c
Bleached soda pulp, f.o.b. pulp mill ..... 5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York ..... 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. ..... 6½c to 7c
Bond papers, sulphite ..... 12c and way up
Best grade writings ..... 20c and higher
Regular superfine ..... 18c and higher
Ledgers papers ..... 13c and way up
News, contracts, f.o.b. mill $3.10
News, spot lots 5c
Book, super ..... 9c and higher
Book, coated ..... 8c and higher
Tissues, good sulphite, bleached, per ream $1.30
Tissues, ground wood, manila, per ream $1.30
Kraft ..... 9c and higher
Manila ..... 7¾c and higher
News board, per ton, f.o.b. New York $70.00
Straw board, per ton, f.o.b. N. Y. ..... $60.00 and higher
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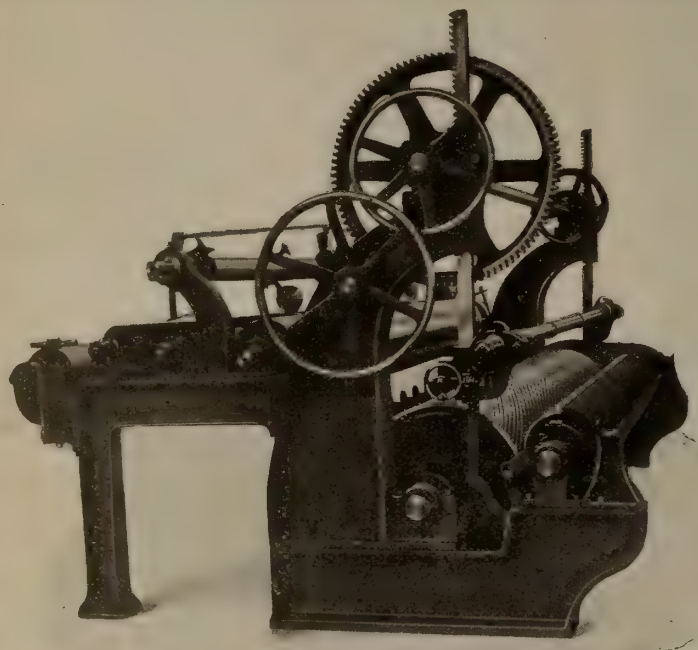
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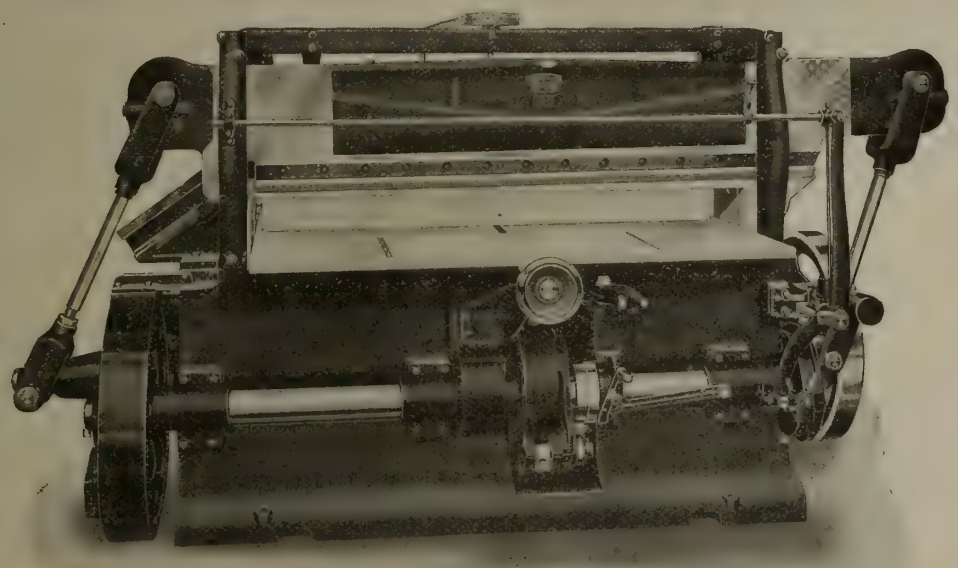
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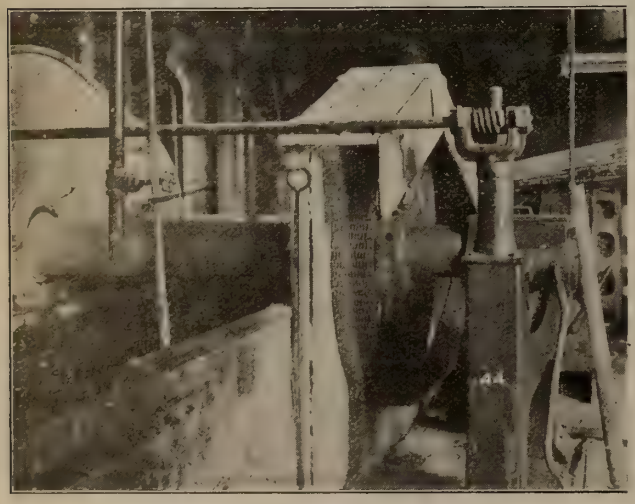
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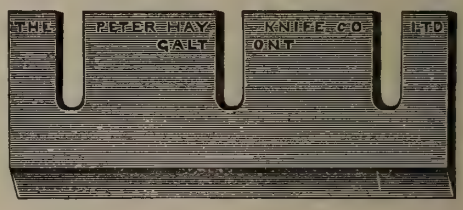
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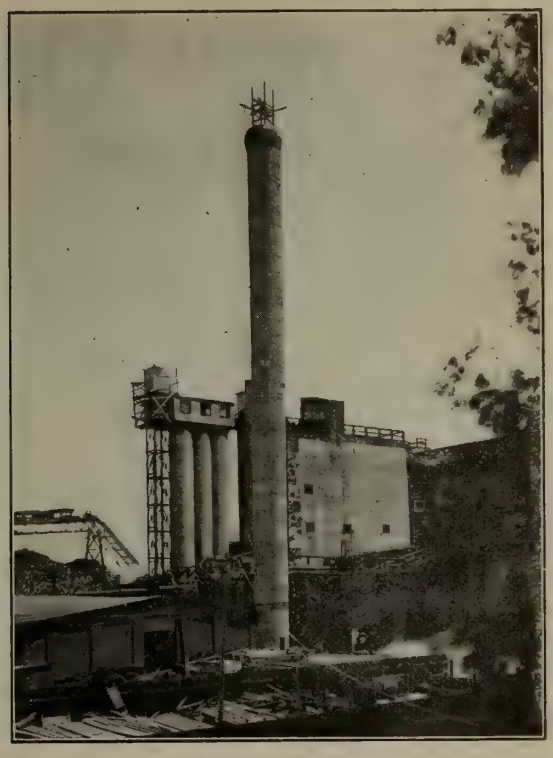
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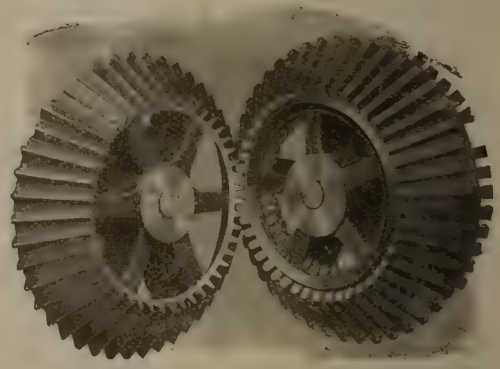
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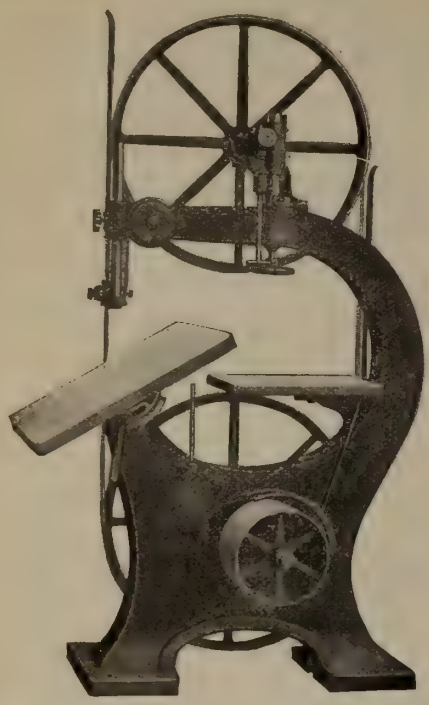
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

A KNOCKOUT BLOW TO NEWSPRINT.

In our home town there was a very capable woman who used to run the family automobile from the back seat—by telling the husband how to do it. It seems that the Governments on this continent are going to do the same with the paper industry.

The Minister of Finance at Ottawa recognized that the war measure price of $2,50 for newsprint would not provide a fair return to the manufacturer when he approved the plan of partly compensating an almost certain loss to some mills by passing part of this burden on to mills exporting their paper. A little reading between the lines of the Canadian order shows that $3.00 was really recognized as fair price from a business or manufacturing viewpoint.

While it is true that some of the newer Canadian mills are fortunately situated as regards timber and pulp supplies, it must be remembered that these mills can not possibly make the amount of newsprint that the publishers are clamoring for. Many mills in Canada and the United States must buy either mechanical or chemical pulp, in some cases both. Taking the lowest market prices, this raw material costs per ton of newsprint, $30 for ground wood at $40 and $25 for sulphite, at $100, on the basis of 75 per cent ground wood in the paper. On the basis of 80 per cent ground wood, as suggested for a standard specification, the prices are $32 and $20. And these prices are f.o.b. pulp mill, to which must be added freight charges and a lot of trouble to get the pulp at all.

Add conversion costs for making this raw material into paper, and the profit is decidedly on the wrong side of the account if the paper is sold at $50 a ton. No serious attempt was made in Canada to ascertain the cost of manufacture, although a few mills may be able to sell newsprint for $50 a ton without incurring a loss. The idea of fixing a price was not intended to encourage the paper industry at all, but to force the paper maker to assume the financial burden of the publisher, "as a war measure."

Now if the publishers across the line succeed in making this $2.50 price general—which to us is inconceivable—where will the Canadian mill come out that is selling at a loss to please the Government? There would be no margin from which other mills could make up any of their loss. Just at the present time, a mill not under an agreement to sell at $2.50 can find a ready market at $3.00, but a mill selling that much above Government fixed price would likely find itself without friends or customers in an easier condition of the market.

To our mind there are three possible results of fixing a price of $2.50 for newsprint. One is for paper mills to turn machines to grades other than news. In support of such a move is the proposal of the Saskatchewan farmers. They are offered $1.30 for wheat by the Government, but state that with hogs at present prices it is more profitable to produce pork. And they could do it without anyone daring to criticise their action.

The second possibility is that the decree of the Federal Trade Commission will be changed at the end of three months, as provided for if $2.50 proves a hardship on the mills.

The third possibility is that there will not be enough publishers sign the agreement to greatly affect the market as a whole. The conditions under which they can obtain newsprint at $2.50 may not appeal to many publishers with contracts, as they must agree to give up five per cent of the tonnage already contracted for and to do other things that may not be a great pleasure to them. Jobbers are restricted to commissions of 5, 12½ and 20 per cent, respectively, on carload, less than carload and less than ton lots. Then, too, the price is fixed for only six months, and some publishers may not like the prospect of uncertainty as to what might happen to their supply after September first, as they would have to cancel present contracts. Papers that have raised their prices do not want to go back to old rates.

We should like to know how the Commission arrived at $50 a ton as a price for newsprint that would leave any profit to the mill. A very distinct service to the industry would be rendered by telling manufacturers how to do it. Perhaps they will use this valuable information in running the Government mill that has been proposed. If such a mill could make paper for $50 it could make a beautiful extra profit by charging admission to visitors to see the marvel.

Let's see them run it from the front seat. If they persist in the present method they will soon have the machine (or several hundred paper machines) in the ditch.

PRIVATES AND OFFICERS OF INDUSTRY.

A successful military organization can be accomplished only when the proper men are properly trained. The proper men are chosen largely on the basis of physical fitness. The training takes considerable time, even for the privates. In some organizations this training is concentrated in a few months, as it is necessary to replace and reinforce the armies now in the field or it may be spread over many years, as in the case of the militia. The training of the officers is for a longer period and of a distinctly more intensive character than that of the private. And even more important is the fact that the officer has by nature or development, a temperament peculiarly fitting him to lead and direct. But his superior ability would be wasted on an army, regiment or squad whose privates did not have sufficient training and intelligence to understand and appreciate his orders.

This is very largely the situation in industrial organization as well. There are officers, non-coms., and privates; call them managers, technical men and workmen. Industry includes them all, and each group performs its own peculiar function and requires a training adapted to the intelligence of the individual and the service to be performed. Each man should be trained for his position, but with a sufficiently broad foundation that he may at least comprehend and appreciate the attitude and work of others in the organization.

The manager needs a particularly broad training; a knowledge of business, of trade and commerce, of factory organization, of a few fundamental technical subjects. The technical staff must be trained in science, engineering and research. The workman should, of course, be able to read or write, although it must unfortunately be admitted that a great many in the pulp and paper industry are almost or quite, illiterate.

And the question before the industrial life of Canada is, "Do we give men who are temperamentally fitted for these positions the facilities to fit themselves mentally to occupy them to the best advantage?"

A MIS-USE OF WATER IN PAPER MAKING.

In the controversy which has been going on between newsprint manufacturers and publishers both in Canada and the United States, the claim was made by the publishers that the manufacturers were paying or trying to pay dividends on watered stock. They charge the manufacturers with over-capitalizing the industry and then complaining that they are unable to pay dividends on the watered stock.

Newsprint manufacturers are not more guilty in this respect than the thousand and one other industrial concerns who have been in the habit of issuing bonus or watered stock in connection with the organization of their company. The practice of the issue of bonus stock has been a popular one in both Canada and the United States, and while there are many advocates of the method, and it is countenanced by the authorities, there is much to be said against the practice.

It would be probably better if there was a measure of governmental supervision somewhat akin to the Blue Sky law in vogue in Kansas. This would prevent over-capitalization and probably abolish the practice of issuing common or bonus stock when a company is being formed.

It is both untrue and unfair to say that the newsprint manufacturers have been the chief offenders in the matter of issuing watered stock. For years paper companies on both sides of the Line have been unable to pay dividends even on their preferred shares and many holders of stock have had a long and trying time before they have seen any returns on their investment. Now that the companies are in a position to make some return to both the common and preferred shareholders, a great howl has been made by the publishers. The publishers' attitude throughout this whole controversy has not been an over-creditable one.

TECHNICAL EDUCATION OF PULP AND PAPER MAKERS IN SWEDEN.

The necessity of educating specialists for the leading positions in the pulp and paper industry has brought forward the question of establishing a special division for pulp and paper at the technical university in Stockholm, and according to "Svensk Papperstidning" this question was recently discussed in the society of Mechanical Technologists. The chief difficulty is to combine as well chemical as mechanical knowledge, which is necessary at least for a person, who is at the head of a pulp and paper mill. A chemist ought to conduct the chemical process in the manufacture of pulp just as when as a mechanical engineer is required for the mechanical part of paper making. On the other hand much more mechanical engineering is necessary in a chemical pulp plant and more chemistry in the paper mill than is generally recognized.

Instead of establishing an independent division for the pulp and paper industry it has been proposed, that special courses should be arranged from time to time for persons, who have already completed their education in mechanical or chemical engineering at the universitq. Lectures could in this case be given by specialists from the industry. As this arrangement would mean a prolongation of the time of studying from four to at least five years another suggestion is to give the students of mechanical engineering the opportunity of taking up the study on pulp and paper in the last two years of the regular time. At the same time the student should from the very beginning be given more training in mechanical engineering.—B. J.

The Barking Drum---Its History and Development

An Address Delivered at the Winter Meeting of the Technical Section of the Canadian Pulp and Paper Association.

MR. HERBERT GUETTLER: Mr. Chairman, Members of the Canadian Pulp and Paper Association: I would like to point out that I am not here as a representative of the American Barking Drum Company of Chicago, but I am here in the interests of the paper manufacturing industry.

As to the saving effected by barking drums, compared with other drums, I will give you some figures showing what we have accomplished with the American Barking drums.

Saving.

EXAMPLE No. 1.

A Mill Using 7,500 cords a Year of Green Spruce Wood, $8.00 a Cord.

Saving in wood effected 1,500 cords at $8.00 a cord	$12,000.00
Saving in men (4)	2,000.00
Total Saving	$14,000.00
Cost of installation (One 8-ft. x 20-ft. Drum).	6,00.00

EXAMPLE No. 2.

A Mill Using About 15,000 Cords a Year Spruce Wood, $10.00 a Cord.

Saving in wood effected 2,250 cords, at $10.00 a cord	$22,500.00
Saving in labor	7,200.00
Total Saving	$29,700.00
Cost of installation (Two 8-ft. x 20-ft. Drums)	9,700.00

EXAMPLE No. 3.

Total saving effected	$35,815.00
Cost of installation (Two 10-ft. x 30-ft. Drums)	16,480.16
Net saving when installation all paid for	$19,334.84

Of course the saving is different under different conditions, viz., the cost of the wood, the kind of knife barkers that are used, the skill of the operator and so forth.

Cost of operation is also different according to local conditions, which you will see from the table.

Operating Cost.

	Under most favorable conditions, Green wood and small capacity	Under most favorable conditions, River wood and large capacity
Labor	$ .15	$ .02
Interest	.06	.02
Depreciation	.08	.02
Repairs	.06	.02
	$ .35	$ .08

There are some objections raised against the barking drums; namely, that we do not get clean enough pulp. I will here show a letter written from one of our customers.

"In our opinion wood treated with the drum barker, if it is properly washed with spray after leaving the drum, makes cleaner pulp than the old knife barker proposition—there is no dust flying around the room and sticking to the wood as is the case with the ordinary knife barkers. The slight waste from bruised ends does not amount to anything and we do not find that the knots interfere in any way with the grinding.

"We have never noticed any difficulty along any of the lines you suggest, even if there were some slight drawbacks due to the bruised ends or knots, it is so completely overcome with the other good features that none of the pulp mills would notice them."

The samples passed around are samples of bleached sulphite made of tumbled wood; and are evidence enough that clean paper can be made from wood treated in a barking drum.

Some people object to barking drums on account of the bruised ends. I am not saying that the wood is not bruised by using the barking drums, but the bruising of the ends is nothing as compared with the saving, so that it does not amount to very much, perhaps one or two per cent on green wood and practically nothing on riverwood amount to very much, perhaps one or two per cent.

In this connection I would like to say that some of the rossing mills in Canada shipping pulp wood to the United States, are of the opinion that the United States paper mills will not accept wood barked with tumblers, but as far as I know that is entirely a mistake. It is a fact that you do not get the same price for tumbled or peeled wood, as for rossed wood, but it is not because the former is not of the same quality. The reason is that tumbled wood does not give you the same amount of solid wood per cord as rossed wood. Of course, shippers of pulpwood will get more money out of their timber limits by tumbling it than by running it over knife barkers.



Fig. I.—Pieces of Wood Barked in a Drum.

This picture shows what can be accomplished by barking drums. This wood could not bave been cleaned with knife barkers.

Another objection raised against barking drums is the loss of the fuel value claimed to be obtained from the shavings. It is correct that when installing barking drums you will lose fuel value, of course, and I will show you by some figures how little this amounts to.

Supposing total shrinkage, 25%.

Fuel value in shavings from one cord equivalent to 212 lbs. of coal.

If bark from drum is pressed fuel value regained equivalent to .....85 lbs. of coal.

Loss in fuel value by using drums equivalent to .....127 lbs. of coal.

Now I will review the history of barking drums.

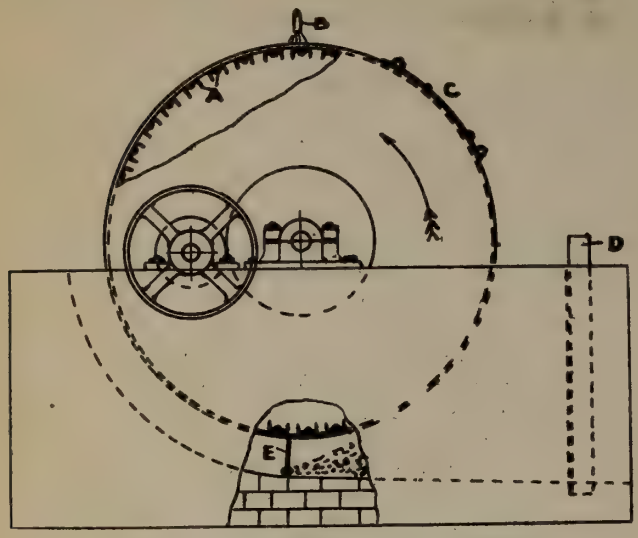


Fig. II.—Wertheim Drum, 1896.

This drum consists of channels A with equal space between them and a door C for charging and discharging the drum. The drum is mounted in a tank. A spray pipe B is provided for above the drum. This drum is not submerged in water. The water and the removed bark is leaving the drum continuously. A scraper E is helping to remove the bark. When the water leaving the tank is clean the barking is finished and the wood discharged. The patentee provides for a gate D so that he can run the drum submerged in water and wash it after it is barked.

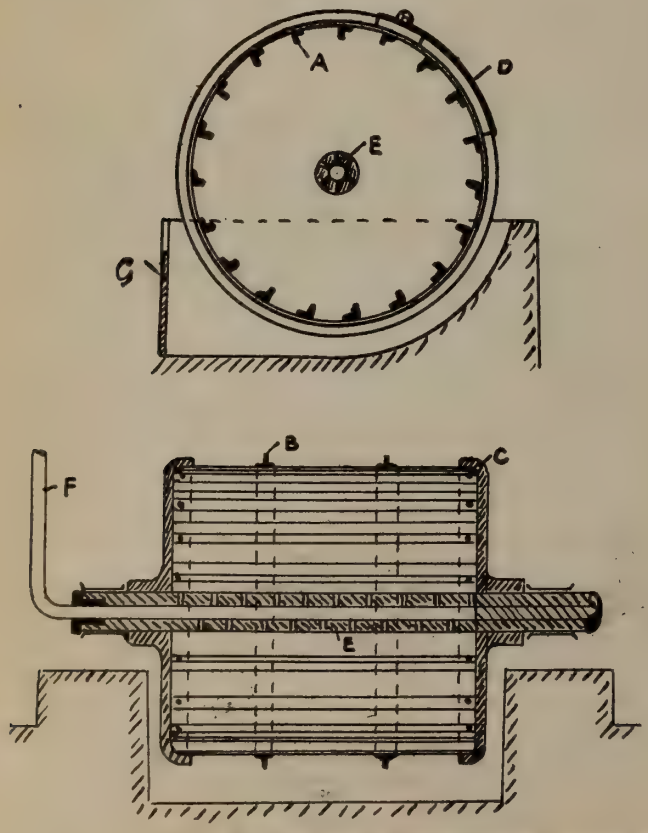


Fig. III.—Kuch Drum.

This drum is made of angles A rivetted to T rings B and end walls C. The new feature with this drum is that the water is introduced through the hollow shaft E to the inside of the drum. The water and bark leave the drum between the angles into the vat. A door is provided for charging and discharging the drum.

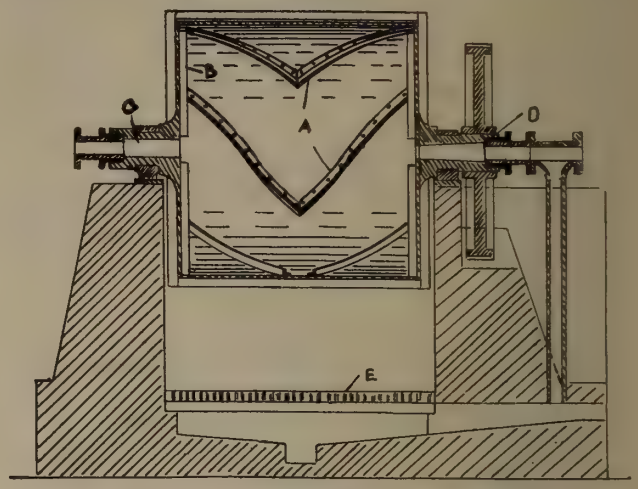


Fig. IV.—Bache-Wiig Drum, 1908.

The new feature with this drum is that it is adopted to hold a volume of water, the drum itself being watertight. On the inside of the cylinder are fastened V-shaped angles, A, pointing in the direction of rotation. These ribs are supposed to give a shearing action on the blocks besides moving the blocks to the end. To the walls are fastened ribs B to move the blocks toward the centre of the drum besides helping to take the bark off. The water is supplied through hollow journal C, the bark and water leaves the drum through hollow journal D. Like the preceding type a door is provided to charge and discharge wood from the drum.

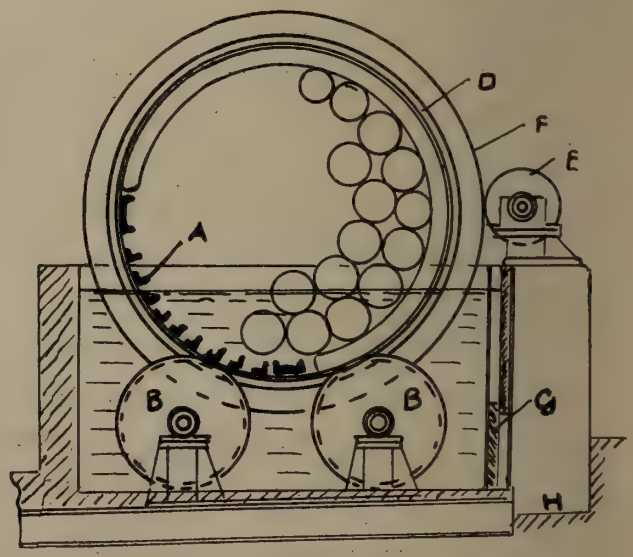


Fig. V.—Alfsen Drum, 1907.

The first continuous drum was invented by A. Alfsen, in Norway, in 1907.

This is a cylinder made of angles and open at both ends. The drum is about half filled with wood and submerged in a tank. The wood is introduced in one end and works its way through the drum and is discharged at the other end. This drum is supported on rollers B, engaging tires D. The motion is transmitted

through pinion E and gear ring F fastened to drum. The bark drops between the angles into the tank and is floated over gate G into a drain. Most of the bark settles in the tank, which can be cleaned out through the gate G.

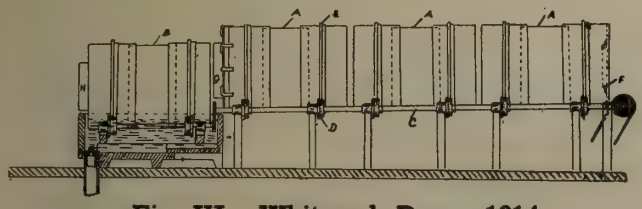


Fig. VI.—Whitcomb Drum, 1914.

This drum consists of four sections, the three A's barking dry and the last B barking wet. The drum is smooth inside. There are openings between the sections for getting rid of bark. The drum which is inclined, is supported on the drum rollers D, engaged in tires E. The motion is transmitted through shaft C and the rollers D. The wood is introduced at F and discharged at H.

The trouble with the continuous drums shown above was that the bark was settling in the tank making continuous operation impossible. The drum shown in Fig. VII has remedied this trouble.

This drum is a cylinder made of channels or angles; A, is mounted level suspended in chains B, engaging riding rings C and sprockets D, takeups E are provided for taking up slack in chains. Motion is transmitted through shaft F. Guide rollers F ensures a steady run.

The drum is more than half filled with wood partly submerged in water. The wood enters the drum at one

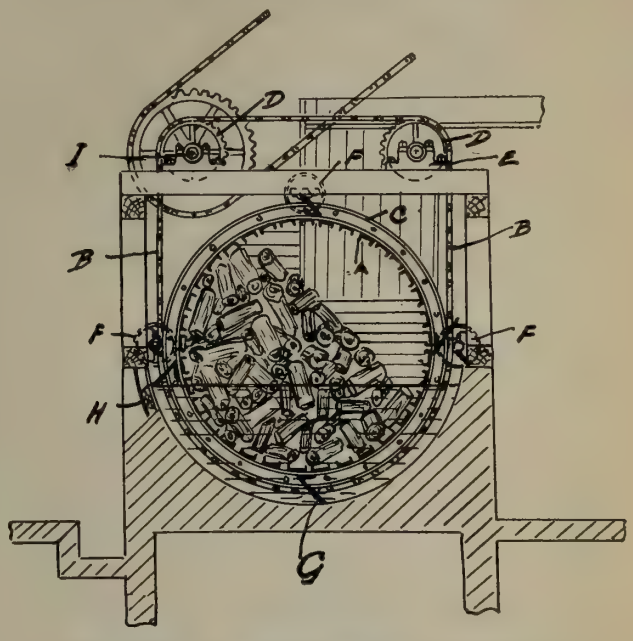
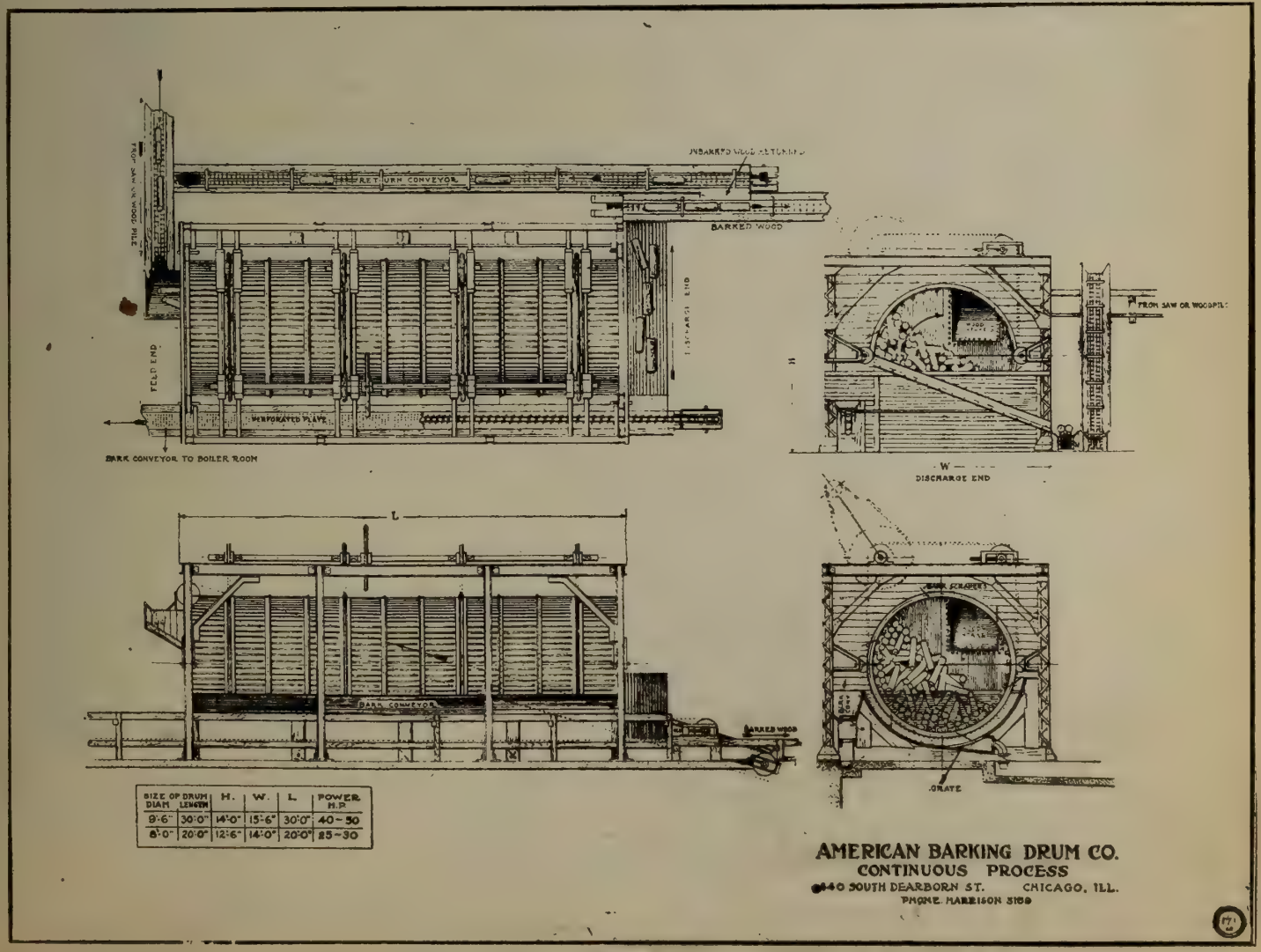


Fig. VII.—American Barking Drum 1915.



SIZE OF DRUM DIAM	LENGTH	H.	W.	L.	POWER H.P.
9'-6"	30'-0"	14'-0"	15'-6"	30'-0"	40~50
8'-0"	20'-0"	12'-6"	14'-0"	20'-0"	25~30

Fig. VIII.

end and works its way through to the other end and is discharged continuously. Scrapers G are sweeping the concentric tank and deliver the bark over adjustable dam H. Here may be arranged a drain plate and scrape conveyor to drain off some of the water.

The new feature with this drum is the concentric vat in connection with scrapers and the chain suspension where the tank underneath the drum is cleared from rolls, bearings, etc., obstructing the continuous delivery of the bark. Less water is necessary with this drum than with the drum floating the bark away.

I would like to discuss the different principles shown in these different types of drums. Some drums are smooth inside, while in other drums, you have a rough inside surface. Now, if you have a smooth inside, you will not get efficient tumbling. I have seen drums forty-five feet long in three sections, smooth inside, and the first half length of the drum the wood pile is sliding instead of tumbling around. I want to point out that the angles or channels are not there in order to lift the individual blocks and drag them down on the projecting legs. The barking is done between the logs themselves as shown in Fig. VIII, and you don't get more bruised wood by the use of angles inside

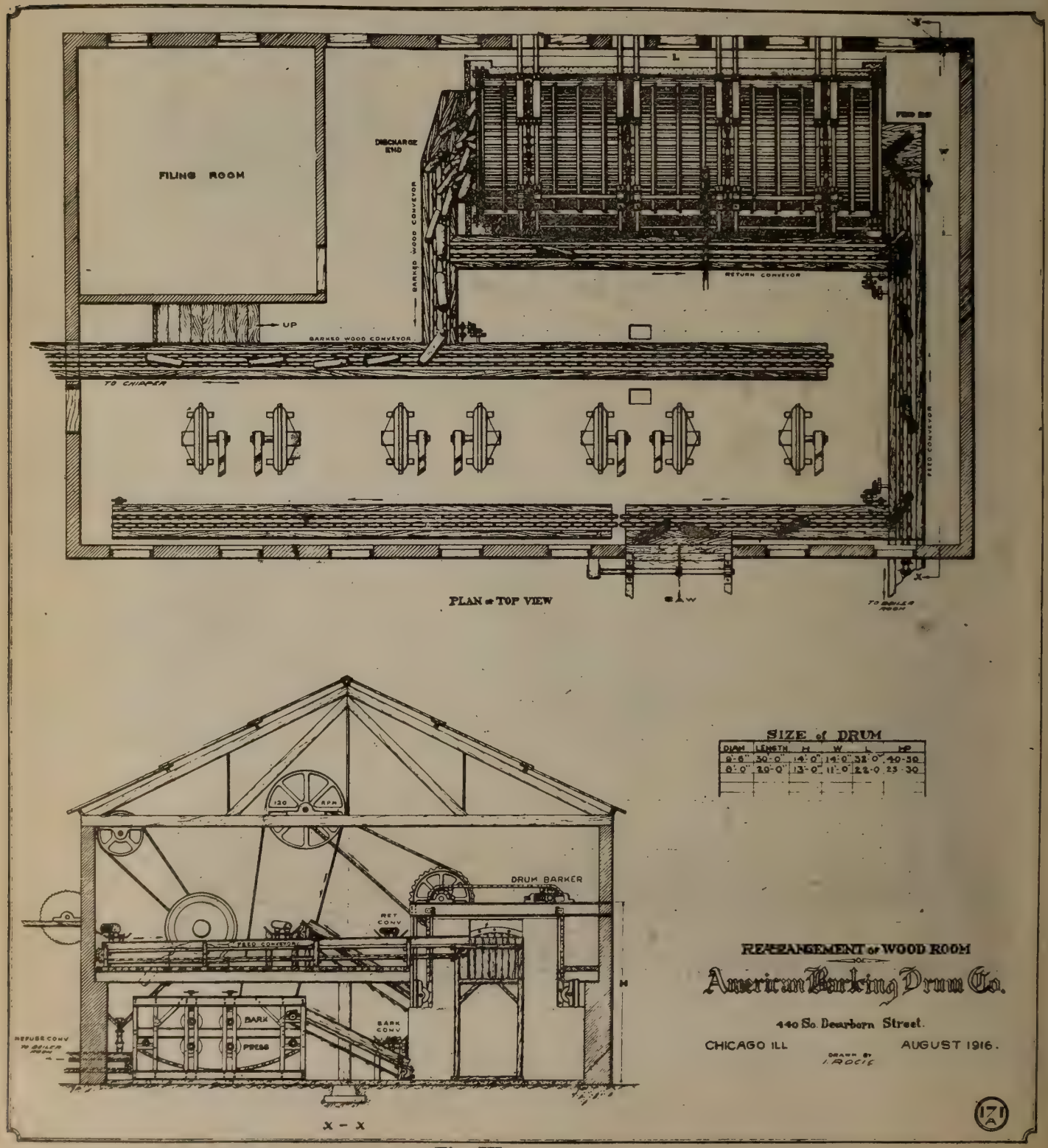


Fig. IX.

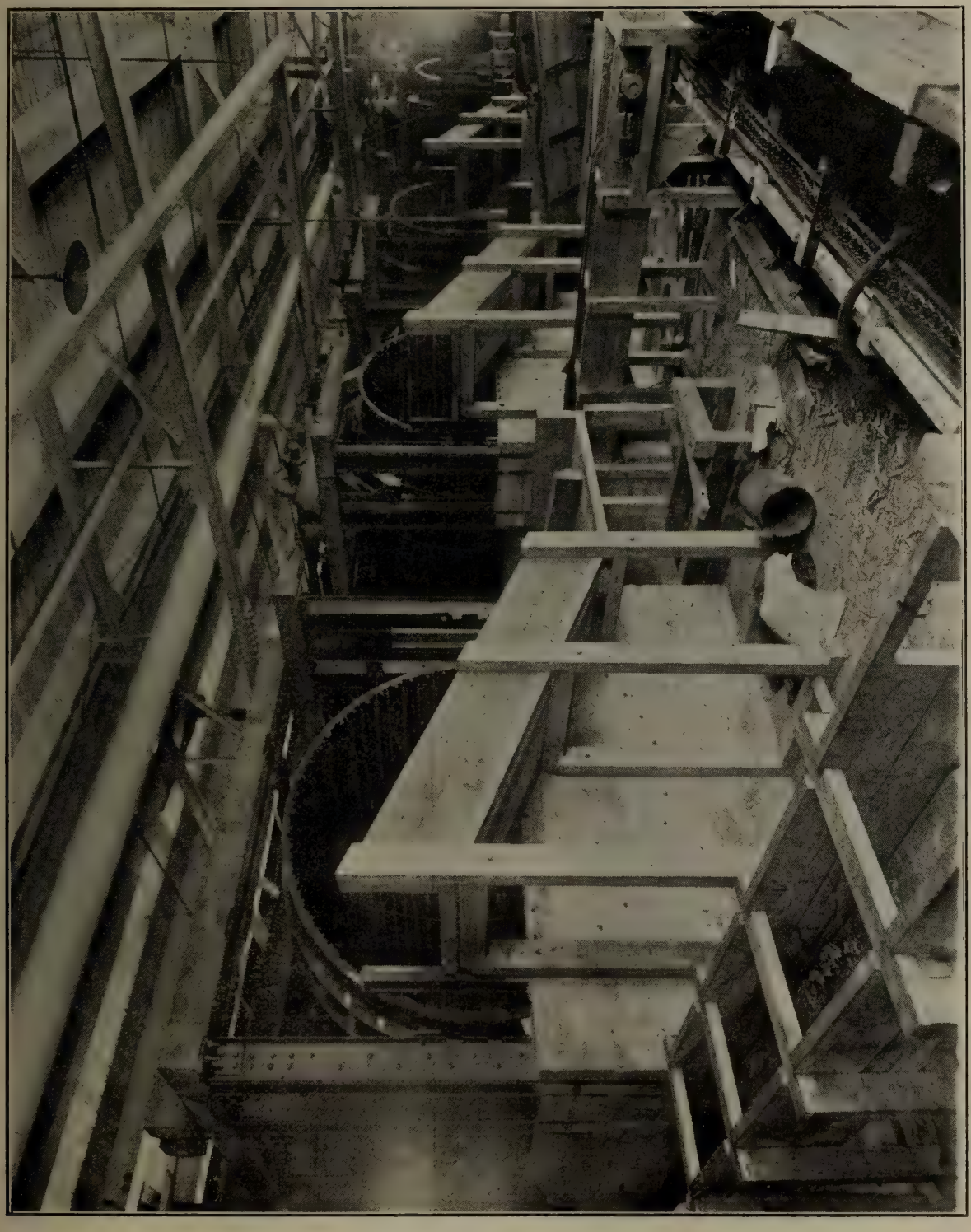


Fig. XII.
Above picture shows installation of five American Barking Drums, 8-ft. x 20-ft. at the Lake Superior Paper Co., Sault Ste. Marie, Ont.

the drum than you get by the smooth drums, because if you have the right speed of the drum, the wood will not hit the angles very hard. The bruising of the wood is done in the wood pile.

You will notice that some of the drums are inclined. The object should be to make it easier to get the wood out, but it is not necessary at all. In drums where

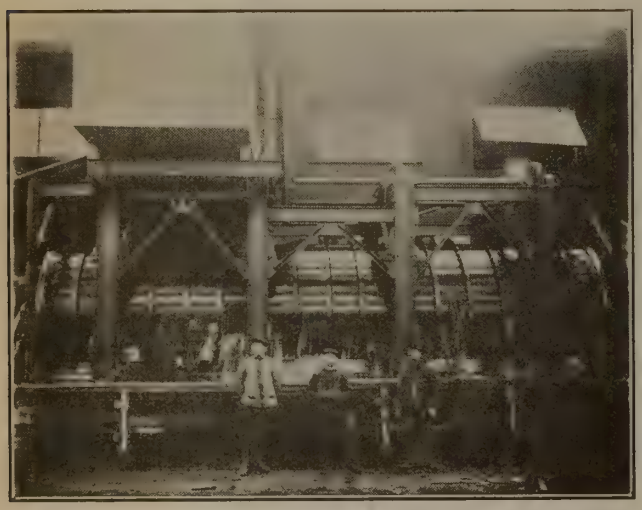


Fig. X.—Barking Drum With Steel Supporting Frame. Driving Chain Sprockets Show Above.

you are piling up wood about half full, the wood in the drum, even if the drums are inclined, will be about level, longitudinally, and the wood will be discharged, when drum revolving providing the wood pile is higher than the dam at the outlet, whether drums inclined or level. Everybody will understand the mechanical disadvantages of an inclined drum.

These different methods of barking apply to the continuous types of drums. As far as the intermittent



Fig. XI.—Bark Conveyor in Foreground Carries Bark Under a Press for Removing Water.

drums are concerned I think that everybody is convinced that these drums are inferior to the continuous on account of more labor required and because it is hard to say when the wood is properly barked. In a continuous drum this is taken care of at the outlet of the drum, where the wood not properly barked is returned by a return conveyor to the inlet of the drum.

To show how rapidly the drums are taking the place of the knife barkers we may mention that we have up-to-date installations, working or during construction, representing a yearly output of 2,000,000 cords of wood, or about 30 per cent of the total annual capacity in the United States and Canada.

Fig. X.

This cut shows a modern construction of the American Barking drum with steel supporting frame.

The outlet in the bottom of the tank is covered with a grate inside in case quality of wood is such that it is not necessary to submerge the wood in water. In this case only a spray or two is used at the outlet side of the drum to wash the wood, and the water is drained off through the grate into a sewer, grate preventing the bark from going into the sewer.

Fig. XI.

The above installation shows how easy this drum can be installed in the present wood room without interfering with the present operation of the mill.

You will observe that at the right there is a bark press where the bark from the drum is pressed to about 45 per cent dry so that it is suitable for fuel.

CORRECTION.

In our last issue a typographical error crept into the article on page 247 relating to the American Barking Drum. The proportion of mills in Wisconsin using barking drums is 50 per cent instead of 5 per cent.

ANOTHER FOREST PROTECTIVE ASSOCIATION.

The latest move in the direction of forest conservation is the formation of the Southern St. Lawrence Forest Protective Association, which takes in all the territory between the St. Lawrence River and the Maine and New Brunswick boundary, and extends from the country line between Dorchester and Bellechasse down to the end of the Gaspe peninsula. This will be under one president, but will be divided into two sections, each having a separate manager. Mr. Ellwood Wilson's comment is, "I think that this is a great step in advance and I look for the formation next year of Fire Protective Association in the Lake St. John country, which will about close up the matter for Quebec Province."

The secretary of the new association is Mr. P. G. Owen, of Quebec.

"FIRST BOOK IN FORESTRY" EN FRANCAIS

In order that the French-speaking children of Quebec Province shall grow up with a patriotic knowledge of their forest resources and what their maintenance means to the future of the country, the Canadian Forestry Association of Ottawa has issued another of its children's series: "Mon Premier Livre Sur La Foret," by Robson Black. It is being distributed free through church and civic agencies. The booklet contains 32 pages and 25 photographic illustrations and acquaints the youthful or adult reader in a most entertaining way with the forests, the forest industries, the work of fire rangers, and the inexcusable havoc of fires. This booklet makes every tree a working partner in the provincial estate and ought to make the forest resources better understood.

This is a most commendable step that has been taken by the Canadian Forestry Association and should give the future farmers and lumbermen a correct appreciation of their forest heritage.—Editor.

HOW WE HOLD OUR MEN

By FRANK DISSTON

President, Henry Disston and Sons, Incorporated.

In the following article, which appeared recently in "System," Mr. Disston tells the secret of a happy factory. High wages do not make a good job, as the darky discovered when the employment clerk at the munitions plant asked him where he wanted his remains sent. Of course, a man wants good wages. But a good workman wants to feel that he "belongs" to something worth while, to feel that he is a human part of a human organization, to feel that when he is old for one position another will be found for him. The paper mill is not essentially different from a saw factory in the possibilities for encouraging "stickers." Even if a man's efficiency, mathematically calculated, falls to 80 or even 60 per cent, the loss by keeping him on at a familiar job will usually be less than the cost of breaking in new hands who are necessarily always looking for another place where their tenure is less precarious. So keep the old men on the job, but help them do their work better. That will not only increase their life of usefulness and reduce the expense of training new hands, but will create a more human and stable organization.

* * *

Jack was a grinder — an excellent workman — but a bit too fond of his pot of ale. Sometimes he held the ale as more interesting than the grindstone and then he "stopped out" for a day or two. By all the accepted laws of good shop management he should have been discharged, but Henry Disston, the founder of our business, discharged a man only when he could think of nothing else in the world to do. He never fired in the curt way that obtains in so many shops.

Jack began to "stop out" more than he worked. At last the Disston patience broke. Mr. Disston had the choice of letting the man go or of demoralizing the department, so he decided to discharge him.

"Jack," he said — only first names are used about the plant — "this thing has gone on long enough. You'll have to clear out; you're discharged."

Jack left. But on the next morning Mr. Disston, making a shop tour, found him again at his grindstone, working as though nothing had happened.

"Jack, didn't I discharge you yesterday? What are you doing here?"

"Ah! Yes, you did," came back Jack, "but if you don't know when you have a good man, I know when I have a good boss."

Jack stayed and he did not "stop out" again; I do not know how many grindstones he wore out in the many years of steady work after that time. Certainly he must have been a heavy contributor to the wall of discarded stones that encloses the factory land.

Why it Pays to Have the Men Working "With" You.

I give this incident not as an example of how to treat men, nor as a clever retort by which a workman held his job, nor again, as a cheering thought to alcoholics; but as allustrating the spirit that has always existed in the relations between our heads and our employees. Jack was neither clever nor impudent; he was perfectly sincere in his idea that what he himself thought about his job was of equal importance with what his boss thought. He felt that he was working with the boss and not for him.

In many establishments Jack would have been only "No. 520, discharged under Rule So and So, for absence from duty," and that would have been the end of him. But Mr. Disston knew every man in the works and he had no rules. He did what he thought was right in each individual case. He felt Jack was worth another trial — and he was. Jack made good.

Henry Disston is dead, but his ideas of man management are the ideas which prevail here to-day. They have proved their worth in practice and we have never cared to change; we have no use for systems of hiring and firing; we want no tests based on this or that supposedly infallible physical or mental characteristic. In other words, we want a man, and not a machine; we think that unquestioned loyalty and an eager pride in the work are the most valuable qualities we can find in a man — and we get them.

We have 19 men who have served us continuously for fifty years or more, 90 who have served between forty and fifty years, 238 who have been here for between twenty and thirty years; and 763 have been with us for more than ten and less than twenty years.

I doubt if this record can be matched by any other concern in the United States. But immediately one will ask, "Are you running a saw works or an old men's home? Does not common sense tell you to scrap men as well as machines?"

Common sense is a matter of circumstances. We find that the best common sense is to keep a man on the job which he is accustomed, as long as he does good work and chooses to stay there. If he wants to retire on a pension, we retire him; but if he wants another job about the place we find that job for him.

When Henry Disston was asked how he made such fine saws, he answered, "Good steel and honest work." The second portion of that phrase, which has become our factory motto, is quite as important as the first. Lou might have the best steel in the world, but after all you would not turn out good saws if you did not have men who were just as much interested as yourself in making a good saw.

A man will be happier in his work if he knows that he is a real part of the concern, if he knows that he can spend all his working days with you without danger of an overnight discharge. We believe that our men deserve something from us over and above the wages we pay them, and that something is our own personal affection and interest. In return we get loyalty and good work. I think that it would be impossible for these men to turn out inferior work Should we, in a fit of lunacy, order a lowering of standards, I imagine that most of the men would quit their jobs immediately. That is the reward we would get for not using common sense or business methods of applying rules alone instead of reason.

At What Age Should a Man Go on the "Scrap Heap"?

Do we lose in point of individual efficiency by keeping men who are long past the supposed age of efficient effort? Take cases.

Ben Taylor has been with us for sixty years. Up until three years ago he could do his work as a grinder as well as anyone. He refused to take a pension and we put him on the door. He is just as good a doorman as he was a grinder.

Fred J. Smith has been straightening saws for 55 years and in the amount and quality of the work he does he is well up with the average of the younger men. Jake Noll, with 52 years of service behind him, is still doing the delicate work of blade-hardening as quickly as the men of half his age who work with him. George Harris has kept up his end as a smither for 54 years. Then his health began to fail and he asked to go on the pension list; he bought himself a farm and, in two years, had so recovered that he came back for his old job. He worked for another two years before he again went on pension.

Harry Piper, with 51 years of service behind him, operates a lathe as well as he ever did. Isaac King and William Riehl have been with us for 51 years, and Austin Carter for an even 50. All three of these men are as good as ever they were. It is the same story throughout the whole list of long-term employees.

How the Long-Term Employees Make the Plant a Better Place to Work.

The theory that a skilled mechanic is useless after he has passed the fifty-year mark is not based on fact. The older man can not always move about so rapidly as the younger man, but where the work requires care and skill without much physical activity I would take the older in preference to the younger man. The arbitrary scrapping of men because of age is a sheer waste of economic effort. "Old age," we find, is a comparative term and is something more than years.

These men add stability to the establishment and avoid the constant supervision which an irresponsible working force requires. The boys they trained as apprentices are working side by side with them and absorb the traditions of the shop. They, too, catch the spirit that the most important thing is good work — that they are part and parcel of a big, human machine which is creating a product that must be kept at a certain established standard.

The attitude of the corporation toward the men is well expressed in an address by the late Hamilton Disston, the eldest son of Henry Disston, to the men, after the death of the founder:

How the Management Thinks of the Men.

"We are aware that while inventive talent may design and intelligence direct, it is in the skill, industry and honest labor of the workmen that success must be sought, and that by their exertion the world-wide reputation of the Keyston Works has been maintained; and upon their efforts, directed by intelligence and prudence on our part, depend future prosperity and success.

"It is not necessary that we should give you any assurance of our esteem for you as men, of our confidence in you as mechanics, or of our determination to follow in the same liberal and generous course hitherto pursued, remembering the persevering effort, forgetting the occasional failure to succeed.

"As no honest workman ever appealed in vain to Henry Disston for sympathy or assistance, or failed to receive a just return for industry or skill, so we assure you that our intercourse with you will be guided by the same honorable principles.

"Relying upon our knowledge of the business, stimulated by past success and ambitious for the future, confiding in your skill and trusting to your pride in the works which you have assisted to establish, we are convinced that the well-earned character of our manufactures will be maintained and the range of their usefulness extended."

That was the then head of the works speaking to the associates of his father. To understand that what he said was not mere words, it is necessary to understand something of the development of the Disston works.

Some of the Founder's Effective "Man Policies."

Henry Disston started as an apprentice to the only saw-maker of the time in the United States; his employer failed in 1840, and Henry, taking some tools and steel in lieu of wages, started a saw works of his own in a Philadelphia cellar. He was the whole works and also the whole selling force; he had no capital and no credit. The jobbers were used to the English saws, and they would have nothing of the domestic make. He was confident he made a better saw than any other man and he almost forced people to buy them. The business grew slowly at first, and then more rapidly. Always the idea was to make the best possible saw and this standard could be kept up only by men trained to careful work. He trained all his workmen, and some of those men who worked at the same bench with the great mechanic are employed at the works to-day.

The boss and the workmen went through good and bad times together. When the plant burned down they all pitched in and built another. When the Civil War came on, Henry Disston told the men that he would give volunteers a bonus of half the army pay and hold their jobs open. A company was formed and went to war; the survivors came back to the shops. The force was a sort of family, and a family it has always remained. Its history repeated itself last summer, when the same arrangement was carried out with the forty employees who answered the call of the militia and served on the border.

Henry Disston had five sons. Three of them went into the shops and worked on a par with the mechanics for seven or eight years, the fourth went into the accounting department, and the fifth studied outside before going into the management. Samuel Disston spent fifty-nine years in the shops, starting when only eleven years old. He served a full apprenticeship in many departments, becoming later a salesman and then for many years secretary and general manager. The corporation is a close one and almost every Disston who comes into an executive place first takes from five to nine years in the shops so that when he goes into the office he is not only a practical saw-maker, but he also knows the men as "Jack" and "Bill," and the men know him in the same intimate way. An identity of interest is established: there is no wondering what the new boss is like — the men have known him as one of the team. The only executive who is not a Disston is E. B. Roberts, a vice-president, and he worked his way up in the office.

As the executive is a family affair, so is the personnel of the force. Henry Disston took on indentured apprentices; now indentures are done away with, but we hold to the apprentice system.

How Boys Are Trained in the Disston Plant.

We take a boy of fifteen or sixteen, put him at ordinary tasks, and, if he proves bright and capable, start him as an apprentice when he reaches seventeen. He works at apprenticeship wages until his majority, and then he goes on the journeyman list. There is no rule about selecting the boys, except that a boy whose father or grandfather worked in the place is certain

to be tried out; we want those to whom working in the Disston works is the natural thing to do; thus we have hundreds of fathers and sons and scores of grandsons. For instance, there are three generations of a number of families throughout the works.

The "big family" idea is carried into the home life. When the works was firmly established, and Henry Disston saw the need for room to enlarge, he bought several hundred acres on the Delaware River at Tacony. He reserved fifty acres for the expansion of the plant and divided the balance into building lots. He organized building and loan associations, helped out with second mortgages, and in every way encouraged individual effort toward home owning and home building. To-day most of the employees own the homes in which they live. There is no welfare work, however; the men are too independent for that — they are given the means for doing their own welfare work.

The men have a mutual insurance or benefit association which is managed solely by themselves and a condition of membership is employment in the Disston works. They announced that they did not care to have a regular contribution from the company, and accordingly the company gives nothing except on the rare occasions when financial help is acutely needed. The company stands ready to help, but helps only in time of stress.

In the same way a man who, through illness or other misfortune, suddenly needs money can come unhesitatingly to the office and is personally loaned whatever funds he needs. It is a purely personal affair and he does not have to make a formal application or go through any humiliating red tape or investigations. He knows the officer with whom he is talking and the officer knows him — more than likely they have worked together and certainly they have often spoken with each other.

On the recreation side is the Disston Athletic Association, with a fine playing field. The soccer team won the championship of the United States and the baseball nine took the industrial championship of Philadelphia last summer. We find that the men are just as eager to have the name Disston ahead in athletics as they are to have it ahead in factory products.

The whole thought of our establishment, and the reason that we gain such extraordinary loyalty, is that we work with our men and they work with us. There is no gulf between the shop and the counting room. We expect the men to come to us with their troubles, and they do come as to friends. We know them and they know us.

We make the working conditions just as favorable as possible; we never drive, and we do not expect a man to wear himself out. Most of the work is on a piece basis and when the day's quota is done the man may go home or work on, just as he chooses. The men know that the shop conditions are as nearly perfect as we can make them, because they see the future heads of the concern working side by side with them, not merely for a month or two, but for from five to ten years. They know that we do not ask them to do anything which we have not done ourselves nor which we are not willing to have our own children do.

In short, we try to keep away from the very idea of capital and labor and to get on the man-to-man basis. For instance, we have no fixed age at which an employee is entitled to retire on a pension, and neither have we a fixed pension. Generally the pension is half the wage which has been received in actual work, but sometimes we pay more than this amount. We put the age limit as a purely individual affair. If a man thinks he deserves a pension, we talk the matter over and if we agree, he gets the pension.

I think this personal relation is the ideal way of running a business, although I suppose it is old fashioned. But old-fashioned or not, it produces results. Few of our men leave and nine out of every ten who leave come back again for their old jobs; the discharging of a skilled workman is so rare as to be an event. The whole labor turnover during the year 1915 was only 34 per cent, and yet this was high because extraordinary conditions lured away some of the unskilled and semi-skilled laborers. The turnover among the skilled men was less than 5 per cent, and this is on a basis of 3,600 employees.

What does all this amount to in dollars and cents? We have a happy institution, but is it an efficient institution? You cannot have a permanently happy working force unless the stockholders have a fair return upon their money — that is why so many humanely-managed concerns have failed to make ends meet.

Yes, working together pays. It has paid us through more than three-quarters of a century of steadily growing business. We have been able constantly to better quality; we have been able to install labor-saving machinery without opposition, for the men know that the machines are put in to aid them and not to take away their jobs. We have been able to lower production costs without sacrificing standards. We have made money.

Are not some of the so-called efficiency methods in handling workmen merely an attempt to substitute rule for understanding — to get a human machine because the employer does not know how to get a fellow workman?

We put our chief trust in men; they know it — and make good.

LAKE WINNIPEG PROSPECTS ARE BRIGHT.

The Lake Winnipeg Pulp and Paper Company which was recently incorporated by Ottawa parties appears to have excellent prospects of being one of Canada's leading mills. It is the first big mill to be built in the Prairie Provinces. At first sight the location seems a bit difficult of access, but a little study of the situation shows that this is not the case. Grand Rapids, the site for the mill, near the upper end of Lake Winnipeg, and 250 miles from the city of Winnipeg. There is available 50,000 horse power, which will all be developed. The dam will carry tracks for two railways. The Canadian Northern is now within 80 miles of the Rapids and the Canadian Pacific within 125 miles. This is the only point for crossing the Saskatchewan River to connect Winnipeg with the Hudson Bay division of the Canadian Northern.

Coal can be brought in barges from the Alberta fields down the North Saskatchewan River to the mill. Water transportation is also available to and from Winnipeg for part of the year. Unlimited supplies of lime stone are practically within sight of the mill. Plenty of pulpwood can be obtained from settlers and lumber men for years before timber limits need be touched. Sulphur can be brought in by several routes. The plan is to make 200 tons of news and later make substantial increases in the plant.

LARGER PROFITS IN HIGH GRADE PAPERS.

The financial statement of the Howard Smith Paper Mills, Ltd., is interesting for the light thrown on conditions in another branch of the Canadian paper industry in 1916. The Wayagamack statement, representative of the Kraft branch, and the Riordon Statement, representative of the sulphite pulp branch, have already revealed the prosperity that part of the industry has been enjoying. The Howard Smith Company statement demonstrates that trade conditions had operated also to the advantage of the makers of high grade papers.

Complete comparisons are not possible, as the statement is the first to be issued for general information, but a foreword to the report states that the company produced 4,866,496 pounds of paper in 1916, an increase of 789,148 pounds over 1915. The increase of close to 20 per cent in production is substantial, but its monetary value is still more so. Sales for the year were $694,966, an increase of $295,254, or approximately 74 per cent.

Net profits for the year are given as $159,437, and while there are no comparisons to make, the earning position had improved so materially that the company was able to declare within the year 21 per cent in dividends on the preferred stock, wiping out arrears that had been accumulating since the beginning of 1914. After writing off, depreciation, etc., totalling $49,659, the balance available for dividends was $109,778. Allowing one year's preferred dividend of 7 per cent, the balance earned on the common stock was $76,528, equal to 14.6 per cent on the $525,000 stock outstanding prior to the issue of $537,500 new stock at the end of the year. The paying off of two years' preferred arrears, however, absorbed $66,388, and when provision had been made for $10,950 as business profits tax, the balance carried forward from 1915 had been drawn down slightly, from $33,659 to $32,850.

The profits for the year were made entirely out of the Beauharnois plant, where new machinery is presently being installed with a view to doubling output. The output of the plant is said to be sold for three months ahead at satisfactory prices. The new Crabtree plant, for which additional common stock was sold towards the end of the year, is running on manilas and newsprint and is sold four months ahead,, also at good prices. Plans are being prepared, however, for the conversion of this plant to bond papers. As to general conditions, the president notes in his report:

"The imports of paper in Canada are still large, but are showing some decrease; there is ample business in Canada for the entire output of our mills, but at Beauharnois and Crabtree, and although many tempting offers have been made us to export high grade papers, our whole supply has been kept for the Canadian market."

As to this, it is claimed that in an effort to secure a permanent Canadian market for the mills' output, the company has been holding prices at approximately the same level as in the United States, despite the heavy duty operating to the advantage of Canadian producers.

Leading features of the balance sheets of the past two years compare as follows:

	1916.	1915.
Current assets	$411,940	$179,113
Current liabilities	140,014	162,005
Plant, etc.	1,199,277	513,241
Goodwill, etc.	270,682	463,877
Total assets	1,939,455	1,223,925
Bonds	178,320	28,260

THOROLD INDUSTRIAL EVENING CLASSES.

Several members of the advisory committee of the above classes paid a visit to the school on Tuesday evening last and thus obtained a view of the students at work, visiting first the English and Mechanical Drawing, under the charge of Principal Bonis and Principal Lorriman respectively. They found in both classes about fifteen students, most of whom have been constant attendants at the classes since they opened, many of those in the Mechanical Drawing class it was noticed belonged to the class of middle aged men, who are foremen in the mechanical departments of the leading industries of the town and vicinity. A visit next to the chemical laboratory found a good class of young men and women who are evidently possessed of the "staying" quality, and who, under the direction of Miss M. Fraser, have made considerable progress in familiarizing themselves with the atomic and other interesting theories of the subject. They then passed on to the electrical class, under the direction of Mr. Black. The students in this class were not quite so numerous as might be expected, but it was pointed out to the committee that the work in this class was somewhat hampered by the lack of the direct current for use in experiments. Mr. Carruthers, chairman of the committee at once promised to try and remedy this defect immediately. This completed the visits of the classes after which the pupils and teachers assembled in one room in order that the committee might address them. Mr. Carruthers, President of the Interlake Tissue Mills, and chairman of this committee, was asked to make a few remarks. He said he was gratified to see so many students still attending this school and that, although many had fallen off the roll since the opening night, this was inevitable, and had to be looked for. He said they should all feel proud to be able to say that they belonged to the only evening class of its kind in the country, but that he had no doubt that before long, schools of this nature would spring up in different places, each suited to the nature of the industries carried on in that locality, and he hoped to see in the near future, a string of schools stretching from coast to coast. This in his opinion is the only possible way in which Canada will be able to hold her place in the world, after the war, as we shall then be unable to import any trained men from other countries as has been done in the past. He went on to state the advantages which were to be gained by attending these schools, having had five years at evening classes himself, and said that if any young man who was studying in this school, and who had made satisfactory progress, was not satisfied with his promotion, that he would find him a position and so long as he made progress with his studies, he would be promoted accordingly. He also made the offer, when referring to the chemistry class, that he was willing to give any two young men, who had made good, a two years course in the Technical College in Toronto. Mr. D. Daverin was asked to speak. He said that he could not add further to what Mr. Carruthers had said only, that as superintendent of one of the industries, he would back up Mr. Carruthers and do everything possible for the advancement of the pupils. Several others made a few remarks and the students were dismissed.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Adsorption of Caustic Soda by Cellulose.—Alan Leighton, J. Phys. Chem., p. 32, (1916).—The author concludes that merceration is not the result of the formation of a compound between the cellulose and NaOH.

Author states that a standard and reproducible cellulose can be obtained by heating absorbent cotton with 1% NaOH for 18 hours on the water bath.—A. D. C.

The Adsorption of Acids by Cellulose.—Alan Leighton, J. Phys. Chem., p. 188, (1916).—A good article for anyone interested in cellulose chemistry.—A. D. C.

Abnormal Adsorption by Filter Paper.—R. V. Murray, J. Phys. Chem., p. 621, (1916).

A Cotton Substitute.—Paper Maker's Monthly Journal, Vol. 55, No. 2, 1917, p. 50.—A plant known as **typha** which grows almost any place where there is water has recently been discussed in "Le Matin" as a substitute for cotton. It is easy to cultivate as it grows from seed and also by dividing up its root. The plant bears a pod which opens when ripe and scatters its contents. The plant upon analysis was found to contain almost pure cellulose.—E. K. M.

Increased Efficiency in Felling and Bucking.—Paul E. Freydig, Canada Lumberman, Vol. 37, No. 1, 1917. —An outline of a practical system to improve logging output by paying premiums.—H. N. L.

Utilization of Lumber-Mill Waste. — R. L. Watts, Power, Vol. 45, No. 5, 1917, pp. 136-8.—From the 48,000 lumber mills in the U. S. it is estimated that 36 million cords of wood in the shape of refuse is annually wasted. Much is burned in boiler furnaces while the surplus is destroyed in burners. This article tells how one Pacific Coast company uses all its refuse, (sawdust, shavings, slabs, etc.) in the generation of steam for its own and other isolated steam plants. Photographs and diagrams show the storage-house, conveyor, and furnace.—H. N. L.

To Prepare Bleaching Solution.—International Number, Paper Maker and British Paper Trade Journal, 1915-16, Vol. 51, p. 25.—Tanks used for the preparation of bleaching solution are usually made with a capacity of 1,000 to 2,500 gallons, the most convenient size is one in which either one or two whole casks of bleaching powder can be used. The temperature of the water used should not exceed 70 deg. F., and it is better provided the bleach settles well, to keep as near 60 deg. F. as possible. The tank is filled about two-thirds full of water, the agitators started and the bleach dumped in. Agitating from 10 to 20 minutes is sufficient for strong bleach. The most common method is to make the bleach up stronger than desired, and to mix in second tank with washes of other tanks until the required strength is reached. The loss in sludge should not exceed 1 per cent of the total amount of bleach used in making the solution. The strong bleach solution is usually made up to about 7½ deg. to 8 deg. Baumé, and after dilution it tests from 3½ deg. to 4½ deg. Baumé at which strength it is used in the washers. —E. K. M.

Cost of Cutting Large and Small Timber.—W. W. Ashe, Canada Lumberman, Vol. 37, No. 1, 1917.—A discussion of the sizes of timber which can be cut at a profit. Tables based on diameters from the smallest to the largest sizes show the time required for felling and bucking, skidding, loading, and sawing. Both hard and softwoods are considered.—H. N. L.

The Manufacture of Asbestos Boards.—International Number, Paper Maker and British Paper Trade Journal, Vol. 51, 1915-16, p. 11.—A short fibred asbestos is employed in making asbestos boards; a long fibred asbetos is used for making paper. Even the dust produced in the working of asbestos is utilised, by collecting it by means of exhausters and charging it with the other waste into the beaters. If the asbestos is purchased in a crude condition it is put through an edge runner. The charge in the beater is generally composed of 80 to 90 per cent asbestos, 20 to 10 per cent kaolin and about 3 per cent collodium. Some cellulose or mechanical pulp may be added if the boards are not to be used as a fire proofing material. The strength of the board can be increased by an addition of 10 per cent beaten linen half stuff without the fireproofness of the board being essentially impaired. The blades of the beater should be about ⅜ inches wide. About a ton of finished board is made on a two cylinder machine. Fourdrinier machines are rarely used. The cylinder moulds, 30 to 34 inches diameter; are covered with a No. 4 or 5 brass wire and over this with a No. 40 or 50 phosphor bronze wire cloth. The boards which are taken from the making roll contain 57 to 62 per cent water, are placed between press cloths, and run on trucks under the hydraulic press. The pressing requires three or four hours. If the pressure is too great or if increased too quickly the boards will either burst or stick together. The asbestos board is used as an insulating material for steam engines, for enveloping iron structural work in a fireproof manner, for making packing rings for steam points, etc. Shaped pieces are made by softening asbestos board in water, pressing it in moulds, and finally drying it.—E. K. M.

NEW PATENTS.

(Courtesy of Chemical Abstracts).

Coating for glazed paper. N. Statham. U. S., 1,209,222, Dec. 19. A coating composition for use on glazed paper is formed of an alkaline solution of casein mixed with light precipitated $CaCO_3$.

Coated paper, etc. H. C. Mitchell. Brit., 12,873, Sept. 8, 1915. In the application to paper and other similar material of a surface capable of being removed by India rubber in the production of artistic effects, lamp-black, graphite, or color in the condition of dry powder is applied in a known bronzing or similar machine, a cleaning or burnishing roller or brush removing any loosely adherent particles. French chalk or other similar whitening or softening agent may be mixed with the powder for producing shades of gray and other softened effects.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

The St. Croix Paper Company of Woodland, Me., has just acquired stumpage rights to about 50,000 acres of timberland located on St. Croix River waters. It is understood that the stumpage rate per thousand feet is but little more than the present rate of stumpage on the river, and the Paper Company gets the timber without assuming any risk of fire and expense of taxation. Under the terms of the lease, the Paper Company is to cut 8,000,000 feet, more or less, each year.

John P. O'Brien, formerly a paper manufacturer in Windsor Locks, Conn., has withdrawn from the proposed Gardner Paper Company, capitalized for $200,000, and in which a number of business men of Gardner, Mass., are interested. Mr. O'Brien proposed the organization of the new paper company early last fall, and succeeded in interesting Gardner capital as well as securing the support of the Gardner Business Men's Association for the proposed new industry. According to a statement made by Joseph P. Carney, one of the organizers, Mr. O'Brien's withdrawal will not interfere with carrying out the original plans of the organizers.

The National Association of Waste Material Dealers' will hold its annual convention in New York City at the Hotel Astor, beginning March 18. The annual meeting is scheduled for Wednesday morning, March 21. It will be preceded by meetings of the executive committee and of the various divisions.

The American Writing Paper Company has awarded a contract to the Casper Ranger Construction Company for the erection of a two story addition to the Dickinson Paper Company, division mill at Holyoke, Mass. The new addition will cost about $5,000.

Directors of the Barrett Company have adopted plans calling for an increase in capitalization. They say that part of the surplus will be distributed to common stockholders in the form of stock dividends. The company proposes to amend its charter, increasing the authorized preferred stock from $5,000,000 to $12,500,000 and the common from $15,000,000 to $25,000,000. Stockholders will be asked to vote on March 16 on the new financial plan.

The new paper machine which is being installed at the plant of the Hawley Pulp and Paper Company at Oregon City, Ore., is about 230 feet in length. It weighs 600 tons and makes a sheet of paper 152 inches wide trimmed, with a speed of 725 feet a minute. This machine is equipped with 32 five foot dryers. This machine has over 130 different steps of speed obtainable through the very ingenious control device built by the General Electric Company.

At a recent meeting of the directors of the Westfield River Paper Company, Folke Becker, formerly superintendent of the company's mill at Russell, Mass., was made mill manager, and Louis Dozier was chosen as superintendent and assistant to Mr. Becker. The same officers and directors were re-elected. With the completion of two calendar stocks the mill is now in complete operation, turning out 16,000 pounds of bleached glassware a day, for which a ready market has been found.

In order to permit extensive improvements in the plant of the Hampshire Paper Company, Inc., at South Hadley Falls, the entire manufacturing end of this establishment was closed down last week for an indefinite period. The improvements will include changes throughout the factory and will entail a considerable expenditure. According to a representative of the company, the mill will be closed for four or five weeks.

Work is progressing rapidly on the new paper mill for the Kalamazoo Vegetable Parchment Company at Kalamazoo, Mich. Bricklaying is completed to the height of two stories on all the structures, while contracts have been let for all machinery and some of this has been shipped. It is expected that the mill will be in operation by fall.

The Wolverine Paper Company of Otsego, Mich., has re-elected the following directors and officers: Directors: G. W. Rouse, A. B. Gilman, A. A. Wheat, F. B. Heath, G. W. Rouse, A. B. Connable, C. A. Peck, F. D. Stevens, George E. Bardeen; President, A. G. Gilman; Vice-President, F. K. Heath; Secretary, S. B. Monroe; Treasurer, A. A. Wheat. C. A. Buskirk has been retained as resident manager.

Conservation of the country's forests as a means of ensuring a future paper supply was urged in a statement issued by Carl Vrooman, assistant secretary of agriculture. The paper problem. he said, primarily is a forest problem and can be solved by reforestration and scientific forestry to keep up a continuous production of pulp woods.

"At the present moment," the statement said, "we are using daily 6,000 tons of newspaper, and this increasing at the rate of 10 per cent a year. We need about 7,000,000 cords of pulp a year for all our paper products, and at present only two-thirds of this supply is grown in our own forests. We import a third of our newsprint pulpwood from Canada, and between 15 and 20 per cent of the pulpwood used for our other paper products from Europe. Since the war this latter source has been cut off."

The Missouri Press Association is urging the State Legislature to establish a paper mill to be operated by the convicts of the State. The association is fostering this measure as a means of keeping the cost of print paper down.

The United States Forest Products Laboratories have just reported on the results of cooks recently made of Noble fir, Lodge-pole pine and western hemlock to determine their suitability for pulping by the sulphite process. Noble fir, according to the report, produced a pulp of reddish tinge and with a long coarse fibre. Log pole pine, however, has a fibre that is very similar to spruce fibre — light and fairly strong. Western hemlock also produces a fibre with a reddish tinge, though somewhat longer than the fibre from Eastern hemlock.

The first step towards the operation of a State-owned paper mill has just been taken in Minnesota by F. A. Day. Through him a bill has been introduced in the State Senate to withdraw from sale all State-owned water power that have a possible average development of 100 horse power or more; also all State-owned lands which would be overflowed by the full development of such water powers. By the terms of the bill the State Auditor is directed to list such water powers and lands and their estimated value as soon as possible. The Board of Control is directed to investigate the feasibility of having the inmates of the State Reformatory engaged in the manufacture of paper in a mill to be operated by the State. The bill carries an appropriation of $15,000 to the auditor and $5,000 to the forester for its purpose.

At the recent meeting of the Associated Ohio Dailies it was decided that members should put the figures they are paying on a sheet of paper and submit them to George E. Hosmer, of Denver, chairman of the National Editorial Association, who was in attendance. It is said that the prices ranged from $2.15 to $7 per hundred, and that Hosmer left for Washington to present the figures to the Federal Trade Commission, which has been investigating conditions. No names were given, the various publishers having been placed on their honor to truthfully give the figures they are paying for print.

McGRAW AND HILL PUBLISHING COMPANIES CONSOLIDATE.

The McGraw Publishing Company, Inc., and the Hill Publishing Company, New York, have been consolidated as the McGraw-Hill Publishing Company, Inc. The new company acquires all the properties and interests of the two constituents, including the following technical journals:

Electrical World, Electrical Railway Journal, Electrical Merchandising, Engineering Record, Metallurgical and Chemical Engineering, The Contractor, American Machinist, Power, Engineering News, Engineering and Mining Journal, and Coal Age.

Two of these papers, Engineering News and Engineering Record will be consolidated under the name, Engineering News-Record, with Mr. Charles Whiting Baker, now editor of Engineering News, as editor-in-chief.

Mr. James H. McGraw will be president of the new company, Mr. Arthur J. Baldwin (now president of the Hill Publishing Company) vice-president and treasurer, and Mr. E. J. Mehren, vice-president and general manager.

U. S. COMMERCE REPORT ITEMS.

The dyestuff industry in Switzerland has been greatly hampered by the lack of coal tar and sulphuric acid.

Experiments on the use of nettle fiber as a substitute for cotton are very promising. It is estimated that in Austria there is sufficient uncultivated land to produce sufficient nettle fiber to replace the normal cotton imports of Germany and Austria.

Efforts are being made by Scandinavian capitalists to obtain concessions in Argentine for the cultivation of native fibers and manufacture of twine, bagging, etc.

At present paper pulp is more expensive in England than rags, so that the latter are being used in many cases instead of pulp.

Question Drawer

The object of this department is to supply information of a practical nature to meet the needs of men in the mills. This object will be attained only by the co-operation of mill men, so that the experience of workers in different branches of pulp and paper manufacture may be at the disposal of others having similar problems. Not only will questions and answers be welcome, but a frank discussion and criticism is cordially invited.

(This department is conducted with the co-operation of the Technical Section of the Canadian Pulp and Paper Association).

Question 5.—Can fish glue be used for tub sizing of paper and for coating? Yours truly.

KALBFLEISCH CORPORATION BUILDS SOUTHERN PLANT AND ENLARGES ERIE CHEMICAL WORKS.

The Kalbfleisch Corporation, the capital stock of which is owned by the Franklin H. Kalbfleisch Company, of 31 Union Square, New York, is about to complete the construction of a large chemical plant at Chattanooga, Tenn.

Ground was broken for the factory early in June, 1916, and has progressed rapidly since.

The site of the factory comprises 32 acres of "Moccasin Bend" of Tennessee River in North Chattanooga and is an ideal location for manufacturing purposes.

The plant when completed will manufacture Paper Makers Alum and Sulphate of Alumina and have a capacity of 24,000,000 pounds per annum, and is to serve the southern trade of the Kalbfleisch Company. This is the only plant of its kind south of the Ohio River and east of the Mississippi River.

The Corporation has acquired extensive Bauxite Ore properties in Tennessee and Georgia. This Ore is one of the principal raw materials required in the manufacture of Sulphate of Alumina.

Of particular interest to the manufacturers of papers in Canada is the enlargement just completed of the Erie Chemical Works, which is owned by the Franklin H. Kalbfleisch Company.

One of the principal products of this plant is paper makers alum and the additional plant facilities doubles the output of this material. Additional side tracks, connecting the new buildings have been installed and are now in operation.

The additional plant facilities and equipment cost approximately $100,000. This is the plant of the company which supplies the Canadian trade.

NORWEGIANS IN TROUBLE.

The stoppage of our sea-borne trade must soon bring about a crisis in those industries which are dependent upon coals as fuel, even when the dispute with the British Government about sending coals to our country has been settled, of which there is, unfortunately, as yet no prospect.

About 50 per cent of the paper machines of Norway are already standing idle, and there will be a complete stoppage in the paper and cellulose trades within a month, unless they can get coals. And the Mechanical Pulp mills will have to take a curtailment of production under consideration, when their stocks accumulate because they cannot get goods away.—Farm and.

PULP AND PAPER NEWS

Paul Buss, son of Charles Buss, superintendent of the Mille Roches plant of Provincial Paper Mills Co., has taken a position in the draughting department of the Port Arthur Pulp and Paper Co., who have temporary offices in the Bell Telephone Building, Toronto.

W. D. Woodruff, President of the Lincoln Paper Mills Co., Merritton, Ont., has returned from spending a month a Jekyll Island, off the cost of Georgia.

Sam'l Jardine, selling agent for Penman's felts, who met with an accident on January the 2nd, by which he sustained a broken hip, is now making a good recovery and expects to be out again in a month or so.

A federal charter has been granted to the Canadian Consolidated Press, Limited, with a capital stock of one million dollars and head offices in Toronto. The company is empowered to manufacture, buy and sell goods and merchandise of all kinds and to carry on the business of printing, publishing, lithographing, engraving, advertising, and all allied lines. Various other powers are granted to the company.

Four more publications printed in foreign languages which contained objectionable matter have been excluded from circulation in Canada under the consolidated censorship regulations. The periodicals placed under the ban are: World's War Chronicle, Philadelphia, The New York Untiset, Viereek's American Weekly, New York, and the North Star, Fitchburg, Mass.

* * *

Upwards $10,000 for patriotic purposes has been raised by the Laurentian Chapter of the Daughters of the Empire by the collection of waste paper through the medium of their "paper scheme" in Ottawa.

The project was first launched in the summer of 1915 when the profit in waste paper was realized. Large wooden boxes were distributed about the city, in which bundles of old newspapers, magazines, bags, etc., were deposited.

A report recently issued shows that since the commencement of the scheme that $9,246 has been received for the sale of collected waste paper. The expense of collection amounted to $1,204.

Over five hundred and fifty tons have been gathered since the start, and it is stated that if householders would give more co-operation that the quantity could be doubled.

MORE PAPER WENT TO NEW ZEALAND.

Canada shipped into New Zealand in eleven months of 1915, £201,697 of printing and £94,531 of other paper, while for the same period in 1916 the figures were £268,557 and £174,549. During 1916 the shipments of all kinds of paper from Eastern Canadian ports suffered a considerable decrease, possibly due the fact that there were four boats less in the trade.

FOREST PROTECTION BILL BEFORE THE SOLONS.

Provisions for fire protection in Northern Ontario were explained in the Legislature last week by Hon. G. Howard Ferguson. The north country will be divided into three districts according to transportation facilities. Each under a superviser under the provincial forester to be appointed under the act. Under these supervisors will be five chiefs and rangers. The foresters' department will have entire charge of the system of fire ranging, assessing the cost upon the permit holders. The department will take charge also of safety appliances on railways.

Drastic power is given to the provincial forester. He can require limit holders to clear a fire hazard. If they fail to do so when ordered the forester may have the work done and collect the cost from the permit holder. Similar power is given to municipalities. In case they regard any person's uncleared lands as a fire hazard they may complain to the provincial forester and if the owner fails to clear the land the municipality may have the work done, charging the owner in his taxes.

During February, 96 employees of the Dryden Timber and Power Company contributed $83.25 to the Patriotic Fund. The majority of gifts were for 50 cents but the cumulative effect of these small gifts was a very substantial total.

THOROLD, (ONT.) NEWS.

Mr. S. F. Duncan, secretary-treasurer of the Provincial Paper Mills Co., Limited, was in Thorold during the week, visiting the Montrose Division of the company.

Twenty-five employees of the Ontario Paper Co., Thorold, were in police court the other day charged with trespassing on the Grand Trunk property. They were allowed to go and advised to take another route to and from their work.

Mr. Jack Halladay employed as master mechanic at Beaver Board's plant at Thorold, while working at a pump had the misfortune to get his finger caught which was severed at the first joint. Dr. Publow was called and had the injured member quickly dressed.

Edward McIntosh met with an accident while working on the construction of the new mill of the Lincoln Paper Mills Merritton. A plate which was being used on the construction work fell, striking him over the left eye inflicting a nasty gash which required five stitches. He was removed to the G. and M. hospital where the wound was dressed. He was able to leave for his home the following day.

The Lincoln Paper Mills, Merritton, was the scene of a small blaze the other day, but by the good work of the employees and town firemen it was quickly extinguished and the damage done was very slight.

S. F. Duncan of Toronto, secretary-treasurer of the Provincial Paper Mills Co., is spending a few weeks with his wife and family at Daytona Beach, Florida.

R. S. Waldie, President of the Toronto Paper Mfg. Co., Toronto, has returned from a holiday trip to South Carolina.

The F. N. Burt Co., Limited, Toronto, has taken out supplementary letters patent increasing the capital stock to three million five hundred thousand dollars.

A charter has been granted to the Kingsdale Box Co., Limited, with a capital stock of sixty thousand dollars and headquarters at Kingsdale, Ont. The company is empowered to carry on a general business as timber merchants and to deal in wood of all kinds. Among the incorporators are Benj. Ross, of Newmarket; J. H. Noble and J. D. Collie, of Aurora.

Several pulp and paper men from Toronto will attend the dinner to be tendered Capt. J. H. A. Acer, of the 244th Battalion (Kitchener's Own), late President of the Canadian Pulp and Paper Association, at the Ritz-Carlton Hotel, Montreal, on March 16, on the occasion of his leaving for overseas.

The Port Arthur Pulp and Paper Co. expect to break ground for their new mill at Port Arthur, on April 1st. A. G. Pounsford, general manager of the company, and Thomas Murphy, chief engineer, left this week for that city to make all preliminary arrangements and award a number of contracts. The following telegram was sent Mayor D. J. Cowan, of Port Arthur, by I. H. Weldon, president of the company, on March 10th. "We beg to advise you that we have decided to locate our pulp and paper mill at Port Athur and accept the agreement approved by the city of Port Arthur and the Hydro-Electric Commission. We will proceed with the erection of the plant at once and rush construction with the expectation of being in operation this fall. We wish to thank the council and citizens of Port Arthur for their patient efforts and assure you that, with your co-operation, we will not be a disappointment to you." It is expected that the head offices of the company which are temporarily located in the Bell Telephone Building, Toronto, will be removed permanently to Port Arthur early in May.

The new cylinder wrapping machine, which has been installed at Sault Ste. Marie, Ont., by the Spanish River Pulp and Paper Mills, was put in operation last week. The machine will trim 100 inches and will have an output of thirty-five to forty tons a day. Wrapping paper for the various plants of the company will be made for some time, after which it is probable that board of various kinds will be turned out. In the sulphite plant at the Soo the work of erecting the third digester will be completed in May next. The digester is 54 x 17½ feet. Four new, concrete, acid towers have been completed and four more will be built. Each is 110 feet high. Robert Wolf, manager of manufacturing for the Spanish River Pulp and Paper Mills, has removed to the Soo and is now discharging his new duties.

The new Technical School in Toronto, which cost two million dollars and has accommodation for seven thousand pupils, may institute special instruction for pulp and paper classes. A communication has been received by the Advisory Industrial Committee of the Board of Education from the Canadian Pulp and Paper Association asking for full particulars as to cost, etc., of giving a six months' or one year's course at the Technical School for ten or more first-class papermakers who want special coaching in scientific subjects. It was stated in the letter that these men did not need instruction in paper-making, but would be sent at the expense of the Association for a special scientific course including mathematics, mensuration, physics, chemistry and draughting. Principal McKay explained that the whole matter would lie in the teacher's salary. The school has the room and the equipment and, roughly speaking, the salary expense would be about two thousand dollars a year. The matter was left with Principal McKay to arrange some definite date for the consideration of the Pulp and Paper Association.

A. G. Pounsford, late safety engineer of the Ontario Pulp and Paper Makers' Safety Association, and A. P. Costigane, his successor, attended the moving picture exhibit at Hawkesbury last week, when films loaned by the National Safety Council were shown. In the evening nine hundred persons saw the interesting portrayal of safety measures and the good work that has been done along this line. All the mill employees of the Riordon Pulp and Paper Co. were in attendance and addresses on the work of the Association were delivered by Messrs. Pounsford and Costigane. In the afternoon the picture show was patronized by the school children of the town in large numbers.

Pacific Mills, Limited, of Ocean Falls, B.C., will shortly commence the erection of a second plant, which will have an output of one hundred and twenty-five tons of paper per day. Kraft and other lines of paper will be manufactured. The new paper plant has been about completed and will have a capacity of one hundred and ten tons daily. When both units are going about seven hundred men will be constantly employed.

STEVENS-AYLSWORTH BUILDING ALLEN-MOORE CELLS.

One of the new industries in the United States and Canada, which has sprung up since the war, has been that of the manufacture of chemicals and dyestuffs, Much machinery used in its manufacture, formerly imported from Germany, is now being made with great success on this side. Of the concerns building such apparatus, the Stevens-Aylsworth Company, Limited, of Toronto, have given this branch of their business special study. Apparatus for the manufacture of all kinds of dyes, chemicals, explosives, and so forth, has been designed and built by their Engineers. They will design and build apparatus for producing any desired product.

One of their recent achievements has been the designing and building of a vacuum drier which was required to be tin coated on the inside. Formerly these machines were only procurable abroad. They have also built over a thousand Allen-Moore electrolytic cells for manufacturing chlorine and caustic soda. Quite a number of these plants have been installed by the pulp and paper manufacturers, for the manufacture of their bleach, and are in successful operation throughout North America.

AN ATTRACTIVE CATALOG.

The Downingtown Manufacturing Company, East Downingtown, Pa., has issued a very complete catalog, describing and illustrating their extensive line of pulp and paper making machinery. It comprises some 80 pages, bound in loose leaf style. Quite a number of pages are taken up with the machines of Jensen og Dahl, of Norway, which the Downingtown Company make and sell on this continent.

The Technical Section of the Canadian Pulp and Paper Associaiton

Minutes of the meeting of the Council of the Technical Section, held at 700 University Street, Montreal, 19th of February, 1917.

Present: Dr. J. S. Bates in the Chair; A. O. Browness, G. W. Dickson, C. B. Thorne, and the Secretary.

Funds: The Secretary reported that in response to Doctor Bates' request, the Executive of the Canadian Pulp and Paper Association had approved the policy of giving financial support to the Technical Section. After reviewing the work of the various committees it was decided not to approach the Association for money until a committee had properly organized itself for definite work. The committee and members of the Technical Section who show the greatest initiative and readiness to accomplish useful work will be given the strongest financial support.

Secretary: It was arranged to have the secretarial duties treated as sectional work by the Association Secretary, Mr. A. L. Dawe. The new Secretary is well equipped for this work at the Association headquarters, 801 Shaughnessy Building, Montreal.

Printing: The Secretary was instructed to have new letterheads, envelopes and application forms printed for the use of the officers and committees. A number of changes in form and style were recommended.

Publications: The following methods of supplying members with information were considered advisable:

(a) Circular letters in mimeograph form to be sent out by the secretary from time to time, containing notices of meetings, minutes of council meetings, items of current interest, etc.

(b) Preprints in leaflet form to be sent out in advance of meetings covering papers to be given, or abstracts thereof, reports of committees, etc.

(c) Current publication in the Pulp and Paper Magazine of papers presented at meetings, reports of committees, records of meetings, abstracts and general proceedings. If possible, a definite portion of the Magazine will be allotted to the Technical Section.

(d) One annual "business" volume, including lists of officers, committees and members, by-laws, reports of committees, records of meetings, business transacted, financial statements and such proceedings which are not of a technical nature.

(e) Standard filing sheets or such other forms as may be decided upon for reproducing papers and discussions, standard methods, abstracts of literature and other transactions of technical interest. It is hoped to place technical information in the hands of the members in such form that it can be arranged systematically and readily referred to.

In connection with the above, the Pulp and Paper Magazine has agreed to reproduce past and future transactions in suitable form. The members are reminded of the special subscription rate of Three Dollars per annum for the Pulp and Paper Magazine.

Committee on Literature: Mr. O. F. Bryant was reappointed chairman. It was agreed that this committee should arrange, if possible, to co-operate with the (American) Technical Association of the Pulp and Paper Industry in the abstracting of literature. The committee should also supervise the publishing of papers, discussions, abstracts, etc.

Committee on Technical Education: Mr. T. L. Crossley re-appointed chairman. It was recommended that the committee look into the educational facilities throughout the country for mill-men who might be sent by the mills for a course of six or twelve months duration in technical subjects (preferably with special reference to paper-making). The example of Thorold should be followed in providing night classes for machine-men, foremen and others. A good deal might be done through the Safety First movement.

Committee on Samples: Mr. C. B. Thorne was reappointed chairman. It was recommended that the committee continue the excellent policy of collecting samples of Canadian-made pulp and paper each year. These samples are on exhibit at the Forest Products Laboratories, Montreal, for reference for anyone interested at any time. It is hoped that the Committee can later collect samples of paper products imported into Canada and also papers used in export markets which might be manufactured in Canada.

Committee on Standards: Mr. J. A. DeCew was reappointed chairman. It was felt that this standing committee might keep the members in touch with standard methods and specifications developed by other associations and also bring forward improved standards bearing on pulp and paper materials from time to time. It was suggested that the committee refer the members to standards adopted by other associations from miscellaneous materials such as coal, oil, etc.

Committee on Testing Moisture in Pulp: Mr. O. Bryant was appointed chairman, particularly with the idea of having the Forest Products Laboratories serve as a clearing house in this investigation. Steps were taken to procure the best men available from the mills to serve on this committee. It was suggested that the committee first explain the purpose of the investigation to the mills and enlist their full co-operation. Present methods in Canada, United States, England, Scandinavia and elsewhere would then be studied. These methods would then be tried out on laps, rolls, sheets, etc., and experimental work would be carried out on a proper scale to establish correct results. Tentative standard methods might then be formulated for the consideration of the mills with a view to final adoption of satisfactory standards.

Meetings: It is hoped that the June Meeting will take the form of visits to mills, and definite notice will be given later.

For the October meeting a programme on better grade papers was suggested. Mr. Bowness agreed to make arrangements for papers.

Co-Operation With American Association: It was felt that much could be gained by co-operation between the Canadian Technical Section and the Technical Association of the Pulp and Paper Industry of the United States, especially in abstracting literature, working out standards, etc. To this end the American Association has requested joint conference of the two councils in March.

A hearty vote of thanks was presented to Mr. Roy L. Campbell for his valuable services as secretary during the past two years.

The Markets

CANADIAN MARKETS.

Toronto, March 13th, 1917.

The fixing of newsprint prices by the federal government is still the chief topic of conversation in Canadian pulp and paper circles. It is understood, on good authority, that manufacturers, while agreeing to the rate which has been laid down, do so only for a period of three months and that no contracts are being entered into for any length of time. Conditions are so uncertain, the raw material market so changing, labor so scarce and other things so speculative, that, if at the end of three months, the manufacturers find that they cannot make newsprint at the figure named and have a profit, they will have the privilege of going before the Ottawa authorities and submitting evidence and statistics which will be duly considered. If these are weighty and convincing enough, the government may increase the price.

In the whole of the Dominion there has been only one paper which has made any adverse criticism of the action of Sir Thomas White and its fairness and broad-mindedness is favorably remarked upon on all sides. That paper is Toronto "Saturday Night," which last week said editorially, "Far be it from a publication house, using many tons of paper per annum, doing anything which might tend to increase the already high prices of this product, but, at the same time, we must take exception to the high-handed methods of the federal government in respect to arbitrarily setting a maximum price at which paper manufacturing companies may sell their product to Canadian users. There is no great national emergency calling for such an action on the part of our law makers. One might just as well argue that the price of zinc and copper and other products, which go into the making of a periodical, and which have advanced to an even greater extent than has paper, be by law restricted in price within certain limits. If we are to abrogate the law of supply and demand in one instance, why not in others? Boots and shoes, for instance have advanced on a scale fully equal to that of white paper. Why does not the Government come forward and tell manufacturers that hereafter twelve dollar boots must be sold at $6.50, the price previous to the war? It would seem that the war is getting on the nerves of our government to the point that they can no longer see that interference in economic laws is a dangerous practice, and one not to be indulged in at the behest of a lot of newspaper publishers, just because they are newspaper manufacturers and not boot manufacturers. If newspapers desired to do the decent thing, they would raise the price of their product, putting it on a proper manufacturing basis, and they would also pay their full and just share of the postage account, in place of riding along on the back of the government, paying what is probably equivalent to fifty per cent of the cost of sending their papers through the mails. In place of that they sit back well content to accept all the pap the good gods provide, and, at the same time, enlist the government to aid them in setting a maximum price on newsprint—a price, by the way, far below what this paper can be sold for in the United States."

It is refreshing to hear such a candid admission and defence of the paper mills from such a leading journal and the views expressed coincide with those of the producers on all sides. However, the thing has been done and the manufacturers of newsprint must accept what has been laid down. They are not disposed to quibble over the situation until they have given it a fair trial and one optimistic sales manager put the whole affair in the following language. "Why not fix a maximum price on potatoes. Not a word is heard on this score from the government. However, matters may work out better for the mills than at first supposed. It will standardize and stabilize the price of newsprint in the days to come and forever remove the possibility of paper receding to the figure that it sold at before the war. Every plant will be on the same selling basis and, when the output is definitely known, all mills will be able to calculate their earnings—I am not saying profits—to a nicety. As to the right of the Federal Trade Commission at Washington to fix the figure, at which newsprint may be sold by Canadian mills to United States consumers, it has been asked what right or jurisdiction have the powers at Washington to adjust quotations of Canadian mills. Well, speaking in a strictly legal sense, perhaps they have none but Canadian mills will have to agree, for the reason that, if they refused to accept the ruling, Washington might amend the tariff and place an embargo on all newsprint entering the United States. At present paper, five cents and under, enters duty free and, before the regulation was altered the figure was two and a half cents and under. Over that there was an ad valorem duty of twenty-five per cent. If we declined to acquiesce in the figures named two and half cents at mill, the old order of affairs might be imposed. We have yielded for the same reason that we have accepted the decree of Sir Thomas White, who threatened us with an embargo on our exports if we did not come across and, as our business is largely foreign, what were we to do? You see that we are getting it both coming and going. The one thing that I feel sorry about is that, in the negotiations and adjustment, the small publisher who buys his paper in less lots than car loads has been hit the hardest. The agitation of the Canadian Press Association, which was undertaken — primarily they would have us believe — in the interest of the smaller chap has not redounded to his benefit to the same extent as the larger owners have fared."

Groundwood pulp is going exceptionally high in price and as high as sixty dollars delivered is reported in some cases. Sales have been made by Canadian plants at fifty dollars. Mills at Niagara Falls, N.Y., are paying as much as twenty-three dollars for rossed wood shipped from the south shore of Quebec and half of this is balsam. Wisconsin plants are becoming thoroughly alarmed and have offered up to thirty-five dollars per cord, delivered, in that state. An Ontario plant has proferred thirty dollars per cord delivered for rossed wood naming five thousand cords and the order has not yet been filled. In an address delivered some time ago J. A. Bothwell, told the pub-

lishers in Chicago that there would be a ground wood pulp shortage before next fall, and this is daily becoming more accentuated.

Reviewing the situation a leading manufacturer remarked to the Pulp and Paper Magazine this week, "As the man power in Canada is manipulated at present there will not be more than sixty-five per cent of the necessary wood sent out of Canada to the United States mills this year. The wood has not been cut. The lumber mills on the Ottawa river, three of which cut fifty million feet of timber last year, decided not to get out any more timber until conditions had improved. Wages of men have doubled, the average cost of board in the camps is two and half times greater, the feed for horses in the woods is extreme particularly with respect to oats which animals, doing this heavy work, must have in abundance, The railway people are taking months before cars are available and the new United States ruling with respect to the interchange of cars at the border lines is also a serious handicap. This is the opinion of those who have gone through the experience and if they are wrong they would like to know wherein. It is, of course, hard for the American people to understand the underlying conditions in Canada where over four hundred thousand of her best and bravest men are at, or going to the front, a great many of whom have been drawn from the woods all the way from Halifax to Vancouver. Five forestry battalions are being recruited, representing approximately five thousand men who will enter the service and go to England and Europe to cut timber for mine props and trenches. The prediction of Mr. Bothwell will come true long before next fall as the American mills using Canadian wood and buying from Canadian pulpwood jobbers will realize."

In regard to book and writing papers, one leading firm stated this week that fully five-sixths of their annual output was contracted for already and delivery asked for within the next thirty days. "Of course, we cannot fill orders within that time and there may be many cancellations, but we are not worrying about that," they added. "We are doing the best we can and that is all any mortal can undertake under present circumstances."

There has been no change in the figure for sulphite pulp which remains at the same quotations as for months past. One Canadian mill has had an embargo placed on everything which it uses. These restrictions are now being removed by the railways, but several thousand tons, which should have been shipped, are still in storage. Conditions are, however, getting better in the transportation line, but there is no large surplus available from Canadian plants. Jobbers report business for spring as opening up wonderfully well and the tendency, which was exhibited some time ago to hang back, is disappearing. All plants are working to capacity and whether prices will ascend remains to be seen.

The following quotations prevail, f.o.b., Toronto.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$42.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

RAGS AND PAPER STOCK.

There is no change in paper stock prices. While there is a good demand yet the mills are paying low prices on old books and ledgers. The embargoes have been causing some difficulty, but all shipments are getting through now. The demand for rag stock is still very quiet. The mills are not buying roofing stock and all dealers are carrying reavy stocks. Old white cotton, satinettes and tailor rags show a decline in quotations from last week.

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.05
White blanks	2.10
Heavy ledger stock	3.00
Soft ledger and writings	2.30
No. 1 magazine	1.60
No. 1 book stock	1.50
No. 1 manila envelope cuttings	2.80
No. 1 print manila	1.45
Folded news	0.95
Over issues	1.25
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	4.50
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75

Bleached and Unbleached

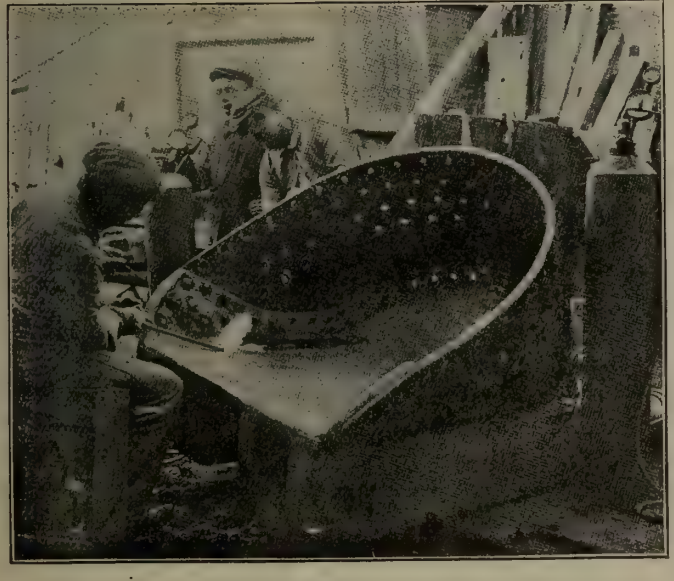
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New light flannelettes	5.25
Ordinary satinettes and flock	1.60
Tailor rags	1.60

CHEMICAL MARKET.

The market for paper makers' chemicals remains firm. Prices on spot lots are high on account of freight congestion. The only change is in brimstone, which is $27,50 to $35.00 at the mine, or $45.00 in New York. Other items remain unchanged.

NEW YORK MARKETS.

New York, N.Y., March 10, 1917.

The general situation in the market is strange. Authentic reports from Holyoke, one of the greatest centres in the country for fine writing and cover papers, state that quite a number of machines have become idle during the past week or a little longer. One or two mills, it is known have shut down for repairs. On the whole (these reports come from salesmen who have just come from this territory) the air in the Holyoke section is not altogether an active one. Strange to says, this is the only part of the country, from what we can learn, that has been so affected. Throughout the West and in the other paper making districts, the mills are said to be going in full swing. Of course, the bear movement on the part of a good many jobbers is still going on. However, the situation in the pulp markets tends to show how futile any attempts to get paper very much lower will be. It is not expected that there will be anything extraordinary in the way of buying for some time. This is accounted for by the fact that aside from trying to bear the market, the jobbers are at the same time afraid of further advances. One thing seems to be common — and that is that they are determined not to stock up at the very high prices which are now predominant or which are likely to prevail in the very near future. Up to this stage, the paper manufacturers have remained steadfast in most cases, holding to what they consider rightful prices, despite the fact that the trade may consider very high.

In the pulp markets, the situation is growing stronger and stronger from day to day. Just where it is leading to, no one can say, but it is certain that it is bound for some level, much higher than that already been reached. Words cannot describe accurately the situation in ground wood. The prediction is being freely made that one will soon be fortunate to get any of this pulp, even at $60 per ton. As a matter of fact, the market seems to be almost completely sold up, for few, if any of the grinders report much of a surplus available for the open market. Prospects for an increased production, within the near future, are rather poor. In the first place, the season is now approaching when the mills will be troubled with the anchor ice, so familiar to every manufacturer, and generally so inevitable during the spring of the year, when the ice in the river starts to break away and float. Aside from this little problem, the question of getting necessary commodities to continue operating without cessation is very uncertain. It is true that the authorities are dealing with the freight situation personally and are giving it every desirable attention, but relief is slow in coming and, in the meantime, the securing of coal and other supplies is somewhat of a precarious problem. War talk is more animated now than it has been since the moment of its inception and, in every piece of calculation that is made, consideration is always taken of the unforeseen conditions, many of them very serious, which will undoubtedly arise in the event of an actual declaration of war with Germany. The inability to get sufficient supplies of pulpwood from Canada will be materially felt in a short time, if it has not already touched a vulnerable spot. It should be interesting to note that those in the trade who are well acquainted with conditions, regard the fact that the Canadian Government will not allow freight cars laden with pulpwood to cross the border as a matter of more than passing importance. As it is impossible to say when the freight situation will be cleared up in sufficient shape to allow the resumption of normal shipping facilities, one cannot tell when these embargoes will be lifted.

Chemical pulps maintain their strength, probably because of the sympathy with mechanical pulp, but largely because of the manne rin which the Germans are following out their plan of ruthless submarine warfare.

Stocks on hand on domestic docks are said to be rather small, with apparently little to offer. Dealers are holding firmly to high prices despite the fact that the demand seems to have fallen off a little, probably because of the fact that the buying in paper has eased up a little. Dealers, however, are not influenced by this fact, feeling that the situation in chemical pulps must grow worse and that a scarcity will be felt in the near future that will be worse than anything thus far known. Domestic stock is holding strong, following the action of the imported pulp. Manufacturers report that they have not been able to cope with the question of increasing production to do any real good to the market. As a matter of fact, it is said that there is considerable difficulty to be had in getting supplies of domestic pulp even at the high prevailing prices.

The demand for rags continues rather dormant. Dealers are doing their best to contend with the situation which is said to be very trying. Apparently little interest is being manifested by the consumers, for they claim to be in no real need of stock. There seems to be little doubt that a great deal of stock is available and that some of the dealers had been storing rags in the hope of thus forcing the market up, as they were accused of having done a year or so ago. The mills, however, are working in very orderly fashion and are not buying any more than is needed from time to time. The fact that there has been a material falling off in the buying of paper is most likely having some influence on the demand for paper stock. Good white shirt cuttings are still holding to about over 9c; old white rags are reported at about from 5c to 5½c; house soiled whites are said to be obtainable at about 3½c; street soiled white at 3c; thirds and blues, at 2¾c; black stockings, at 2½c; roofing stock is moving, but not to any excitable degree and prices are just about maintaining their own.

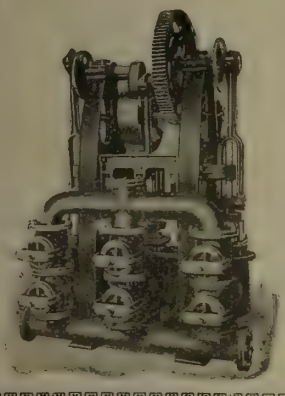
Bagging appears to be holding fairly well, with a good inquiry current. There is said to be considerable stock available — just enough to keep the market from going too high. However, there seems to be a realization that England is not intending to allow much of this stock over to the United States and that the future may have something uncertain in store. As a matter of fact, it is not likely that, as long as the Germans keep up sinking everything in sight, there will not be much of anything coming over from Europe. Prices are holding fairly well. Gunny is somewhere

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about 3½c; bright bagging is being quoted at about 3¼c; bright bagging at about over 2½c; mixed bagging, at about 2¼c and a little higher. There is no material change in the status of the rope market. A good demand continues to be reported with prices ranging as high as 6c.

Old waste papers have been improving materially, as we stated would most likely occur. This appeared inevitable because of the heights that were being attained by mechanical and chemical pulp. According to reports, there is a good demand for practically every grade, the paper manufacturers doing whatever they can to reclaim stock, rather than purchase the pulp. It is most likely that, as time passes, this condition will affect the waste paper market more and will accordingly enhance the value of the stock. The best hard white shavings are said to be in good demand at about 6c and higher; soft white shavings have been reported at 5c and higher; magazine stock is up near 2c; ledger stock has reached the 3c mark; old manila cuttings, of the better grade are up as high as 1½c; krafts continue to hover above 3½c; the greatest demand appears to be for old news of the various grades. The acute scarcity of this stock is rapidly forcing it up higher. Over-issues is now said to be at about 1½c; mixed papers are holding to about 80c to 85c per hundred pounds.

As we have stated, the paper market is still in a quandary. Nothing seems to be definite. With regard to newsprint, it is true that the Federal Trade Commission has declared a price of 2½c on carload lots, but this seems to be only the beginning of what is to come. Many of the manufacturers have not yet agreed to this price and it is possible that they will not come into the agreement at all. In such an event, they would not be bound by the 2½c price and could ask whatever they deemed just for their paper. In the other paper makets, conditions have changed but little, if any. Tissues are strong, despite the fact that buying has not stiffened nor has it shown any tendency to increase in volume. Book papers are in good demand, in some grades. Prices continue prohibitive without any prospects of lowering. It must be remembered that the manufacturers in this line have been the subject of an investigation on the part of the Federal Trade Commission and that, if all of the newsprint men accede to the demand of this body, it is possible that the same authority may be over the book men by the Commission. Wrappings are fairly strong, with the exception of fibres. Boards are holding their own in price.

New York Quotations.

(These are a nominal range of prices).

Ground Wood, f.o.b. mill.....Up to $50 a ton
Foreign bleached sulphite, ex-dock, New York .....10c and higher
Foreign easy bleaching sulphite, ex-dock, New York .....6c and higher
Domestic bleached sulphite, f.o.b. pulp mill .....8¼c and higher
Foreign unbleached sulphite, ex-dock, New York .....5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York.. ..... 5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill .....5¼c to 5½c
Easy bleaching, f.o.b. pulp mill .....6c and higher
Kraft pulp, f.o.b. pulp mill .....6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York .....6½c to 7c
Bleached soda pulp, f.o.b. pulp mill...5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York .....6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. .....6½c to 7c
Bond papers, sulphite .....12c and way up
Best grade writings .....20c and higher
Regular superfine .....18c and higher
Ledgers papers .....13c and way up
News, contracts, f.o.b. mill $2.50
News, spot lots $2.75
Book, super.....9c and higher
Book, coated .....8c and higher
Tissues, good sulphite, bleached, per ream.....$1.30
Tissues, ground wood, manila, per ream $1.30
Kraft .....9c and higher
Manila ..... 7c and higher
News board, per ton, f.o.b. New York.....$70.00
Straw board, per ton, f.o.b. N.Y. $65.00
Chip board, per ton, f.o.b. New York.....$65.00

TRADE INQUIRIES.

578. *Paper agency.—An importer having a good connection with the Lancashire paper trade, wishes to hear from Canadian exporters of newsprint and other classes of paper, with the object of representing them throughout the country.

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The territory having been traversed successfully, a follow-up system has been inaugurated whereby their products will be given all publicity possible.

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FINNISH AND SWEDISH RAILWAY CONSTRUCTION.

According to a recent issue of Mercator (Helsingfors), the construction plans for linking the Finnish and Swedish railway systems have been drawn up with a view to the completion of the work by the autumn of 1918. The bridge over the Tornea River, between Tornea and Haparanda, is to be a single-track bridge, but in view of the fact that the Russian railway gauge is wider than the Swedish two sets of rails will be laid. The bridge can thus be used by both Russian and Swedish rolling stock, though not at the same time.

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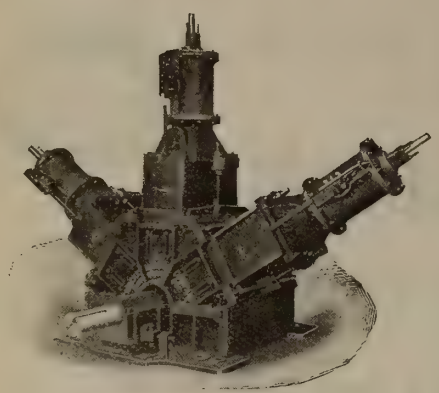
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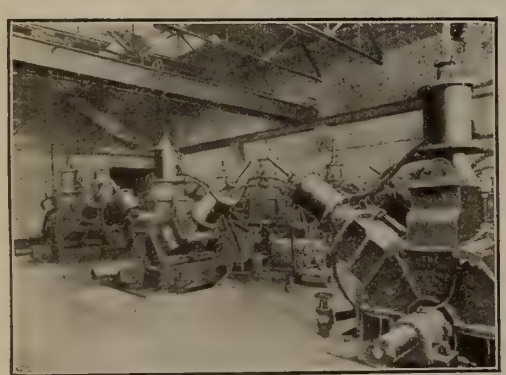
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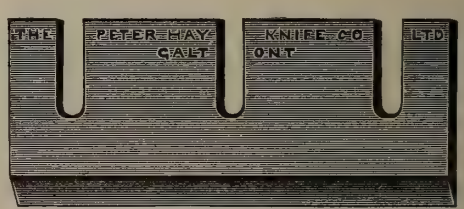
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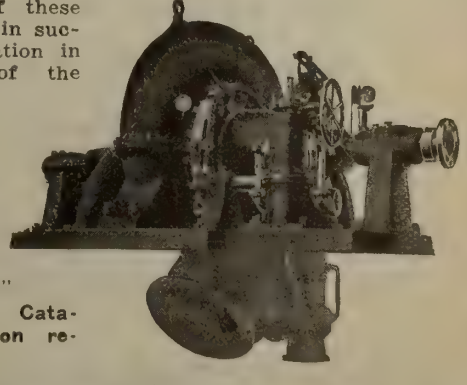
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J. NEWELL STEPHENSON, M. S., Editor.

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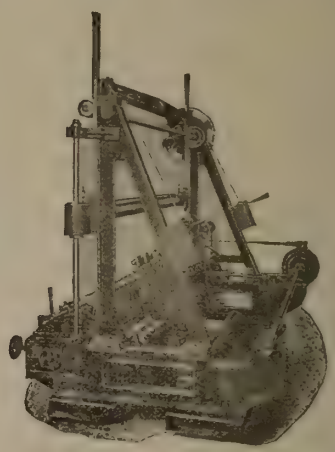
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EDITORIAL

WAS THE COMMISSION FOOLED?

Is it possible that the Federal Trade Commission has unwittingly got into an unfortunate position? Our contemporary "Paper" has observed that the Commission rather hesitatingly accepted the role of arbitrator between publishers and manufacturers in addition to its duties as an investigative body. The fact that it has recognized as a fair price for newsprint, a figure at which some mills can not buy their raw materials would indicate that the commission did not finish the inquisitive part of its work.

Many paper makers believed that the minimum price to be agreed on would be at least $55 a ton. This is the price the Canadian mills proposed to the Ottawa Government as a fair price. But $50 was the figure finally agreed upon; now, if this is the rock bottom price for Canada, and Canadian mills can produce newsprint at an average of $5 a ton cheaper than American mills, there is good reason for the unpopularity of the Commission's suggestion that $50 is a fair price.

Nothing is fair that is not fair to both sides. It is therefore to be hoped that the Commission will consider the circumstances of the industry at large, and not a few favorably situated mills, before it attempts to force the acceptance of such a price. It is especially necessary at this time that production be encouraged at all mills capable of making newsprint. The lack of paper for small publications, without contracts, was one of the points to be investigated by the Commission.

We fail to see how they can get it if production is discouraged. The sympathies of the public were stirred by the newspapers for the poor publisher who had to pay prices reported excessive. Perhaps some of them were excessive. That is where we ought to get information from the Commission, and that is where a better price to the small publishers would be of greatest benefit to the public, and obtained with least loss to the manufacturer.

That a sane body of men should propose $50 on newsprint when the market price on the fibre in it is as much or more, is simply ridiculous, unless this body was either influenced or misinformed.

TRAINING PRIVATES OF INDUSTRY—WHY?

In these days if intensive cultivation, of agriculture, industry and other things the intelligent application of scientific principles lies at the bottom of success. The principles may be common knowledge to the manager, superintendent and technical staff, but the intelligent application of them can only be assured by having intelligent workmen. Unlike the poet, who is said to be born, not made, the paper maker must be born and also made. He must be given a special training. This may be acquired in various ways, some of them very unsatisfying and unsatisfactory.

There are many men in fairly responsible positions who cannot write out their daily reports. This is largely due to giving a man a job just because he is husky and is needed to shovel lime or sulphur, to dig rag stock or hustle "broke." In the course of time he becomes familiar with the obvious mechanical operations, and an occasional vacancy or emergency puts such a man in charge of an operation. During his years of service he has had no opportunity and little if any encouragement to acquaint himself with the principles of paper making or even the fundamentals of language and arithmetic, in some cases. How could such a man be expected to make intelligent use of specific gravity chart?

Next let us turn to this man's children, and he usually has a lot of them. If he gets to be head beater man or a sulphite cook or an acid maker he may be able to afford a grammar school education for the younger children. The older ones are probably already in the mill, the girls in the rag room, on the calenders, etc., the boys as reel boys, or helpers. The little schooling they have had soon makes them wish for more, and the lack of an immediate opportunity to get more education is likely to stifle the sprouting desire, and discourage hope of getting to a position of authority. So they settle down to a job, and a workman who has no prospect but a job is not likely to be very enthusiastic about it.

One very often hears a workman say, "I wish I had a better education." And it is usualy a good workman who feels that way about it. It is really a misfortune to industry that such a man hasn't a better

education and a greater misfortune to the country that he is not offered an opportunity to get it. Having a better education, a better training, would make him a better workman, worth a better wage. This would make it less imperative that his children quit school at an early age to help eke out the family income, and so in their turn, when they go to work, they will be better workmen than their father.

As Dr. Robertson has said, "When properly trained for his job, one of the first effects observable is that the workman likes his work, understands it, has ability to do it well, and therefore is sure of obtaining reasonably good returns. The finest and highest of such developments are in the character of the man. . . . What is required is that the individual worker shall possess intelligence, practical ability and co-operating good will. These are not inherited; they are acquired by education and training."

PUBLISHERS BENEFIT BY INCREASE IN PRICE.

The perusal of an article in "Printers Ink" gave us a somewhat uncustomary view of the newspaper situation. The names are given of 175 newspapers in the United States and 20 in Canada that have increased the price of their paper. Out of 2,648 daily newspapers published, this is not a very large proportion. Grocers are not so bashful about charging more for sugar when the wholesale price goes up.

A curious fact in this connection is that many of these papers have grown in circulation, either in spite of, or because of their increased price. Some papers say the extra cent is not objected to by their readers and that enables them to get out a much better sheet. Other papers have cut out their joke and other feature columns and reduced the size of type and number of words in headings so as to have more room for advertisements, or to permit of using less paper. These changes and cutting out pictures saved one paper two pages daily and four pages Sunday. Many papers have cut down their exchange and free copy lists and decreased the number of papers returnable by dealers.

The propriety of these changes is well supported by the opinion expressed by E. Norman Smith of the "Ottawa Evening Journal," who says that a daily newspaper is no longer a luxury to the business man and householder, but a necessity, and at two cents there is no other necessity that he can buy so cheaply as the newspaper.

It has been stated that the average newspaper costs from three to five cents to produce and receives about 25 per cent of its revenue from subscribers and 75 per cent from advertisers. Some publishers believe more of the burden should fall on the reader and less on the advertiser.

That the increased cost of newsprint is not wholly a misfortune is indicated by the opinion of Lafayette Young, Jr., publisher of the Des Moines Capital, who says: "Personally, I have been of the opinion that the increased cost of print paper in the end will be a Godsend to newspapers and all other publications. In the newspaper field it has already compelled reforms which should have been made twenty-five years ago, but which publishers generally did not have the nerve to adopt."

Another publisher says: "The change was bound to come sooner or later, and it came at an opportune time. It will make the strong papers stronger and the weak papers weaker, but in the end the business as a whole will be better for it."

RAILROAD STRIKE AVERTED.

The action of President Wilson and his associates, in preventing a railroad strike in the United States is greatly appreciated by the Canadian paper makers. They have been, and are now, seriously handicapped by the lack or insufficiency of shipping facilities. If the few cars that are moving had been completely tied up the principal market for Canadian pulp, paper and wood, and the supply of coal, sulphur, chemicals and machinery would have practically shut off, if not closed entirely.

This has certainly been a hard winter for the industries, with cold, snow, freight troubles and shortage of coal and labor. It is to be hoped that the railways will get their engines in repair and more freight cars provided before another winter. Perhaps, too, it will be possible to find a cure for the almost chronic dissatisfaction of the railway men. They are now among the most prosperous citizens of their home towns. It begins to look as if their trouble were indigestion from having too much.

GO WEST, YOUNG MILL—TO ALASKA.

In a recent speech, Mr. Houston, Secretary of Agriculture, repeated the statement of an expert that a $2,500,000 mill in Alaska could sell paper in New York for $35 a ton. The expert may have been right, but we wonder how much the mill would get from the Government, gratis. Perhaps, with free wood, the gift or loan of a coal mine, and limestone quarry, and no charge for power privileges, the proposition looks possible. It may be that the expert forgot to include such minor items as interest, insurance, depreciation, freight on materials and machinery, and salaries.

PAPER CLOTHES NEXT.

Hereafter we all may have to be more careful about carrying matches, for paper clothing is as sure to come as taxes, according to a clothing manufacturer.

He states that the search manufacturers are making for a substitute for rapidly soaring wool is leading them to paper.

The paper supply is so short many papers are suspending and the price has doubled. The new move will add to the publishers' woes.

The Red Spruce - Identification and Characteristics

By P. L. BUTTRICK.

The naming of almost any section of our country brings to mind some particular tree, nowhere more than in the Northeast where the tree is spruce. The association is so close that the forester calls the region the "Spruce Northeast," but to most it is known as the "North Woods"—a storied land so graphically described by a host of writers from Henry David Thoreau to Doctor Van Dyke. This northern forest stretches across the continent from the Maritime Provinces of Canada to Alaska. In the United States it is confined to northern and eastern Maine, northern New Hampshire and Vermont, the Adirondack Mountains of New York, and a broken and disconnected strip along the high summits of the Appalachians to North Carolina.

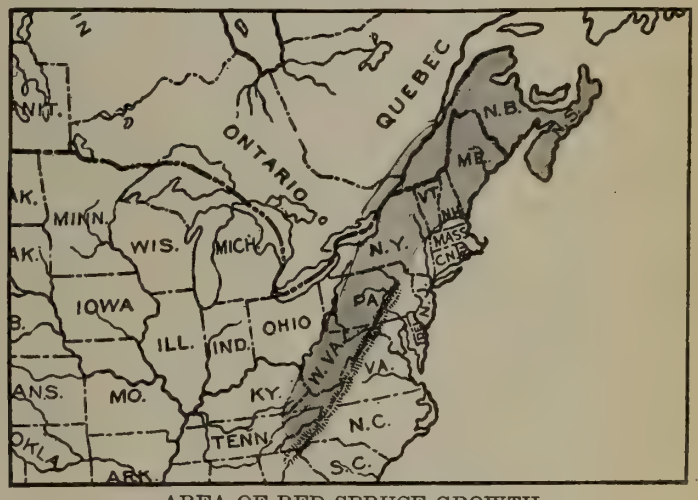


BRANCH OF RED SPRUCE.
green.
The cones are from one and a quarter to two inches long and reddish brown. The needles are dark green to yellowish

There are forests more impressive by their regularity and the size of their trees than the spruce forest of the Northeast. For sheer grandeur it is not to be compared with the great forests of the Pacific Coast, or even the white pine stands of the Lake States. It lacks the spaciousness and openness of the longleaf pine barrens of the South, or the quiet beauty and intimacy of the eastern hardwood forests. Yet it has a beauty and fascination of its own. To many it is the most beautiful of forests. It casts its fascination over all who visit its shades. The lakes of Maine, the White Mountains of New Hampshire, and the Adirondacks are among the oldest and best known vacation grounds in America.

There are three species of spruce found in the United States, three of them being found in the region. They are named, as is so common in the case of trees, after certain colors. In this case white, black and red. The white spruce (Picea canadensis) is so called because of its grayish white bark. It occurs sparingly along the northern borders of the United States and the Black Hills of South Dakota. It is more characteristic of Canada than the United States and is found from Nova Scotia to Alaska and almost to the Arctic Ocean. It makes up the bulk of the vast spruce forests of Quebec and Ontario.

The white spruce is the largest and handsomest of the eastern spruces. It occasionnally attains a height of 150 feet and a diameter of 3 or 4 feet. It has a narrow and symmetrical conical shaped crown, and is usually very beautiful. Because of the odor given off by its leaves when crushed it sometimes bears the more graphi cthan elegant title of skunk spruce.



AREA OF RED SPRUCE GROWTH.

The black spruce (Picea mariana) enjoys its name from the very dark cast to its leaves and occupies much the same range as the white, but is more common in the United States. It is a small and straggling tree, mostly confined to swamps and semi-barren hilltops. Its only value lies in the occasional specimens which happen to get large enough to be harvested with red or white spruce (Picea rubens). It is difficult for any but the expert to distinguish absolutely between these two trees, indeed for many years they were considered as one species. It is not an important matter however.

The red spruce, or epinette rouge of the French Canadians, seems to derive the descriptive part of its name from the reddish-brown cast to the bark of the mature tree, yet in the woods where it is common it is known simply as spruce, but the others are referred

to by name. Its scientific name is the Latin equivalent of its English and French and is in no way remarkable. The tree is not noted for its great size, although it is far from a small tree. Specimens exceeding 100 feet in height are unusual and trunks 4 feet through are likewise rare. Trees in the forest average 2 feet in diameter and from 60 to 80 feet high. Mature red spruce has a rather open, wide spreading crown. It is composed of a few large, irregular branches which droop more or less, but are upturned toward their tips. The crown lacks the narrow conical aspect of white spruce, or the broad pyramidal effect of Norway spruce.

The red spruce has a much more restricted range than the others. The Maritime Provinces, Quebec, eastern Ontario and western New Yrok State mark its northern and western boundaries. It extends further south, however, than the others, for it follows the higher summits of the Alleghenies and Appalachians clear to North Carolina, where it can be found growing within a few miles of the cotton fields and the vastly different flora of the southern forests. The black spruce also follows the mountains southward but to a lesser degree. Some botanists consider the spruce of the mountains another species, giving it the name of Picea australis; but the points of distinction between it and the common form, if they exist at all, are too microscopic to interest the forester greatly or the lumberman in the least.

The idea must not be gotten that a solid body of spruce is to be found along the tops of all the mountains in the Appalachian chain. It is only here and there on the summits of the highest peaks and ranges that they are found. Small bodies exist in the Poconos in northeast Pennsylvania and a few tracts were until recently to be found in central Pennsylvania. West Virginia contains the largest bodies of any of the Appalachian States. In the eastern part of the State at elevations above 2,400 feet originally there was a fine spruce forest covering about 1,500,000 acres. So great have been the ravages of fire, insects, diseases and man that it is doubtful if 200,000 acres of this remain in virgin timber. A few mountain tops in Old Virginia are capped with spruce forests, but no considerable bodies occur. In North Carolina, where the Appalachians reach their greatest height the spruce forest makes its southernmost stand. It seldom occurs below 5,000 feet. The best known area is the Black Mountains, the highest peak of which is Mount Mitchell, also the highest point in America east of the Mississippi River. The name Black Mountains was suggested by the dark color due to the dense masses of spruce on the summits. It was given to the range long before it was explored by Doctor Mitchell, who lost his life and left his name on its highest peak. The largest body of spruce is in the Great Smokies, the wildest and most remote mountain range in eastern America. Here above a belt of hardwoods, unsurpassed in the temperate zone, there extends a long band of magnificent spruce timber. Small bodies of spruce cling, like shipwrecked sailors to the masthead of a sinking vessel, to the summits of a few other scattered peaks.

Except on mountain tops or deep swamps, spruce seldom occurs pure over large areas. Its most common associates are hardwoods, beech, birch and maple being particularly common. The combinations of types and species in the spruce region are numerous and often bewildering.

Red spruce reverses the common characteristics of most trees and grows faster as it grows older. In youth it is one of the slowest growing trees we have. It remains of seedling or sapling size often for upwards of half a century, growing inconspicuously underneath the shade of other trees. Finally when they die or are cut down and it receives an abundant supply of light, it suddenly increases in growth and adds to its height and becomes a full-grown tree. From then on its growth is regular and well sustained till old age. Native spruce requires a rotation of from 80 to 100 years, and most virgin spruce cut to-day is well over the century mark in age.

The spruces make desirable ornamental trees, but the red spruce is generally too slow growing for this purpose. The most common spruce seen in cultivation in the eastern United States is the Norway—an importation from Europe.

It has been estimated that the stand of the eastern spruces in the United States is 50,000,000,000 square feet, 80 per cent. of it being in northern New England and northeastern New York. Although no separate estimate for the red spruce is available, it is probable that 95 per cent. of it is of this species. It is peculiar that the best spruce stands are found, not in the north, but in the Appalachian Mountains, those in West Virginia taking the palm. The average stand in Maine is about 3,000 or 4,000 feet to the acre, and the best stands seldom exceed 15,000 or 20,000 feet, while in West Virginia they often average 6,000 feet and more, with maximums of 60,000. In North Carolina yields are not quite so high, but still in excess of those in the north. The reason seems to be that the trees grow thicker on the ground and are more often found in pure stands. Most of the spruce stumpage is controlled by pulp and lumber interests.

The wood of the eastern spruces is so similar in character and appearance that it is exceedingly difficult to tell them apart. Nor is it generally important that they be distinguished from each other, since commercially they are all one. Superficially spruce wood resembles white pine, but there is no distinction between heart and sapwood and the color is apt to be even paler and more whitish. It never possesses the light reddish or rose colored cast common to the latter. Spruce wood has no desirable figure, being one of the plainest and most homogeneous of our woods. Consequently it has no place as a cabinet or ornamental wood.—American Forestry, Dec., 1916.

THE ANCIENT POPLAR TREE.

When white men settled in America, the Indians were making canoes of the yellow poplar. This was really the beginning of the last chapter in its life. Earlier chapters have been dug out of rocks and clays where its leaves and flowers have lain buried during thousands and millions of years. This tree appeared after the coal beds were formed, but before the ice age.

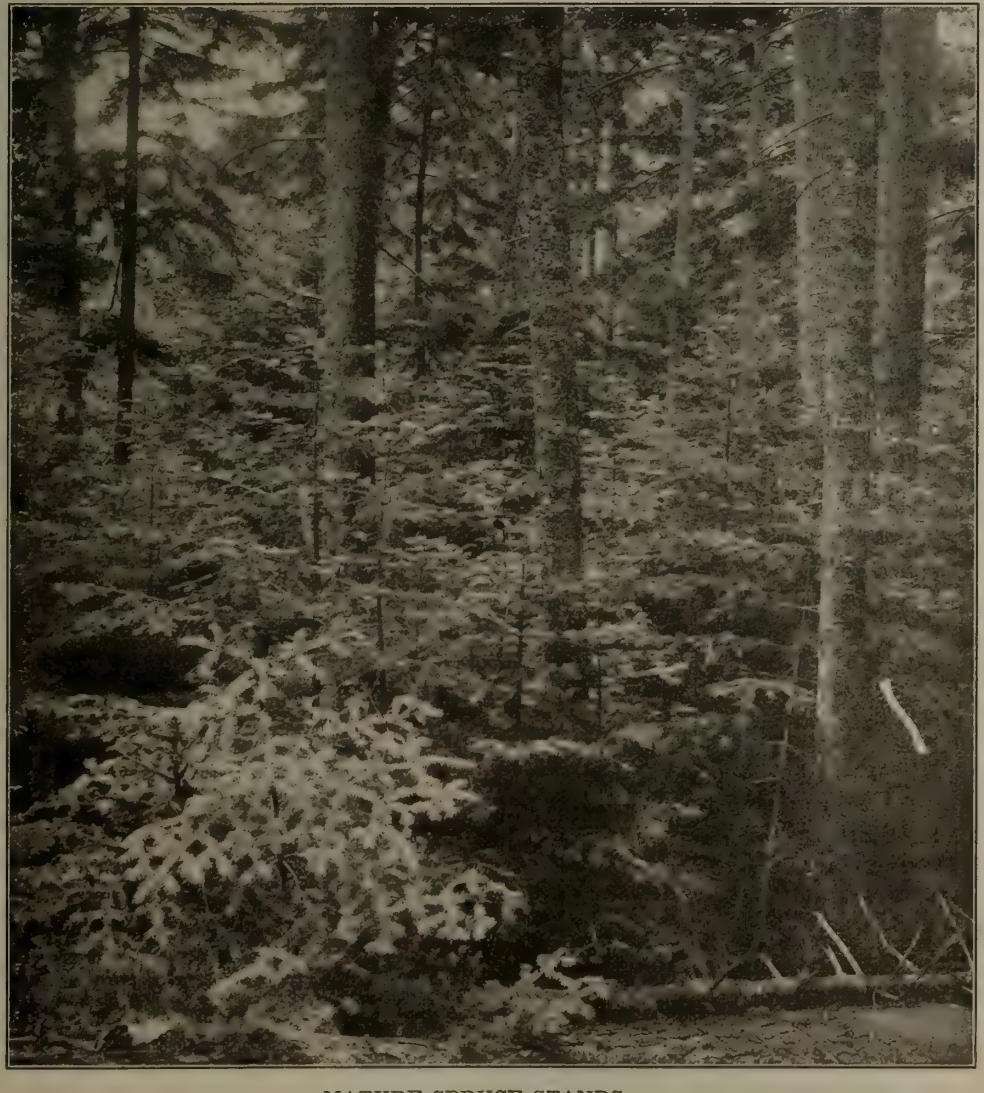
There were sixteen species of the tree then, extending to Greenland as the climate was warm. At that remote time yellow poplar grew in Europe where it no longer exists. Fifteen species perished in this long winter known as the ice age. The species that survived was probably then growing south of region of extreme cold and when the ice finally melted, it worked its way north as far as Canada. "American Forestry", from which this is taken, has pictures of poplar leaves as they grew, five, four, three and one million years ago, and also the yellow poplar leaf of today.

Commercial Uses of the Red Spruce

[This article and the one preceding are taken from "American Forestry", including the excellent illustrations. It will be noticed on the map shown, that red spruce is not a dominant tree in Canada much north of the St. Lawrence. However, its place is well taken by white and black spruce, which form an important part of the Canadian forest from Labrador to the Rocky Mountains. There is so much similarity between these spruces as to make them in many respects practically identical. For paper making there is no need to make any distinction. It is for the preservation of these beautiful forests and the perpetuation of their revenue that fire protection measures are becoming so popular in Canada.]

Spruce was little used till the supply of pine began to decrease, when its better grades came into the market as a substitute for the pine. Although it now has an assured place of its own as a lumber wood and even has substitutes, chiefly balsam fir, it has never been pre-eminently noted as a lumber producer—not because of any lack of value and adaptability, but because it is of more value for something else—wood pulp, seventy per cent. of the cut being used for this purpose. The spruces are the leading pulpwoods of the world and red spruce the leading pulpwood of the United States. About 70 per cent. of the pulpwood used in the United States is spruce, chiefly red spruce, the remainder being made from some 6 or 8 other species.

The most desirable qualities in a pulpwood are length and toughness of fiber. Long-fibered woods mat down well into paper, and make strong paper. Likewise, strength and toughness of fiber make for strength and toughness of paper. There are woods having longer fibers than spruce, but when length and toughness are combined it is one of the leaders. Another desirable quality in a pulpwood is a light color. Red gum, a dark colored wood, makes an excellent pulp, but the cost of bleaching it is said to be prohibitive. Lastly, a pulpwood must be abundant, and not too valuable for other use, else the pulp man cannot compete with the lumberman for it. Spruce meets all these requirements, and is worthy of its rank as a leading pulpwood. Most of it is used for the manufacture of print papers, and the larger part of our newspapers are printed on paper made from spruce pulp.



MATURE SPRUCE STANDS.
Spruces generally grow mixed with hardwoods or other conifers, in this case with balsam fir which his formed a thick under-story. The fir is a less valuable tree than the spruces but is increasing in amount because it grows faster than the spruces and takes its place in the forest when the wood is cut.

For newspaper it is common to mix sulphite or "chemical" pulp with ground wood, the former having more strength and the latter being cheaper.

Spruce lumber can be used acceptably as a substitute for white pine in most cases. It is chiefly used for dimension timbers of small sizes, house frames, sash door, and blind manufacture, and box shooks. Beacuse of its light weight and moderate strength it is a very desirable wood for framework and dimension lumber of smaller sizes, and possesses some advantages for these uses over stronger but heavier woods such as southern yellow pine and oak. Its weight is but little more than half of oak and 35 per cent less than that of yellow pine. Spruce clapboards, side boards and other



PULPWOOD ON THE BANKS OF STREAM WAITING FOR SPRING.

Most spruce is still cut in remote regions and driven down the streams to the pulp- or saw mills. Four foot spruce bolts are harder to drive than saw-logs.

The chief use of spruce-wood is as a source of wood-pulp for paper. Seventy per cent of the paper manufactured in America and ninety per cent in Canada is made from spruce-wood and fir. The industry gives employment to thousands of men both in woods and mill. It is hoped that the present extraordinary emand for pulp and consequent high prices will not induce over-cutting of pulpwoods and consequent grave reduction of the future supply.

forms of lumber for exterior finish are also manufactured in considerable amounts, since spruce lasts well when exposed to the atmosphere. Most of the spruce lumber cut in New England, New York and the Maritime Provinces is sold along the seaboard, chiefly at Boston and New York. Much of it is shipped by water directly from mills located at tidewater in Maine and New Brunswick. A small amount also goes abroad from those localities, chiefly to Europe and the West Indies. West Virginia spruce is sold chiefly in and about Pittsburgh and Philadelphia.

Much spruce is sawed to order at the mills, dealers frequently sending in specifications as to size and length and receiving lumber all ready to be placed in building without the necessity of cutting it to length from standard sizes and wasting the trim.

Spruce has many uses aside from building purposes. It ranks high as a box wood and in the spruce region and the territory adjacent to it, which is one of the largest box making sections of the United States, spruce ranks second to white pine, which, as box wood, is the leader for the whole country.

Musical instruments involving the principle of the sounding board, such as the violin and the piano, require wood of highly resonant nature. For this spruce has no superior. The resonance of wood increases with its age, so the makers of violins take extraordinary precautions to obtain old, well-seasoned wood. Seven years is not too long for it to season for their purposes. Often they seek old beams, table tops, and other pieces which have been in service for many years and collectors go where old houses are demolished in quest of such pieces.

There are hosts of uses for spruce in the various wood working industries, all the way from shipbuilding to the manufacture of wooden pie plates.

The use of young spruce trees along with the balsam fir for Christmas trees is well known. It was at one time thought that this business would put such a drain upon the reproduction in the forest that some of the states in the spruce region took steps to regulate it, but it seems evident now that the stock of young trees is not seriously depleted and the young trees bring more for this purpose than they would for many years if allowed to grow up for lumber or pulp.

A product of the spruce tree, better known once than now, is spruce gum. It is formed from the resinous exudations which take place at wounds and branch stubs. Formerly it was collected largely from the standing trees, but now most of it is obtained in the course of logging work from the felled trees. The gum is used in medicine as part of the ingredients of cough syrups and drops, and for chewing gum. It sells from 12½ cents to $4.00 per pound, according to the grade. The state of Maine alone produces 150 tons annually, valued at $300,000.

As to the amount of its cut, spruce ranks sixth on the list of American woods, between 3 and 4 per cent of the total number cut of the country being spruce. In 1912 the cut was 1,238,600,000 board feet.

At one time pine land sold for more if no spruce grew on it, but to-day spruce lands in Maine and the Adirondacks are worth more than they were when they were first logged for pine, and very little spruce stumpage is for sale. The 1915 priees for pulpwood stumpage were about as follows: In New York from $3.50 to $4 per cord; in Maine from $4 to $4.50 per ord. Saw timber in the New Hampshire is worth from $5.50 to $6 per thousand; in West Virginia from $4 to $5 per thousand. These prices are higher, by the way, than for the southern pines which we ordinarily consider as more valuable woods. The prices for pulpwood ready for the mill vary from section to section. In North Carolina spruce pulpwood sells for $6 per cord; in New Hampshire it averages over $9 delivered at the mills.

1862.....	$9.00	per	M	f. o. b.	Boston
1870.....	16.00	per	M	f. o. b.	Boston
1880.....	13.00	per	M	f. o. b.	Boston
1890.....	13.00	per	M	f. o. b.	Boston
1900.....	16.00	per	M	f. o. b.	Boston
1904.....	16.00	per	M	f. o. b.	Boston
1906.....	25.10	per	M	f. o. b.	New York
1908.....	20.60	per	M	f. o. b.	New York
1910.....	23.30	per	M	f. o. b.	New York
1914.....	25.00	per	M	f. o. b.	Boston

It is interesting to compare the prices of spruce for a series of years in order to observe the rise in value of this wood. Boston and New York are chief spruce marketing points, and the wholesale prices quoted in the foregoing table refer to one market or the other.

The English colonists came into contact with the spruce when settlements were made along the coast of Maine. They started to cut and export timber almost immediately, and here lumbering in America as an organized industry had its origin. It was in the forests of the Saco and Androscoggin river basins that snow-logging and river driving were first developed (the earliest organized method of cutting and transporting large numbers of logs to a distant mill). It was here that the first saw mill in America was operated (at York, Maine, in 1623). Yet it was white pine rather than spruce which was sought. For more than 200 years spruce was not considered as a timber tree. As time went on loggers exhausted the pine lower down



A WOOD FOREMAN IN THE SPRUCE WOODS

The success of a lumber camp depends upon the foreman. He is generally a Scotchman or a Yankee. He must have a large amount of technical knowledge at his command (learned from experience, not from books) and be able to handle men. This picture was taken before Mackinaw coats became popular in the cities, but they have been used in the North Woods for many years.
Photograph by P. L. Buttrick.

the streams and moved further and further back, the pine becoming less and less abundant and the spruce more and more. Then, when Maine and New York were struggling for the title of leading state in lumber production, and Bangor was the leading lumber mart of the world, it was suddenly discovered that the pine was gone. Maine no longer could justly call herself the Pine Tree State. So the lumbermen turned their attention to the hitherto despised spruce. It was not till 1845 that spruce was cut and marketed and it was in 1861 that spruce first topped the pine in cut at Bangor and probably in the whole State. Since then, as the saying goes, "spruce is king".

As time has gone on newer systems of logging have been introduced in other sections. The logging railroad has largely supplanted the river for transportings logs. Steam skidders, haulers, and cableways have threatened the supremacy of animals in he woods. So the old-time system of logging developed at the edge of the spruce region now seems almost primitive, yet it is still the accepted method in that region, where it has been carried to a high state of efficiency. True, improvements, have been introduced, saws have displaced axes for feeling and cutting up timber, horses have largely displaced cattle for hauling logs, and in some places steam log haulers mounted on sleds and caterpillar tractors have partly displaced horses. Great improvements have been made in streams to facilitate driving, dams have been erected to regulate the flow of water, rocks have been blasted out to widen and deepen difficult channels, telephone lines have been strung along the main branches of the streams to keep all points of the drive in touch. Tug boats have rendered unnecessary much of the old-time labor on headworks for getting logs across lakes.

The type of men, too, has changed. The original woodsmen were native Yankees, at first farmers who worked for a while in the woods in winter and for a while on the drive in spring, but they gradually gave way to the professional lumberjack who followed the woods regularly. He is as characteristic a type of our pioneer days as the cowboy—and as picturesque. Holman Day in his "King Spruce" and some of his poems has given us graphic pictures of him in his native north woods, while Stewart Edward White has immortalized his immediate successor, the Michigan lumberjack, in his "Blazed Trail" and "The Riverman." The first foreigners in the region were French Canadians and natives of New Brunswick and Prince Edward Island—the latter derisively known as "P.I.'s" All were accomplished woodsmen and accepted as such. Up to 10 years ago there were few Europeans, but now the Swede and the Polander, better known in the woods as "Squarehead" and the "Polack" have secured a firm foothold, but the river drivers are still largely Americans and Canadian French.

Early in the fall, sometimes in midsummer, the logging crews seek the woods, generally far beyond the railroads and in otherwise uninhabited country. Cutting starts immediately unless a camp has to be built and roads constructed. The aim is to get the winter's cut finished by Christmas or the first of January, as generally the snow becomes too deep to do much after that. The logs are decked up in yards or skidways along the main roads as fast as they are cut, and when cutting ceases the roads are plowed out and iced so that the sleds will run easily. The logs are then loaded on the sleds and hauled to the landing at the edges of the streams or lakes and dumped to await the melting of the ice and the opening of the drive. The hauling off, as it is called, is the most exciting and strenuous part of the woods work. Oftentimes it is a race with the weather man, for to linger is to let the snow melt and leave the logs in the woods till the following winter. At such times all hands work twelve, sixteen, perhaps twenty hours a day, to get the logs landed "before she breaks up," and when the impossible has been accomplished and the last log is on the landing, the whole crew breaks camp amid melting snow and slush which mark the coming of spring. After a brief season in town, it is back to the woods

when the drive starts. What tales have been told of the drives on the Penobscot, the Androscoggin, the Kennabec, the Connecticut and many other streams! There is scarcely a more romantic branch of all industry than log driving. Its greatest days have passed, but it will be many years before the last log goes down the West Branch and the stories of those which have will always be told.



A RED SPRUCE LOG JAM
Log driving is a hazardous business. If a few logs become caught on an obstruction in a stream the rest behind are apt to pile up and cause a jam. Formerly jams were broken by loosening the logs with cant-hooks and many lives were lost at this hazardous work. Now they are generally blown up with dynamite.

400 ACRES PLANTED.

Director of Forestry R. H. Campbell recently visited the Laurentide Company, Limited, plantations at Grand'mère, Quebec. There are about 400 acres of plantations all the way from one year to four years old. These consist of Norway Spruce and Scotch Pine in mixture; Scotch Pine; White Pine, and Norway Pine in mixture; and Norway Spruce in Pure stand. The Norway Spruce has also been planted in the open under the shelter of White Birch and Poplar, and also underplanted on land which has been logged over. The plantations are doing very well—the loss in Norway Spruce being less than one per cent, and all of the plantations are now beginning to show up in first class shape. A visit was also paid to a lumbering operation on land which had been heavily cut over for soft wood, the remaining stand consisting of large Hemlock and hard wood, mostly White and Yellow Birch, and Maple, and small Spruce, Balsam and Cedar. Practically all of the hardwood has been removed so as to give an opportunity for the soft wood reproduction to take place, and, where this had failed, planting operations will be begun next Spring. Fire lines have been cut, and all the brush cut from them, and in cases operations have been burnt, and this has left the ground in good shape, and is a good example of what can be done along these lines. Mr. Campbell expressed himself as well pleased with the Laurentide Company's operations.

COST ACCOUNTING AND BURDEN APPLICATION.

"Cost Accounting and Burden Application," by Clinton H. Scovell, a volume lately published by Appleton & Co., contains a chapter of some 18 pages devoted to "Paper Manufacturing Costs," which will make the book of special interest to paper mill men.

As the author, who is well known as a lecturer on cost accounting, states in the introduction, the work does not endeavor to explain in detail an infallible cost system, but outlines some of the principles which should underlie a good system in various sorts of productive industries.

The main portion of the book deals with the determination and the proper distribution of overhead charges, or burden. It is a failure to analyze the significance of elements of overhead charges such as power, rent for space used, and loss due to idle machinery, which make many systems of "cost finding" worthless. A brief explanation is given here of the proper procedure to make comparative figures covering different jobs or different periods of production retain their significance. There is also a chapter describing at some length the reasons for charging interest to cost. The larger part of the book is concerned with industries in which production can be divided into jobs. The chapter on paper manufacturing is introduced to illustrate the method of procedure in an industry where production is usually continuous, and is made up of a number of different operations.—Paper Trade Journal.

The Cutting and Rewinding of Paper

By WILLIAM B. WILSHUSEN,
Cameron Machine Co., Brooklyn, N.Y.

(The editor takes considerable personal satisfaction in printing this article on rewinding paper. He has a scar from a cut obtained while trying to clear a rotary shear of the paper that had wound on the slitter shaft. He also has memories of tugging, with his 125 pounds, at the heavy compensating shafts that persisted in sticking in the wooden cores the paper was wound on. Later on, with work on a surface driven wind, came experiences with interlocking rolls, as mentioned in the article).

We have specialized in the building of rewinders for many years past and we have done our bit toward improving the winding conditions in mills and elsewhere, by placing at the service of the mills machine which have been the result of practical experience gained by meeting all kinds of conditions and requirements.

The average rewinder is a crude affair, to say the least. It is strange that winding and rewinding mechanism has not kept pace with the splendid advances made in other processes of paper manufacture. The average mill seems to be content to deliver a square deal to its customers in the matter of quality, etc., but when it comes to winding, any old method seems to be acceptable. The customer, however, is apt to encounter quite as many difficulties from poorly wound rolls as from poorly made paper, especially in the paper trade.

Aside from the practical difficulties encountered by the customer, the mill's salesman has always something to explain and something to apologize for. Customers are becoming more and more critical as to the character of the rolls as well as to the quality of paper, and modern standards in the matter of winding are becoming more and more exacting. Added to this is the positive necessity for accurately wound rolls where automatic machinery is employed, including, of course, web printing machines of all kinds.

The enormous demand for paper in roll form has made the problem of perfect rewinding more and more acute. Mention might also be made in this connection of the large tonnage required in small or midget rolls for such purposes as automatic wrapping machines, cash registers, telegraph relays, paper boxes, envelopes, news tickers, adding machine rolls, ribbon paper, paper for wire insulation, and numerous other requirements. There has been a constant effort on the part of machine designers to meet these requirements, but the average builder of winding machines has been burdened with numerous other problems in other lines of manufacture, as no one, with the exception of ourselves, has worked exclusively in the field of slitting and rewinding machines. Machine builders who are confronted with problems in various other branches of paper manufacture could naturally not do justice to work in the line we are considering, as it is in itself a full-sized job for the brains and energies of a capable organization.

The vital fact is that the rewinding process cannot be considered as apart from the slitting process. As both processes are combined in a single operation, they must work in harmony with each other and this is the very point most frequently overlooked by machine designers. A clear analysis of the basic features of an efficient slitting and rewinding machine will no doubt be interesting from a technical point of view, aside from the practical suggestions we are able to offer in this connection.

Broadly speaking, the machines offered by builders other than ourselves have used one and the same slitting method—the rotary or circular shear—worked up in one form or another. "Shear cut" was wrongly assumed to be the last word on the subject of slitting, and machine builders, by accepting this doctrine without question, continued using this "shear cut" method in their machine, as a matter of course,

Earlier builders combined this "shear cut" method of doing the slitting with either of two methods of rewinding or coiling the strips. The method of rewininding in which the strips are led alternately to two or more rewind shafts driven with slip belt or friction clutch is known as the "centre rewind." The other method is known as the "surface rewind." By this method all the coils are formed side by side on a single shaft by surface contact with revolving support rolls on which the coils rest and no power is applied directly to the rewind shaft.

The "centre rewind" method is not practical where narrow coils are required, as they will not stand alone after they have built up to any considerable diameter. Further trouble with this method is due to variation in thickness of the paper across the width of the sheet, causing the coils to build up largest where the web is the thickest, and thereby pull the paper faster on the thickest portions, thus causing the web to feed unevenly and preventing first class work.

"Surface rewind" is by far the preferable method of rewinding, for when properly designed and accompanied by the proper slitting method (which, by the way, is not the shear cut or rotary shear), which, by the perfect speed control by giving a regular speed from the beginning of the roll to the end, also making possible an even degree of hardness or softness of coil. Further, the surface rewind method assures neat appearing coils, perfectly formed.

Let us, therefore, hold firmly to this important fact, and it will be seen that the defects in the average slitting and rewinding machine are due largely to the use of the wrong method of doing the slitting.

To make the matter quite clear as to why the rotary shear or shear cut should be given up as unfit to combine with the surface rewind method, it will be worth while to size up the shear cut and see just what it must be blamed for, and how these defects are avoided by substituting a proper method of doing the slitting.

To do their work properly, the rotary shears must have a keen edge and yet their edge is bound to become slightly dulled even after only moderate use. thereby causing a ragged or frayed edge on the strips which then become interlaced or meshed together in the rewinding process. When this interlacing takes place, it is often impossible to separate the coils from each other.

Another radical defect arising from the use of the rotary shear or shear cut method of slitting in combination with the surface rewind is the fact that the edges of the material slit are slightly stretched and puckered by the blades or disks in shearing through, so that these edges are distorted and cannot lie flat

in a side by side position as they go forward to the rewinding. Frequently a strip overlaps its neighbor slightly, so that in the rewinding the two coils are firmly knit together and become a solid mass impossible to separate.

The trouble does not end here, as such overlapping builds up a coil of double thick material, consequently of too large a diameter to rewind along with such coils as are not overlapped. Such over-large coils tend to pull the material at too swift a speed at such points, and not only the rewinding is disordered, but the slitting itself is disturbed by wrinkling and stretching of the web, taut in some places and slack in others. It is, therefore, clear that troubles arise from the shear cut method, and the only compromise is to abandon all the advantages of the surface rewind method and resort to the centre rewind and make the best of it.

The real question is, therefore: What method of slitting will work in combination with the best possible method of rewinding — the surface rewind? In finding the answer to this problem the Cameron principle was developed.

The slitting method developed by the Cameron Machine Company, after years of practical experience in the manufacture of every sort of slitting and rewinding device, is known to the trade as the Cameron score cutter. For many years past the score cutter has been employed in a variety of Cameron special machines designed to meet a wide range of requirements. Preference for the score cutter is based on the face that results have warranted our finally rejecting other methods in its favor, as it is the speediest and smoothest means for slitting all kinds of material, including not only paper of all kinds, but also fabrics of all kinds, fibre, asbestos, celluloid, foil, compositions, etc. And, what is of vital importance, we have found that the score cutter works to perfection in connection with the surface rewind method, thereby realizing the ideal combination, which is, in a word, the Cameron principle.

The Cameron surface rewind method is a perfected example of this excellent system of rewinding or coiling strips, either wide or narrow, into rolls of any desired size. In developing this system, we have employed such improved feature as our experience taught were necessary, and the result has stood the test of time on a wide range of work. The coils, as they are being wound up, rotate upon a pair of supporting rolls. spaced quite close together, of which the cutter roll is one. These support rolls are driven in the same direction and at regular speed, so that the coils resting upon them will be formed by surface contact under a degree of pressure supplied by the pressure roll which bears upon the upper surface of the coils and holds them evenly in contact with the support rolls. This pressure is adjustable to properly suit conditions. The coils are accordingly all wound up on the same rewind shaft side by side. This shaft may be of any desired diameter, even from three-eighths of an inch up to any required size, however large. If desired, the rewind shaft may carry cores of spools made of cardboad, wood or other materials for the centres of the coils.

To sum up briefly, it will be seen that by the Cameron score cutter the goods are slit into as many sections or strips as desired without in any way disturbing them, and that the strip is necessarily clean, straight and even. This assures that the strips will go forward to the rewinding in a true side by side relation without any overlapping or interweaving. The Cameron surface rewind insures that the coils will be evenly tensioned, firm and accurate and of neat appearance, and that the coil will not interlace or overlap.

PAPER INDUSTRY IN THE URAL DISTRICT OF RUSSIA.

The British Consul at Ekaterinburg (Mr. T. H. Preston) reports in the "Board of Trade Journal" that since the outbreak of the war the paper manufacturing industry in the Ural district has had many difficulties to contend with, chiefly in regard to the high prices of raw materials and the scarcity of labour. Rags have risen in price from 80 copecks per poud to 8 roubles per poud, and are now practically unobtainable even at the latter figure. Cellulose manufactured in the Government of Vologda has advanced in price from 2 roubles 50 copecks per poud to 9 roubles per poud, while the Finnish product is slightly more expensive. Lime and resin have also advanced in price.

There have been great difficulties in obtaining wires (for paper making), so much so that one large factory had to close down pending the arrival of fresh supplies.

In order to ensure sufficient supplies of raw material in the future, the two large paper mills in the Urals under British control are erecting a wood-pulp factory at Bogdanovitch, and cellulose works in the Tavda forests in the north.

A further development in the industry is the erection of a new paper and cellulose factory at Perm.

100 copecks=1 rouble=51. 5 cents; poud = 36 pounds.

PATCHING CONCRETE FLOORS.

One of the principal objections often raised against the use of concrete finished floors is the difficulty and cost of successfully repairing places that become worn or damaged. For best results it is usually considered necessary to cut down the worn place at least one and a half inches into the unbroken concrete, under-cut the edges, clean out the dust and loose particles thoroughly, wash with a thin cement grout, fill in with a paste grout and finally float to a level surface a mortar of cement and crushed stone or gravel. The patch must then be kept moist for at least a week or ten days, keeping all traffic off in the meantime.

Mr. W. P. Anderson, president of The Ferro Concrete Construction Co., states that his company often uses a method of patching concrete floors which is much cheaper and requires far less time than the method commonly used. Mr. Anderson's method requires the use of a mastic material made from a mixture of asbestos fibre and rubber gum. This mixture is applied with a trowel after thoroughly cleaning the damaged surface. Very little cutting of the old concrete is necessary, other than to break off loose particles. The gum can be worked to a feather edge so that it will readily join with the undamaged concrete surface and eliminate the under-cutting required with the old style of patch.

A patch of this sort can be opened to foot traffic within a few hours, and to heavy traffic within a day or so. It is thus possible to repair a much-used portion of a mill or factory floor almost over-night. The cost varies with the size of the patch, but will amount to from 16 to 18 cents per square foot.

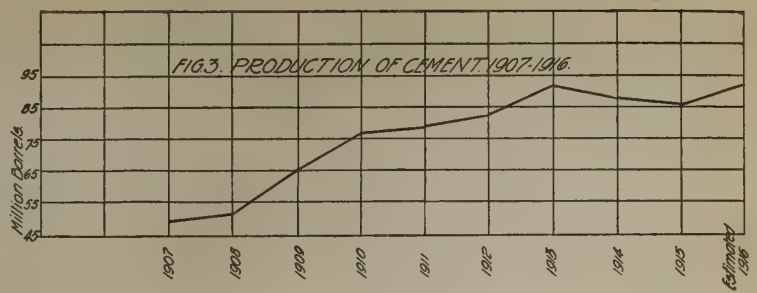
RECENT TENDENCIES IN INDUSTRIAL BUILDING CONSTRUCTION.

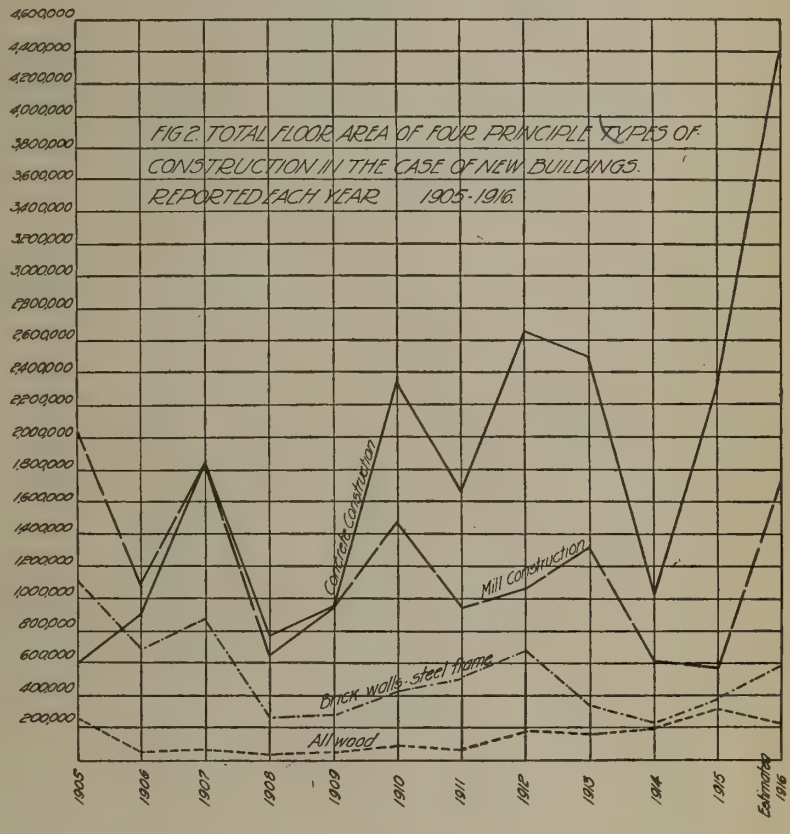
The present trend of industrial building construction is indicated by a recent investigation made by W. P. Anderson, President of The Ferro Concrete Construction Co. of Cincinnati, and presented in a paper before the recent annual meeting of the American Concrete Institute in Chicago.

The results of Mr. Anderson's investigation were drawn from inquiries made of the leading industries, manufacturers of all classes of metal goods, brewers, manufacturers of textiles, paper, leather, boots and shoes.

Of the representative manufacturers who were requested to furnish data, 370 concerns contributed information covering 1,230 buildings erected during the period covered by the investigation. These varied greatly in size, use and construction, but all were used for industrial purposes.

The returns year by year are graphically represented in the accompanying chart for the four major classifications—all wood, brick walls (steel frame), mill construction, concrete construction. Of course, the abnormal disturbances during 1914-16 account for the great fluctuations in that period. But even up to and including 1913, the advance of concrete construction and the relative decadenee of other types are distinctly noticeable. The comparative growth of the various types of building construction is most strikingly shown by comparing the periods 1905-10 and 1911-16. In the former, the returns cover 7,014,218 square feet of mill construction and only 5,152,579 square feet of concrete construction, but in the later period the area of concrete construction jumped 327 per cent., to 16,926,152 square feet, while the mill construction showed a bare crease of about 10 per cent. to 7,709,469 square feet. The estimated area for 1916 was used in making up all of these comparisons.





WHAT REAL FIRE PROTECTION DOES IN QUEBEC.

The following tabulation of losses sustained within the area patrolled by the St. Maurice Forest Protective Asociation of Quebec during 1916 has much interest for readers of the Journal.

On nearly 13,000 square miles of territory, the fire damage to merchantable timber was $700.83; to young growth, $1,185.88; to cut over lands, $3,484.50.

Such a record of comparative immunity is a monument to the efficiency of correct patrol methods. Mr. Ellwood Wilson is President of the Association, and Mr. Henry Sorgius has achieved a reputation as manager.

The experience of the Association in the matter of controlling settlers' fires has been excellent. The present happy relations with the settlers is a matter of tact and education, rather than the rigorous use of legal penalties. The excellent record of the Lower Ottawa Forest Protective Association is not immediately available, but illustrates equally the point that prevention of forest fires is a matter of vigorous co-operation.

Territory Under License.

	Acres.	Valuation.	Value.
Merchantable Timber	449.25	$1.56	$700.83
Young Growth	1,091.75	.50	545.88
Cut-over	4,646.00	.75	3,484.50
Old Burn	1,867.50	.10	186.75

Territory Not Under License.

	Acres.	Valuation.	Value.
Young Growth	1,280.00	.50	640.00

Settlers' Lots.

	Acres.	Valuation.	Value.
Young Growth	5.00	.50	2.50
Cut-over	6.00	.75	4.50
Old Burn	195.00	.10	19.55

Town of La Tuque.

	Acres.	Valuation.	Value.
Old Burn	1,280.00	.10	128.00

The contractors who have contract for the new $5,000 digesters at the Lincoln Paper Mills have finished their work and have left for Wisconsin.

Silicate of Soda for Sealing Fibre Containers

By C. D. WOOD,
The Grasselli Chemical Company.

A solid fibre or corrugated container is no stronger than its weakest place. In the majority of cases, the weak spot is the sealing. The sealing of a solid fibre or corrugated fibre container is very important and should be given careful attention.

In using a wooden box for shipping goods, the shipper would not consider it good policy to allow the box to leave the shipping room without being properly closed. Yet this is exactly what is done with a great many solid fibre and corrugated fibre containers.

Many shippers consider it sufficient to spread a coating of any adhesive on the flaps of the container and bring them together in such a manner as to get a bond in only one or two spots — then the joint is covered with adhesive tape.

On a superficial examination the container appears to be firmly sealed. This, however, is not the case and in jarring or rough handling, where it has been imperfectly sealed, the container opens, exposing the contents and condemning the box.

To properly seal a solid fibre or corrugated fibre container, the flaps should be carefully folded back and a thin coating of Silicate of Soda applied with a flat brush 2½ or 3 inches wide to the outside of the inside flaps, or to the inside of the outside flaps; do not rub with the brush; then fold down the outside flaps, taking care to have them square with the container and hold them in close contact with the whole surface of the inside flaps, the inside flaps being supported from the inside of the container so they cannot "spring" away from the outside flaps. The boxes should be kept in this position a few minutes until the Silicate has had time to "take hold." If desired, the joint may then be covered with adhesive tape but in no case should a tape be depended on to seal the container.

Any method suited to local conditions may be used to hold the flaps of the container in place while the Silicate is "taking hold." When the contents of the ontainers are depended on for this purpose, a very satisfactory method is to fold down the flaps on one end of the container and place this end on the floor unsealed. Then put in the goods and carefully fold down the inside flaps. Now apply a thin coating of Silicate of Soda, as previously described, and fold down the outside flaps, then turn the container upside down, bringing the sealed end next to the floor. The contents of the container will hold the inside and outside flaps in close contact. After a few containers have been treated in this manner, you can start on number one and reverse the operation for sealing the other end.

This method is only recommended when the contents are of a shape and size to completely fill the container. The floor or filling platform should be perfectly flat and smooth.

When it is not practical to use the above method, some kind of a form and weight should be used to hold the flaps in place. In all cases, the form and weight must be of a shape and size to completely cover the whole end of the container and of sufficient weight to hold the flaps in close contact over the entire surface.

Silicate of Soda should be applied only to one side of one set of flaps. The flaps should be brought together as soon as possible after the Silicate has been applied and held in close contact for a few minutes until it has commenced to harden. It frequently happens, owing to inexperience and to the use of an adhesive not adapted for the purpose, that boxes leave the shipping room imperfectly sealed.

Open packages and damage claims result.

When you have finished sealing the packages at hand, the Silicate, remaining in the receptacle from which it is used, should be poured back into the original container and the opening in same closed to exclude the air. The brush should be placed in water to prevent "hardening." The water must all be "worked out" of the brush before it is again used.

A special grade of Silicate of Soda, which has proved itself to be better than the common Silicate of Soda for sealing purposes, has been produced. It is more elastic, not easily spoiled, and much more efficient than the ordinary Silicate of Soda. It comes to you ready to use and is put up in suitable packages for the trade. It is especially adapted for a hard-sized fibre container.—Fibre Containers.

PROVINCIAL PAPER MILLS SAFETY WORK.

At a recent meeting of the Safety Committee of the Montrose Division, Provincial Paper Mills Co., Thorold, it was decided to secure the services of one of the local physicians to give a First Aid talk on accidents of the class commonly met with in paper mills. This decision was carried out on the 15th, when Dr. Herod met the Committee and several of the machine tenders and beater engineers, about fourteen in all, and gave a most interesting and instructive two-hour talk touching on fractures, dislocations, sprains, stoppage of hemorrhages of wounds, resuscitation from electric shocks and drowning, dressing of small wounds, bandaging, etc.

Those present were unanimous in their praise of the simple and interesting manner in which the doctor gave his talk and feel that the educational phase of the safety work will receive quite a boost, as the employees will realize that the committee mean business, and will be more ready to co-operate.

WHERE THE BLANC FIXE COMES FROM.

Some interesting information concerning the sources from which the paper maker's "blanc-fixe", or barium sulphate, comes may be found in a recent pamphlet on "Barytes and Strontium in 1915," recently issued by the U. S. Geological Survey. This product is manufactured from crude barytes, deposits of which are found principally in Georgia, Missouri and Tennessee.

The marketed production of barytes in 1915 was some 110,000 short tons, of which only about one-tenth went to the makers of barium chemicals, among which is blanc-fixe.

Crude barytes should carry at least 93 per cent. barium sulphate, and the better grade, such as that mined at the Tennessee deposits, has a larger percentage. It is in the Sweet-water district in McMinn County, Tennessee, that are located the mines of the Durex Chemical Company, the largest producers of blanc-fixe.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Pulp and Paper for Spinning.—Paul Ebbinghaus in "Papir-Journalen" (1916) No. 24 p. 238. In the manufacture of paper for spinning purposes attention should be paid to the preparation of the pulp. This must be uniform to allow control of beating and to avoid troubles on the paper machine. Especially in cooking directly an uneven kraft pulp is obtained. Thin papers often stick to the first press roll. In some cases this can be avoided by covering the top roll with felt. Stone roll is often more favorable than metal roll. Addition of 5 to 15 per cent. sulphite or linen often gives good results.—B. J.

Handling of wood in the mill.—"Papir-Journalen" (1916) No. 24 p. 281 The methods used at Holmen's papersbruk, Hallsta, Sweden, for transport of the wood from the river through the various operations to the digester are fully described, with illustrations.—B. J.

Fibre-boxes.—"Papir-Journalen" (1917) No. 1 p. 5 Boxes and containers of pasteboard are now manu- Papersbruk, Hallsta, Sweden, for transport of the new "Hercules-boxes" are made by pasting together two kinds of paper of which one is of a parchmentised quality. The paste itself gives the paper a further impregnation. The pasteboard is sent through a cutting machine and subjected to various treatments before it reaches the machine, which forms the container. Bottom and cover are made separately.—.B J.

Paper and Paper Yarn, Paul Ebbinghaus in "Papir-Journalen" (1917) No. 1. p. 6. The extremely strong kraft papers produced in the northern countries is an excellent material for shipping purposes. The strength of the paper is due to the density of the wool as a result of the cold climate and the special qualities of the soil.—B. J.

Rotting of Slash.—W. H. Long, Southern Lumberman, Vol. 83, No. 1119, (from U. S. Bur. Plant Industry report), 1917:

1. Brush lopped and scattered rots more rapidly than when either piled or pulled.

2. Brush when lopped and piled will apparently take from three to six years longer to rot than when scattered or when left unlopped. On dry areas, such as steep hillsides with southern or western exposures, there is practically no difference in the rate of rotting of brush when scattered and when the tree tops are left unlopped.

3. Brush when piled is rotted at the top by one group of fungi and at the bottom by another group, while the middle of the pile does not rot until it becomes exposed.

4. The same general facts as to rotting hold for all species of timber (pine, oak, etc.) examined.

5. Four species of **Stereum** are the main agents in the rotting of oak slash; two fungi, **Polystictus abietinus** and **Lenzites sepiari** rot the short-leaf pine slash.

6. None of the main fungi concerned in rotting either the oak or the pine slash produce heart rots in either trees.

7. Report covers examinations made in Arkansas only.—H. N. L.

ABBREVIATIONS OF PERIODICALS IN WHICH ARTICLES OF INTEREST TO THE PULP AND PAPER INDUSTRY APPEAR.

The heavy type is the abbreviation. This list is chosen so as to conform with the practice of the American Chemical Society, and will be used in our "Reviews":

AMerican LUMBerman
CANada LUMBerman
WESTern LUMBerman
AMerican FORestry
FORestry QUARTerly
CANadian FORestry Journal
BERichte der dentschen chemische Gesell schaft
BOTanical GAZette
CHEMisches ZENTRal blatt.
J. AGRicultural RESearch
CHEMiker ZeiTunG
PAPER
PAPER-MAKER and BRITish PAPER TRADE Journal
PAPER TRADE Journal
PAPPEN-ZeiTunG und HOLTZSTOFF-ZeiTunG.
PAPIER-FABRikant
PAPIER-ZeiTunG
PULP and PAPER MAGazine of (CANada)
PAPER-MAKING
CANadian ENGineer
ENGineering MAGazine
ENGineering NEWS
ENGineering RECORD
SCIentific AMerican and SUPPlement
METallurgical and CHEMical ENGineering
PAPIR-Journalen
PAPER MILL and Wood Pulp News
SVENSK PAPpers TIDning
TIDDSKRIFT for Papirindustri
L'INDustria della CARTA
ZENTRal blatt für die OESTER-UNGAR Papier Industrie
J. SOCiety of CHEMical INDustry
J. AMerican CHEMical SOCiety
Journal of INDustrial and ENGineering CHEMistry
CHEMical ABSTRACTS
CHEMical TRADE Journal
TRADE & COMmerse REPORT
PROCeedings of the AMerican SOCiety of CIVIL ENGineers
PROCeedings of the AMerican WOOD PREServers' ASSOCiation or A.W.P.A.
PROCeedings of the INTERNational ASSOCiation for TESTING MATERIALS or I.A.T.M.
PROCeedings of the AMerican SOCiety for TESTING MATERIALS or A.S.T.M.
United States DEPartmenT of AGRiculture
United States Forest Service
United States GEOLogical SURVey
WOCHENBLatt for PAPIERFABRikation.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine).

Plans are being prepared for a new coating mill, for the White Pigeon Coated Paper Company at White Pigeon, Mich. According to specifications the building and equipment will cost $150,000.

Chairman Close, of the preferred stockholder's Committee of the International Paper Company, states that 82½ per cent. of the preferred stock has been deposited with the Banker's Trust Company to adjust the deferred dividends. The large proportion of stock deposited makes it seem highly probable that the plan announced recently in the Pulp and Paper Magazine will be adopted. The International at present has a bonded debt of approximately $14,500,000. Under the plan, $7,500,000 is to be refundde into new 5's, and the balance paid off in cash out of current resources. The estimated earnings of the company of $4,500,000, after the payment of the full 6 per cent on $25,000,000 cumulative preferred outstanding after the plan becomes operative would be equal to about 15 per cent. on the $20,000,000 ountstanding common. Interests close to the company states that there is no reason why International Paper should not better the earnings during the coming year, and show more than 15 per cent. on the common. A stockholder's meeting will be held on March 27, when the endorsement of the plan will be discussed and voted upon.

The Union Iron Workers of Bangor, Me. has turned from manufacture of saw mill machinery to making pulpmill machinery. Improved models of screens for pulp, wet machines, pulpwood grinders, etc. are being aurnedout. H. E. Tidmaish is in charge of the designing department.

A dispatch from Libbly, Mont., says that J. A. Koram, of Kalispell, is promoting a paper mill to be put up at or in the vicinity of Kootenai Falls. It is said that a syndicate has already been formed by local men and that the proposition will be carried through. Acording to data collected by the officials of the national forest, there is sufficient raw material in this region to provide for a number of paper mills.

After making extensive repairs The Carso Paper Company, which recently took over the J. H. McNairn Mills at Danville, N. Y. formerly known as the Dansville Pulp and Paper Company, is now operating the mill to full capacity in tissue paper for waxing. The officers of the company are: — James Richard Carter, president; J. A. Aull, vice-president; H. T. Kehew, Treasurer; W. L. Carter, secretary.

Work is expected to shortly commence on the "Wardway" paper mills which are to be erected this year on their two blocks of ground west of the Brown paper mill at Fort Madison, Ia. The mills will furnish paper for the Montgomery Ward Company of Chicago. The machinery for making box board, to be used in making corrugated paper boxes, is now in storage awaiting the completion of the first building.

According to a report made recently to Government officials in Washington by Dr. Howard F. Weiss, director of the Forest Products Laboratory, Frederick W. Kressman, a chemist connected with the Forest Products Laboratory at Madison Wis. has discovered a new source oftuurpentine supply as a by-product in the manufacture of wood pulp. The report says the wood is cooked in chemicals and while being done the steam is allowed to escape. The steam has mixed with it a lot of turpentine which never has been worth much commercially because it had a very offensive odor. The Forest Products Laboratory sent Mr. Kressman to Orange Tex. to work out a method of removing this odor. This has been accomplished and the turpentine saved is asserted to be as pure and sweet as the gum turpentine. The present process of salvage yields about a gallon and a half to a ton of paper and as this mill makes about thirty-five tons a day this odorless turpentine already is being gathered and sold commercially and has proved to be a material source of income as a by-product.

According to advices from Two Harbors, Minn. about fifteen cars of pulpwood per day are being received and unloaded there from points on the Iron Range and the D. and N. M. railroad. It is expected that about 75,000 cords, will be handled through this port in the next three years. It is also estimated that less than 20,000 cords will be taken care of this winter, but that the next two years will see a big increase in the shipments.

Maine paper manufacturers will co-operate with the state forestry department as they realize that their interests as large land holders and those of the State, in the matter of saving the forests of Maine from fire, are identical. Fred A. Gilbert of Bangor, Manager of the sprucewood department of the Great Northern, informed Forester Colby that it was a waste of money for the state to string telephone wires in the woods parallel with those of the Great Northern, and that his company would gladly allow the state to use its telephones at any time without expense."

The Federal Trade Commission held conferences several days last week with publishers of New York daily newspapers for the purpose of ascertaining whether further economies in newsprint consumption could be effected. The Commission outlined briefly to the publishers the conditions prevailing in the newsprint situation, and pointed out that while they knew that many economies had been adopted and were being enforced the shortage in production had reached a stage where further and more drastic methods of curtailment were an absolute necessity in order to avoid the absolute exhaustion of the papers stocks. It was pointed out that the manufacturers of newsprint paper had agreed to a reduction, and that the co-operation of the publishers was now sought in relieving conditions.

The car shortage in the U. S. is seriously affecting the paper manufacturers and the publishers. Complaints of late have been frequent over the delay in receiving paper from the mills, and manufacturers seem to have their hands tied as far as making deliveries on time is concerned. It is not unfrequent, it is said, that ten days elapse before paper can be moved from the mills, due to the inability of the manufacturer to secure a sufficient number of cars. A number of the the publishers have obtained some relief by writing to the Federal Trade Commission and also to the Interstate Commerce Commission. The commissions have obtained cars, not only for the manufacturer, but for the publishers as well, and it is hoped that the situation will soon be greatly relieved.

The sum of $5,000 has been distributed to the residents of Spokane, Wash. for their waste paper. All told there were approximately 250 tons of old paper collected and deposited in various sections of the country.

SPAIN'S PAPER INDUSTRY AND PURCHASES.

(United States Commerce Reports).

The paper industry in Spain is seriously suffering from the effects of the war. Under normal conditions, however, although Spain imports considerable quantities each year, the domestic production of papers, especially those of ordinary quality, is more than sufficient for domestic needs.

As a result of embargoes placed by Sweden upon wood-pulp for paper, a scarcity of material was feared in this country, but the Spanish Government has now obtained authorizations for the importation of such material. Nevertheless, the prices, on account of the greatly increased freight rates and the cost of chemicals for the industry, are exceedingly high.

Ordinary paper such as is used for dailies, which cost formerly 34 pesetas per 100 kilogrammes (about $2.97 per 100 pounds), now costs 68 pesetas ($5.95 per 100 pounds). All kinds and classes of papers are quoted at practically double their former cost.

The sizes of paper finding most general use here are 56 by 88 centimetres (22 by 34.6 inches); 65 by 95 centimetres (25.6 by 37-4 inches; 70 by 100 centimetres (27.6 by 38.4 inches); 77 by 110 centimetres (30.3 by 43.3 inches).

In the absence of official statistics of the Spanish paper production, only general estimates can be given. It is believed that the paper most largely manufactured here is the "papel de barba" (vellum paper), of which the 25 factories, mostly in the Catalonian district, it is estimated, produce in the aggregate from 1,500 to 1,600 reams a day. This paper is extensively used in Spain for all kinds of contracts and official documents. The value of the vellum paper produced, together with Spanish Bristol board, totals some 7,000,000 pesetas yearly. Probably 20 per cent is exported.

Paper in rolls is manufactured chiefly in the northern provinces of Spain, where a few years ago the annual production reached about 50,000 metric tons of 2,204-6 pounds each, yielding an annual surplus of some 15,000 metric tons over the domestic consumption. The paper was acordingly marked at a low price. Practically all the paper factories are now syndicated, and the work is distributed among them in order to prevent overproduction. Itis predicted thatwithin four or five years they will be able to work to a full capacity, inasmuch as the domestic demand increases each year by about 2,000 tons.

Medium fine and fine papers are produced in Spain to the estimated extent of some 27,000 metric tons a year, quantities greater than the demand. Cigarette paper is also manufactured and exported in considerable quantities. Of the ordinary papers, that made of esparto is exported largely to South American countries, where it is used for wrapping.

There is very little manufacture of fine writing papers in Spain and these are extensively imported. The same is true of blotting papers. Wall paper, which in many sections of the country is entirely unknown, and is used principally in the territory within the jurisdiction of this consulate general, is imported from France, England and Germany.

Newspaper plants here are supplied by an organization representing a group of eight leading manufacturers. There are also six or seven smaller manufacturers. An important daily at Barcelona formerly had a factory producing paper for its own use. This factory was about to supply papers also for other periodicals when the organization mentioned, it is reported agreed to pay a monthly amount for the factory's rights.

American exporters would do well to offer their most attractive terms of sale, which should compare not unfavourably with the terms granted under normal conditions by European manufacturers. These are generally credits of from 60 to 90 days, or cash 30 days after receipt of merchandise. Better results are likely to be obtained if correspondence with dealrs here is in Spanish.

FINLAND TENDENCY IS TOWARD PAPER MILLS

A new movement is noticeable in Finnish itmber industry; the importance of saw mills has somewhat diminished and other manufactures such as that of pulp and paper have gained greater importance. Several of the greater enterprises such as Ahlstrom, Gutzeit, Rosenlow and the Kemi Timber goods Company have devoted more and more interest to these latter branches of the industry, while their earlier business was wholly that of saw mills. So the Ahlstrom firm has taken up paper manufacture at Kuattua and is erecting an extensive pile of buildings for paper manufacture in Warkaus, while Gutzeits again refine a part of the wood in the factories in Kotka, Enso and Pankakoski.

This is the same development that can be remarked in Norrland; the saw mill firms are going over to more advanced wood refinement, in which weaker wood can be used and the wood circulation is quicker. The forests have been the foundation and for their rational utilization factories are built up.—Mercator.

PENNSYLVANIA TO GIVE 2,000,000 TREES.

After planting seedlings on the State forests, the Pennsylvania State Forester will have 2,000,000 trees left for distribution for private reforestation. More than half this number is white pine.

SPINACH FOR PAPER.

A French horticulturist, Mons. R. de Noyer has discovered that Spinach stems contain 46 per cent. of cellulose and make a paper equal to the Japanese product. While the investigation is a commendable one, we believe spinach is more valuable as a food, to say nothing of its value as a facial adornment.

PULP AND PAPER NEWS

E. Pullan Wipers and Waste Co., Limited, has been granted a chapter with a capital stock of forty thousand dollars. The headquarters are in Toronto. The incorporators are Elias Pullan, Harry Pullan and Joel Pullan, and the company is empowered to carry on the business of a laundry and rag, metal, junk and waste dealers in all branches.

Tenders are being called for by the Department of Lands, Forests and Mines in Ontario for the right to cut timber in several townships in the district of Nipissing. Tenderers must state the amount they will pay per thousand feet, in addition to the ground rent of one dollar and fifty cents per thousand feet, board measure, and the amount per cord for timber cut into cord wood in addition to the Crown dues of twenty-five cents per cord. The time for receiving bids closes on April 2nd, and the successful bidder must erect a plant costing not less than one hundred thousand dollars on or near the territory to manufacture the timber in Ontario.

The telephone directories of both Vancouver and Victoria are no wbeing printed on paper supplied by the Powell River Pulp and Paper Co., Powell River, B.C. Twenty tons are required for the issue, and the paper previously used was imported.

It is interesting to note that, in the recent discussion on the bill in the Ontario Legislature, for the better protection of the forests, Hon. G. Howard Ferguson expressed the hope that there would in time be enough pulp and paper mills in Northern Ontario to utilize all the pulp wood in that great section, and that it would not be necessary for settlers and others to send their wood across the line. It is understood that the Ontario Government is devising ways and means of adopting a definite policy along these lines, which will gradually but surely call for all the wood that Northern Ontario produces, and that the other concessions in the pulp wood line may be thrown open in the future.

An advance of three hundred per cent. in some paper supplies is noted by Wm. Kerr, clerk of Supplies for the Toronto Board of Education, in connection with the contracts to be awarded shortly. The tender of the Canada Paper Co. has been accepted for drawing paper at $150 per ton; practice paper, cap, 8½ x 14 B, $170 per ton, and manual training paper, tag manilla, $200 per ton.

The new mill of the Northumberland Paper and Electric Co., Limited, at Campbellford, Ont., is now in operation, and about twenty tons of board is being made every day. Favorable comment has been made on the quality of the stock produced, and sufficient orders have been received to keep the plant in operation for some time. The first marketable product was turned out exactly one year to a day after the fire which destroyed the industry in 1916. The company have had excellent success in the initial operation of the plant, and it is their purpose to make further improvements to bring operation up to the highest standard of efficiency. The construction work is now about completed on all the new buildings, and the company have 37,000 square feet of floor space under covr for manufacturing and storage purposes. In the reconstruction of the plant, as much of the old equipment as possible was used. By the erection of a first class machine shop at the site of the work, all machinery equipment that was not too badly damaged by the fire, was repaired and utilized to the best possible advantage in the new mill, thereby saving many hundreds of dollars in the purchase of new equipment. The general design and lay-out of the plant was made by Kerry and Chace, Limited, consulting engineers, Toronto, but the working out of the details for the repair of the buildings and machinery, the supervision of the new construction and the installation of all equipment was in charge of A. R. Whitelaw, as engineer for Kerry and Chace.

Some changes are being made in the Workmen's Compensation Act by the Ontario Government for the purpose of giving additional benefits to the employees in cases where the Act as at present constituted does not make adequate provision. The most important of the new provisions is that every workman entitled to damage under the Act shall recover from the accident fund his medical, surgical, hospital and nursing expenses for a period of thirty days. Several other amendments of a minor character are being made. The bill, as amended, has been given its first reading.

George E. Challes, of Toronto, sales manager of the Riordon Pulp and Paper Co., left this week on an extended business trip throughout the western and middle west states.

Mr. E. P. Foley, President of the Foley-Reiger Pulp Co. at Thorold, has been forced to close down the three divisions of his company owing to the embargoes which have been placed by the Grand Trunk and Michigan Cntral on all shipments.

Mr. M. Derrico, accountant for the Ontario Paper Co. at Thorold, received the congratulations of his many friends last week, on the arrival of a nine-pound boy, and judging from the rate he distributed those two boxes of cigars, Mike sure was a happy man.

Mr. H. Stanton, Canadian Appraisal Co.'s architect, is preparing a statement of values and depreciated values for insurance purposes for the Provincial Paper Mills Co., Ltd. He is at present at the Montrose Division, Thorold.

W. A. Damude, Carleton Street met with a painful accident while working at the Beaver Board Works on Sunday last. The ladder on which he was standing slipped, throwing him against a concrete pile breaking two ribs, which will confine him to his home for some time.

Mr. William Marshall has accepted a very responsible position in the Interlake mill.

The offices of the Monarch Paper Co. and the Houpt Paper Mills, Limited, have been moved from 419 King St. West, Toronto, to 79 Spadina Ave. At the annual meeting of the Monarch Paper Co. held recently, L. F. Houpt was elected president; A. R. Currie, vice-pres.; F. J. Smith, secretary; W. E. Houpt, treasurer, and E. A. Crippen, manager. The Houpt Paper Mills have elected the following officers for the coming year: L. F. Houpt, president; W. E. Houpt, vice-pres., and treasurer, and E. A. Crippen, secretary and manager of Sales. It is expected that the plant of the company at Camden East, to which extensive improvements and installations have been made, will commence operations about May 1st. The company have installed a new Harper-Fourdrinier machine, which will trim seventy-two inches, bleaching tubs with washers, two Horne beaters of one thousand pounds each, one Jordan, with rag room equipment for handling rags and other stock, in addition to ground wood and sulphite pulp. The capacity of the plant will be twenty tons a day of pure vegetable parchment, greaseproof, light weight bleach sulphite for waxing purposes, manilla and bleached tissues, crepe toilet paper and other lines.

An order for the winding up of John Heard and Co., St. Thomas, Ont., has been made on the petition of the Molsons Bank, who are creditors to the extent of $21,000. The company was incorporated in 1913 with a capital stock of $75,000, to undertake a wood and timber business.

Joseph Kilgour, of Toronto, was re-elected President of the Canada Paper Co., Limited, at the annual meeting held last week. The directors are Sir H. S. Holt, Sir Montague Allan, Charles R. Hosmer, F. W. Molson, and F. J. Campbell, general manager of the company, who takes the place on the directorate caused by the death of Hon. Robert Mackay. The reports presented for the past year were very gratifying, and the prospects for 1917 are most promising. During 1916 a two-storey addition was erected to the finishing room for the various lines of paper of the company, and other improvements carried out.

OTTAWA NOTES.

The settlement of the American railroad workers' proposed strike has materially eased the pulp and paper situation here, and has banished the apprehension that we felt in local trade circles last week concerning shipments of paper to the U. S. A. and the importation of coal for the mills.

Had the strike gone into effect and lasted for only a few days it was expected that the big paper mills of the J. R. Booth and E. B. Eddy plants would have been forced to close down. As the situation is now both plants will continue to operate, though they are going from "hand to mouth" for coal.

The Eddy plant has been running for some time with only four days' supply of coal ahead, and the Booth mill in practically in the same position.

Flight Lieut. J. R. Booth, Jr., grandson of J. R. Booth, arrived home from England this week, and will go to Banff, Alta., to recuperate.

The young officer's machine was twice hit by German shells, but each time he succeeded in volplaning down to the British lines. On the second occasion he was severely wounded, and remained in an English hospital from Dec. 18th to Feb. 8th. His flight had taken him clear across the Somme front.

Mr. J. Fred Booth, his father, arrived home with the young officer.

The Canadian Northern Railway, it is announced locally, has organized a new department to be known as the "resource department," to look after its extensive pulp wood limits situated betwen Port Arthur and Sudbury.

ANDREW.

SAFETY WORK IN PULP AND PAPER MILLS OF THOROLD DISTRICT.

A year ago, in this district, Safety Work as taken up seriously by the manufacturer was but a rumor, today it is a fact, and, in some plants at least, good progress has been made considering labor shortage, construction work and the high pressure at which the mills have been running.

Last June the mills were visited by Mr. A. G. Pounsford, Safety Engineer for the Ontario Pulp and Paper Maker's Safety Association who inaugurated the Safety movement forming Safety Committees in the larger mills and introducing the Safety Bulletin board on which are posted all Safety notices and Bulletins, he also inspected the mills and made recommendations for safety appliances such as guards, railings, better lighting, sanitary arrangements, etc., these recommendations have been carried out to a certain extent with good results.

The call of our King and Country have taken many of our skilled men necessitating the breaking in of semi-skilled and unskilled men to fill their places, this means a much greater accident hazard due to the ignorance of the novice to the dangerous parts of the machines. The education of this man to the Safety First idea is one of the most difficult phases of the Safety work, when that has been accomplished the next step of co-operation and Safety of the "other fellow" easily and quickly follows.

The married man with a family is obviously more easily led in the Safety path than the youth of eighteen who is out for all the good times that are going which means scuffling and fooling during work, throwing small articles at one another, etc., very often resulting in accidents. To overcome the frequent results of such "horse play" the educative bulletin is used which has been found to be carefully read. Many of these bulletins illustrate the results of accidents while others give a good straight Safety talk in plain and striking condensed form. The misuse of unsafe tools such as mushroom headed cold chisels, loose hammer heads, etc., are dealt with in a similar manner.

This is the work that is being done at present as well as the placing of guards and other Safety devices.

Greater plans are on the slate for the future but until labor conditions improve and more practical safety devices are installed the educative phase will be uphill work, the average man does not want to hear very much Safety First talk until the "Company" does its part. The "Company" is going to do its part and just as soon as circumstances will allow, as the managers all realize that the Safety First idea is good and here to stay and will pay a good interest on the investment as has been shown in dozens of instances in the United States.

The educative work has not been confined solely to the mills but has been brought to the employee, his wife and family in a very attractive and interesting manner by means of moving pictures which were very kindly loaned to us by the National Safety Council of

Chicago. The Griffin Theatre of Thorold, was leased for the afternoon and evening for one day and three shows were put on, two in the afternoon and one in the evening, one of the matinees being for the School children who came in a body from the different schools, the evening performance was more of the nature of a Safety Rally, the Mayor being in the chair and speeches were made by the Chairman and Mr. T. A. Weldon, vice-president of the Provincial Paper Mills Co., and a very instructive illustrated Safety talk was given by Mr. A. G. Pounsford to a capacity house. Free tickets were given to all employees of the pulp and paper mills of Thorold and their wives. The expenses were bourne by the mills interested. The following committee had charge of the arrangements, Mr. T F. Nevill of the Beaver Board Co., Mr. E. P. Foley of the Foley-Reiger Co. and Peerless Pulp Co., Jas. Wilson of the Thorold Pulp Co. and Mr. F. M. H. Cushing of the Provincial Paper Mills Co. This is the first time that motion pictures have been used for this purpose in Canada.

It is hoped to install the Safety idea in the future pulp and paper makers by introducing Safety classes in the public and high schools.

Night industrial classes were started last fall in the High school at Thorold and great interest has been shown by the pupils of which there are about sixty-five regular attendants. Although this is not strictly a Safety movement it will turn out a more efficient and intelligent work-man which means a lowering of the accident hazard.

With the resignation of Mr. A. G. Pounsford from the position of Safety Engineer of the Ontario Pulp and Paper Maker's Safety Association, we lose an efficient, enthusiastic and popular man among men and every good wish goes with him in his new position as General Manager of the Port Arthur Pulp and Paper Co. Mr. A. P. Costigane succeeds Mr. Pounsford as Safety Engineer and we are ready to back him up.

SECRETARY OF AGRICULTURE DISCUSSES THE NEWS PRINT FUTURE.

(Special to Pulp & Paper Magazine.)

D. H. Houston, Secretary of Agriculture, suggested in a statement on Saturday, that the Government enter into a manufacture of news print, or at least permit the sale of timber from public land to private paper makers for the purpose of increasing the available supply of paper.

The Federal Trade Commission, he stated, had brought some measure of relief to newspaper publishers and competition had been freed from restraint, but the fact remained that almost an equal balance existed between supply and demand in the paper industry. To offset the danger of this condition, the Secretary of Agriculture said efforts would have to be made quickly to increase the output.

Production barely keeps pace with consumption (the statement said). The estimated demand for news for the first six months of 1917 is 880,000 tons. Against this is placed an estimated production of 930,000 tons. As if this balance was not peril enough, there is the added that the United States depends upon Canada for a third of its news print, either in the form of finished products or raw material.

This proportion is increasing rapidly. The pressure of economic conditions and lack of foresight in cutting forests have so depleted the available supply of pulp woods in many of the paper manufacturing states that there is not enough left to last more than ten or fifteen years. As a consequence, Canada is more and more called upon for pulp woods, and American manufacturers are showing an increasing disposition to slip across the border into the virgin forests of the Dominion.

It is this condition of dependence that should be ended, says Mr. Houston. Changes in the Canadian policy might, at any time, cut off our newspapers from this source of supply, or make it available only at excessive cost. On the other hand, our own forest resources are ample to meet all the paper requirements of the country. Aside from the waste materials produced in the manufacture of lumber and the possible growth on 65,000,000 to 75,000,000 acres of cut-over forest lands in the Northern States, the publicly owned forests contain enough pulp wood to supply the entire needs of the United States for the next 80 years. Cut intelligently it constitutes virtually an inexhaustible supply for all time.

The one problem to be faced is that of the best means of utilization. The first plan is that of public sales of raw material to the manufacturers. This already is being done to some extent. During the last year, national forest timber sales to lumber companies amounted to $1,795,000. The plans call for contractual relations between the Government and private capital. New mills might be erected in Alaska, the Puget Sound country or the Rocky Mountain region under agreements with the Government for a long-term supply of raw material guaranteed under an equitable adjustment of prices from time to time. This is already being done in cases of certain saw mills.

The development of private paper plants in the West might be supplemented by the erection of mills by the Federal Government itself. It is estimtaed that a mill with a capacity of 100 tons of news print a day can be built in Alaska for $2,500,000. Even if the output of the mill were confined to the need of the Government alone, it is probable that such a mill would pay for itself in no great length of time, while adding something to the paper supply of the nation.

The fundamental problem is to build up paper production in the United States to keep pace with the growing demand and afford a sufficient supply at all times to hold prices at a reasonable level to the extent that private enterprise will do this. It would appear unnecessary for the government to undertake, particularly if the public-owned forests can be utilized for the purpose under condition which give the public control of industrial organizations. In the event that private capital cannot be enlisted, however, to meet the needs of a larger paper supply available at fair prices, it may well be that the Federal Government should enter the industry as a direct method of controlling the situation.

Mr. Houston said further, under all circumstances, greater economy in the use of natural resources was necessary if the pulp supply was to last for a long period of years. The Forest Service estimated, he asserted, that something more than 60,000,000 cords of wood were wasted annually in the manufacture of lumber. Experiments have shown that much of this refuse wood could be turned into wrapping papers, fibre boards, and other pulp products. An aggressive public forestry policy was needed, the secretary continued.

There is no reason, said he, why the regions now

(Continued on Page 306)

The Markets

CANADIAN MARKETS.

Toronto, March 20th, 1917.

With the advent of spring and the gradually improving conditions in shipping and securing supplies, there is a feeling of more settled business in pulp and paper circles.

The newsprint situation is by no means adjusted, and chaos still prevails to a certain extent. As announced last week, the news manufacturers, in agreeing upon two and a half cents at mill, accepted the Sir Thomas White ruling, and the new prices were understood to be for a period of three months only, dating from March 1st. Now a fresh snag appears to have been encountered, for the publishers insist that the figure shall be retro-active, and start on January 1st. Three cents at mill prevailed in car load lots until March 1st, and publishers contend that the decree of Sir Thomas, which was delivered shortly after the commencement of the new year, but not accepted until some weeks later by the producers of news, dates from the start of 1917. No contracts are being made by paper mills for any length of time, and if the publishers gain their point, it will mean quite a reduction in their paper bills, for half a cent a pound on what some of the large dailies consume in two months totals up to no inconsiderable sum, while the loss would be correspondingly heavy to the paper mills, who feel that they have now gone as far as could be expected of them. The matter of dispute has not yet been adjusted.

There is a growing feeling that the pronouncement of the Federal Trade Commission at Washington naming two and a half cents as the quotation for all news print paper in the United States will not carry. Mills representing only twenty-seven per cent. of the entire production agreed to this, and the remaining three-quarter per cent. have not yet "come across." If two and a half cents does not prevail in the United States, mills in Canada, who carry on an export business, will have the edge on those who do an entirely local trade or part export and part domestic, by reason of larger returns for their output. Some adjustment will, therefore, have to be made by Canadian plants in regard to making up the difference between two and a half cents local and three cents export. It is probable an agreement will be reached shortly whereby the exporting plants will pay into a general fund, the difference of ten dollars a ton on every sixth ton of their total export, as domestic business in Canada is only one-sixth of what the export reaches in news print commodity. Meanwhile, the ultimate settlement of matters over the line is awaited with interest by the Canadian industry.

All book and writing plants are rushed to the limit and orders still continue to come in. Whether there will be investigation of prices on these lines of paper, as demanded by the trade and class journals, and the publishers of school books remains to be seen. The latter are urging the move, but no definite word has been received from Ottawa. In the meantime, the manufacturers of book and writing papers are not alarmed. They feel that they can easily pass the responsibility for increased cost along to the pulp men, for sulphite is over three times higher than it was a year ago, while ground wood pulp keeps growing scarcer, and is steadily climbing in value. The sources of supply for pulp wood are being scoured, and the shortage is daily becoming more alarming. Many mills do not know where they are going to get supplies, and there is no prospective improvement in the situation. Sulphite pulp remains the same in price, and there is very little offering. One or two new plants will shortly enter the market, and what effect this will have on quotations remains to be seen.

Wrapping plants are now catching up with business, and jobbers have been holding back. They are now coming forward to place orders, feeling that there will be no reduction for some months at any rate. Some wholesalers who were loaded up with heavy stocks, which run rapidly into money at present figures, started to unload a few weeks ago, and cut prices, but not to any great extent. Business on the whole is good, and it looks as if the coming summer will see all plants making specialties and wrappings kept well employed.

There is some improvement in the coal situation and shipments of both raw and finished materials are moving more freely although it will take a few weeks yet before transportation facilities become normal. To show how bad congestion is one Ontario plant which had three car loads of sulphitep ulp shipped from Quebec in January last, has not received the consignment and cannot get trace of it. The shortage of coal is about over but prices, which are one hundred per cent higher than a year ago, are not likely to decrease.

Now that the Allies are carrying all before them, it is becoming a matter of interesting speculation, if the war should suddenly end, what will be the effect on paper. The feeling of those who have given the subject serious consideration, is that wages are not likely to recede very soon, the raw material situation will not improve for a long time and there is not a possibility of any falling off in prices for perhaps a couple of years. No doubt there will be a lowering of prices some time but never will paper be bought again at as low a figure as it was a year and a half ago.

The following quotations prevail, f.o.b., Toronto.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75

Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

NEW YORK MARKETS.

New York, March 17.—The writer was rather doubtful whether at the very high prices being asked for ground wood pulp, there was an actual demand. But there is, a rather strong demand. More than that, there is a noted tendency to try to store up, for the fear is that pulp will be scarcer than it has ever been within the next few months. Production is being greatly hampered not only by weather conditions, but also by the fact that mnay grinders are not getting their supplies of pulp wood and also by the fact that the prospects for getting wood in the near future are very poor. In the first place, other freight has been getting precedence over wood. It is known that the coming cut of wood will be the lowest in the history of the recent years of the industry. It can't be helped, for the labor conditions are so stringent that there is absolutely no alternative. The result will be that the value of the wood needed will be such that it will, of necessity, force ground wood much higher than has ever been anticipated. It will, no doubt, be interesting to learn some of the sentiment being expressed about the city regarding the future. Those that we know as the "great" minds in the local trade are agreed that there is now no likelihood of a break in the future. They regard as a matter-of-fact that a number of the high grade paper mills have shut down their machines or are not running at anywhere near capacity. When the strike is over (it is not believed possible that it can endure for any length of time) and when the other difficulties with which the manufacturer is now laboring are somewhat overcome, it will be found, so these men say, that business is as brisk as ever and that prices will easily maintain their firmness. The suggestion has been advanced that a number of the news print manufacturers who operate their own ground wood mills, will find it advisable to sell their raw product rather meet the disadvantages which are today predominant in the selling of news print. If this should actually materialize, there is a likelihood that considerable ground wood will be added to that already on the market (there is practically nothing available at the present time.) However, it is not believed that this will in any way affect the seriousness of the situation. For, any ground wood that is offered wil be picked up by a anxious buyers and will be bought at the high prices now being asked. The chief thing in the situation is that everyone realized that, with the coming of summer, the shortage of wood will be severely felt and that it is inevitable that the cost of ground wood must advance.

Chemical pulps continue firm. Reports are to the effect that the current demand has eased off. This is natural in view of the fact that paper jobbers are still waging their "bear" movement against the market. However, dealers and others handling chemical pulp are making no efforts to dispose of stock at prices less than those which are now considered the market. Foreign pulp is scarce and, as we have repeatedly stated, the prospects of any large supplies are rather slim. Not only are the foreign producers not inclined to incur the risks now attendant on ocean shipping, but they have announced theirintention of not caring to do so. It would not surprise a good many of the local men if, befor the arrival of Spring, relations between England and Sweden had been so improved that the commerce between the two countries would be of greater volume than it is at the present time. This might mean that Scandinavia would send more of her pulp to Great Britain. One of the daily newspapers came out with a report this morning, stating that there was a large quantity of foreign pulp in store at Baltimore. Time has not been sufficient to allow me to verify this report or to get any details regarding it. If it should be the case, it is not at all likely that the pulp is being kept on speculation, as the newspapers infer. It is most probably a shipment that has already been sold to a consumer and is waiting a propitious moment for forwarding. Now, however, with the railroad strike, there is no telling when the pulp in question will reach its destination.

Domestic pulp manufacturers report that they are working, under the present conditions, as best they can, but that it is impossible for them to take care of the demand being made. The future is regarded as certain in this respect: that there is no possibility for chemical pulp to go to lower levels. On the contrary, exceptions are that the market may yet go higher. The situation with regard to pulp wood, which we have already mentioned, applies as much to chemical pulp as it does to the mechanical stock.

In the rag market, conditions are usually dull, with apparently no interest being manifest by the paper manufacturers. In this city, where the dealers have been trying to maintain their prices, it is obvious, that a ununber of them are becoming discouraged and are trying to get rid of stock at prices somewhat lower than the general run. One dealer, in speaking to your correspondent regarding a sale he had made during the week, said that he was sure the mill was giving it to him merely as charity. It is a story of exchange affair. At the present rate, the future is not one of the very brightest prospects. The dealers are now meeting the arguments of the mills that the next few weeks will

Bleached and Unbleached

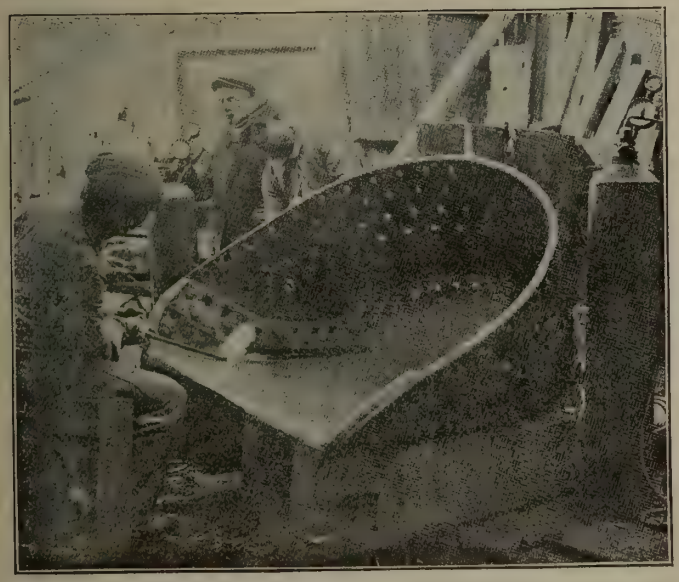
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bring out the usual Spring collection of rags. There won't be any Spring collection, the dealers say, if prices do not bolster up any more than has been the case within the past month. In order to get men to go out and collect the winter accumulations throughout the country towns, it is essential that they be able to make this vocation profitable—at least as profitable as other jobs which are available to them. Unless this is true, it may be that the regular collections in the big cities will fall off and a scarcity such as existed about a year ago will again result. It is admitted that several dealers have considerable stock in store, but this, it is maintained, will not last any length of time, especially when the mills all come into the market at the same time. Strange to say, the rag dealers have been waiting for this for some time and are now more certain than ever that it must come about. They figure that, during the period while the railroad strike is in progress, the paper mills will continue operating and wil lthus exhaust their supplies of raw materials. This will necessitate everyone coming into the market at about the same time when conditions are more normal.

Business in bagging and manila rope is holding up fairly well. Buyers seem to realize the fact that materials are rather scarce and that prices are inclined upward. The stocks coming over from England are of practically no consequence for the embargo is being well maintained.

In waste papers, it seems that a few grades are showing the greatest part of the activity. Old newspapers, for example, have been growing firmer all the time, with quotations going up until they are now nearly 1½c for over issues. Strictly folded news is already up to 1¼c, while mixed papers have reached the mark of 90c per hundred pounds. The other grades fairly active and are maintaining the prices mentioned in these columns last week.

In the paper market, no new conditions have arisen. The buying by jobbers has materially decreased and it is more evident than ever that there is a movement on hand to bear the market. However, the manufacturers are holding firmly to what they still maintain is the fair price and state that they are firmly of the opinion that it will not be very long before the jobbers will find it impossible to keep out. Then, as before, they say, the jobbers will find themselves compelled to come into the market in a body and will thus force prices up against themselves. Interest in the newsprint situation is still keen for there is a great deal that has not been decided.

New York Quotations.

(These are a nominal range of prices).

Ground wood f.o.b. mill	$50 and higher.
Foreign bleached sulphite, ex-dock, New York	10c and higher
Foreign easy bleaching sulphite, ex-dock, New York	6c and higher
Domestic bleached sulphite, f.o.b. pulp mill	8¼c and higher
Foreign unbleached sulphite, ex-dock, New York	5½c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Easy bleaching, f.o.b. pulp mill	6c and higher
Kraft pulp, f.o.b. pulp mill	6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	12c and way up
Best grade writings	20c and higher
Regular superfine	18c and higher
Ledgers papers	13c and way up
News, contracts, f.o.b. mill	$2.50
News, spot lots	$2.75
Book, super	9c and higher
Book, coated	8c and higher
Tissues, good sulphite, bleached, per ream	$1.30
Tissues, ground wood, manila, per ream	$1.30
Kraft	9c and higher
Manila	7c and higher
News board, per ton, f.o.b. New York	$70.00
Straw board, per ton, f.o.b. N.Y.	$65.00
Chip board, per ton, f.o.b. New York	$65.00

CANADIAN CHEMICAL MARKET.

The Chemical Market remains very firm. The railway situation has not improved, and stocks are very low with consequent high quotations for spot deliveries. Soda ash has advanced and is quoted at 3¼ to 3¾c. per lb.

The following are the prices in the Montreal market for not less than car load lots.

Alum, ammonia, lb.	5½c@6c
Alum, potash, lb.	6½c@7c
Blanc Fixe, paste, lb.	4c@4½c
Blanc Fixe, powder, lb.	5c@5½c
Bleaching powder, lb.	5¼c@5¾c
Brimstone, f.o.b. New York, long ton	$45.00
Casein, lb.	25c@30c
Caustic Soda, 76%, lb.	5¼c@5¾c
China Clay, imported, ton	$30.00@$40.00
China Clay, No. 1 white, ton	$20.00
" " " 2 " "	$15.00
" " " 3 " "	$12.00
Lime, ton.	$7.52@$8.00
Sal soda, bags, 100-lbs.	$1.25@$1.30
Sal soda, bbls. 100-lbs.	$1.35@$1.40
Salt cake, 100-lbs.	75c@90c
Soda Ash, lb.	3¼c@3¾c
Starch, lb.	4¼c@6c
Sulphate Alumina, technical, lb.	3½c@4c
Sulphate Alumina, iron free, lb.	5c@5½c
Talc, American, ton	$13.00@$18.00

ORIGIN OF SULPHITE ROSIN SPECKS.

The so-called resin isolated from pine wood by extraction with organic solvents, contains, on the average, 50 per cent. of fatty matter. Only traces of turpentine can be extracted from freshly-cut, relatively young wood by extraction with ether, but when the same wood is boiled with caustic soda solution under a pressure of eight atmospheres, the vapors discharged during the "blowing-off" operation contain measurable quantities of turpentine. The "resin" extracted from sulphite pulp by ether and alcohol contains respectively 63 and 74 per cent. of fatty matter, and it is to this fatty matter that the so-called "resin specks" on paper made from sulphite pulp are due, declares R. Sieber in a communication credited to Zeitschrift für angewandte Chemie by Jour. Soc. Chem. Ind.

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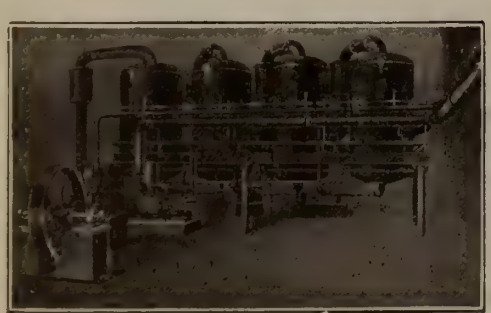
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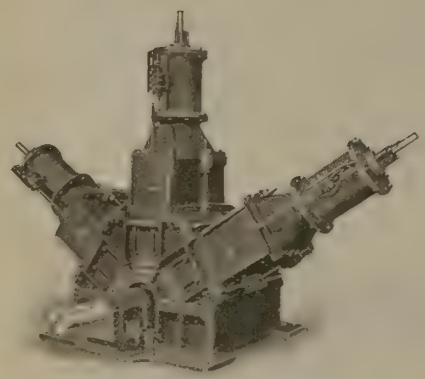
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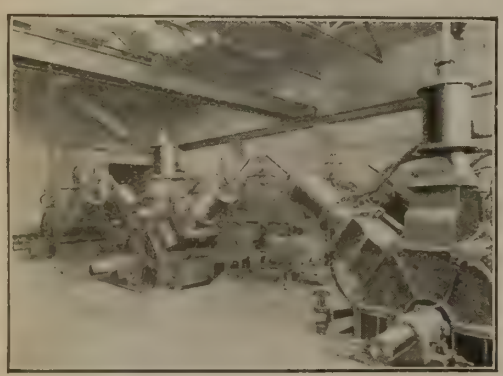
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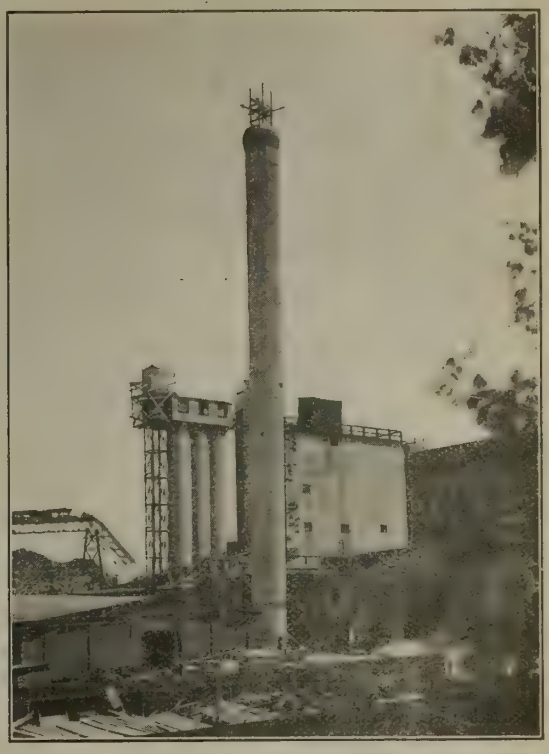
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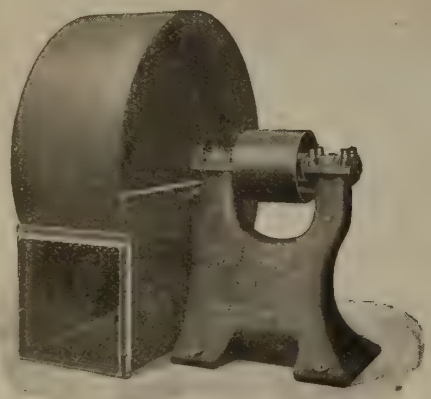
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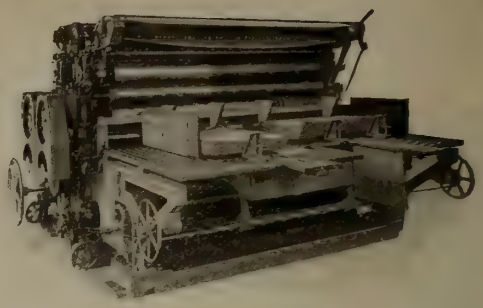
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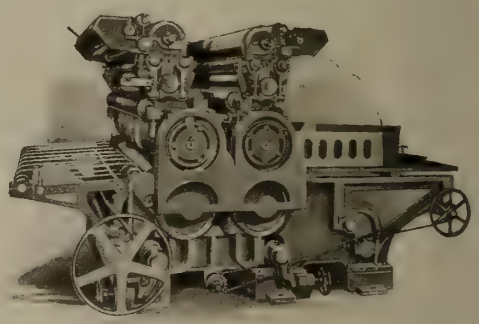
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

TECHNICAL SECTIONS WILL CO-OPERATE.

Co-operation along several important and practical lines is assured as a result of the conference held last week in Erie, Pennsylvania, by the Executive Committees of the Canadian Technical Section and the American Technical Association. On another page of this issue is an account of the plans suggested for the co-operation of committees doing similar or identical work. This is a very good step in the direction of binding the interests and promoting the pulp and paper industry of Canada and the United States.

Nearly every committee of each organization has its counterpart in the other. These committees, in doing their work, would have duplicated much effort. In some cases it is pure waste of time to do a thing twice. In other cases, such action may be necessary to check results or to test a method under different conditions. In either case, a co-ordinated plan would mean a more effective attack by concentrated efforts, and a more rapid and efficient covering of any field.

The whole atmosphere of the meeting was pervaded by the desire to find out how the most good could be done for the industry. The work that will probably be of most direct benefit to the mills will be the approval of the best known methods of testing and analyzing raw materials, and paper and pulp. The joint recognition of the methods that give best results can be taken as standards until a better way is devised. In many cases the uniformly adopted method that gives strictly comparable results is better than the absolutely accurate method which takes much time and skill and may not be workable by all concerned. There is a fine opportunity here for the technical men to eliminate friction, such as might arise between a Canadian pulp mill and an American paper mill over the color or strength or moisture content of a shipment of pulp.

Another line of work that will in time be appreciated by the industry at large as it is now by the technical men is the work of the Committees on Abstracts of the Literature. These abstracts will furnish a concise review of the whole field, a large part of which is now covered by the Review page in this Magazine.

The matter of vocational education received careful attention, resulting in the approval of local schools for the men in the mills. The co-operation of the Technical Sections with local authorities in the suggestion of books, courses of study, etc., will materially help this excellent movement.

As a fitting climax to the work of the conference, it was agreed to hold a joint meeting of the two Technical bodies each year. Holyoke was chosen for the gathering this year, in September. In this co-operation both societies maintain their individuality, but by joint effort on common problems will be able to accomplish larger results.

GIVE THE RETURNED SOLDIER A JOB.

One achievement to which the Canadian Pulp and Paper Association can justly point with pride is the record of the enlistments from the members of the industry. At the recent annual meeting of the Association, more pride was shown in the lengthy honor roll than in the fact that the industry had been placed upon a sound economic basis, or that it was capturing new fields of trade. Commercial and industrial achievements pale in comparison with the self-sacrifice and devotion of the patriots who have gone overseas in order that liberty and civilization might not perish off the face of the earth.

Much has been said and written about the men who have gone overseas, but comparatively little attention has ben paid to the men who come home maimed or otherwise handicapped in the struggle for existence. Most of the men who went overseas gave up good positions and made real sacrifices that the rest of us might stay at home in comfort and safety. It is not asking too much of the stay-at-homes, and especially of employers of labor, that they should give first preference ot the men who have fought and suffered for the cause of liberty. The members of the Canadian Pulp and Paper Association could make a fitting sequel to their lengthy honor roll by giving first place, and a decided preference to the men who are now returning, maimed and broken, from France and Flanders. It is true that many of them never saw the inside of a paper mill, yet a man with one hand or one leg may be as efficient a timekeeper or bookkeeper, etc., as could be found. Undoubtedly there are many jobs around paper mills which could be performed by a one-armed man, or a man with but one leg, or otherwise handicapped. In all fairness to these men they should be given every opportunity. Let it not be said of the pulp and paper industry that returned soldiers appealed in vain for work to the members of the Association. Giving a returned soldier a job is not charity, but the merest justice.

THAT NEWS PRINT MATTER AGAIN.

It was intended to let the "sleeping dog" lie this week, but it is intimated by one associated with the customers of newsprint manufacturers that recent comment on this page was unfair to the former. In some points the letter contradicts itself. In other particulars the letter supports our contention that the price recently named by Government officials is based on conditions at the most favorably situated mill. But the crux of the matter lies in the fact that the mills who can sell at $50 cannot make the tonnage demanded, and the market must be supplied from the less favored mills. If these mills cannot make a profit, as our correspondent says, "of $10 a ton, they could hardly be considered a newsprint mill," and would be foolish to make newsprint.

A mill is mentioned that is said to make $29 a ton on $50 paper, but "this mill probably has the lowest costs on the continent, and has excellent management." We maintain that the publishers will not get even their bare necessities in the paper line unless all mills are producing, and a management is worse than foolish to sell its product at less than a fair profit. Because one mill, or ten for that matter, can make paper for $25 a ton is no reason for trying to force a selling price of $50 a ton on a mill that is paying $40 or more for ground wood alone.

The statement that the U. S. Government has not **fixed** the price of newsprint has not been contradicted in this Magazine, but the price **named** by the Trade Commission is one that we hold to be unfair to the small mill whose product is sorely needed at this time.

The action of the Canadian Government is a war measure, and essentially different from that of the Federal Trade Commission.

FLAX IS STILL GOOD FOR PAPER.

With the possible exception of a few samples of paper recently brought from China, the oldest and best preserved pieces of paper were made from linen or flax. Even to-day, to specify a linen paper is to expect the finest and most durable product of the art of paper making. Since the first use of the flax fibre for paper making to the present day it first passed through an intermediate state in the form of cloth, and then served the double purpose of clothing the body and enlightening the mind.

There is another use for the flax plant, and that is to furnish the seed from which linseed oil is pressed. Unfortunately, when the flax has gone to seed, the straw is no longer fit for spinning, and weaving. In consequence, thousands of tons of flax straw are burned annually in the northwestern states of the Union, and the Prairie Provinces. The industrial research workers of A. D. Little & Co., in the employ of the Canadian Pacific Railway, have shown that this waste product can be made into excellent paper, suitable for bond, ledger, book and greaseproof. Other fibres can be mixed with it.

Another possibility for a flax industry for Canada is pointed out by the "Canadian Textile Journal." The suggestion is there made that Western Ontario take up in earnest the cultivation of flax as a textile fibre, with the assistance and co-operation of a government research station. There are problems of retting, scutching, etc., that could be very profitably studied. We would add that colaboraton of paper experts in this work would doubtless find a satisfactory use for scutching waste and other bi-products of the preparation of flax. And finally, when the linen, grown, spun, woven and worn, in Canada, is discarded, it is still the best kind of material for high grade papers.

FOREST PRODUCTS LEADS MANUFACTURES.

According to the postal census conducted by the Government last year, food products led all other departments of the country's activities in the value of the output with a total of $377,000,000. In a measure, however, that does not come under the category of manufactured goods. If the findings are confined to purely manufactured goods then the forests of the Dominion led in the value of the output. Timber, lumber, and manufactures thereof, including paper and printing, show a total valuation of $197,000,000, divided into $123,000,000 for timber and lumber, and $74,000,000 for paper and printing. Textiles are valued at $144,000,000, and iron and steel products at $119,000,000; leather and its finished products, $71,000,000, liquors and beverages, $35,000,000.

Much more is heard, for example, about our steel manufacturing than about our lumber and paper output. In a stock market sense infinitely more publicity is given to the doings of steel manufactures than to the activities of the paper makers, yet our forests and the products thereof are the biggest manufacturing asset we possess.

The Pulp and Paper Magazine has claimed all along that Canada is going to be the world's pulp and paper manufacturing centre, and the latest Government census bears out this contention in so far as Canada is

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THE DIFFERENCE!

An engineer who attempted to design a bridge in defiance of the law of gravity would be laughed at by the whole world; but a politician who pretends that he can design a scheme for lowering food prices in defiance of the law of supply and demand is applauded by the House of Commons and by three-quarters of the nation.—Edinburgh Review.

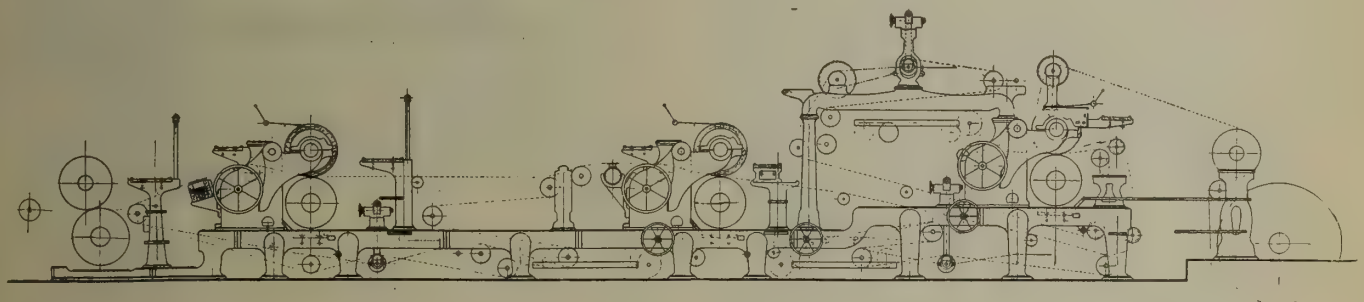
The same kind of reasoning has been actually applied to the Pulp and Paper Industry of Canada and similar action is imminent in the United States. It is said that the law of gravity was discovered by the falling of an apple on a scientific gentleman's head Perhaps similar contact with a roll of paper would enlighten some of our law-makers.

The Press Part of a Paper Machine

By JOHN W. PRASSINGTON,

Holyoke, Mass., formerly with Pusey & Jones Company.

There are conditions practically inseparable from the present design of the press part of a paper machine that militate against a much greater increase in the width of the machine. This statement is more true when applied to a book machine than when considered in reference to a news machine; in consequence, news machines, in part due to this disparity in the result of such conditions, are built wider than book. Some News machines are in operation that are over 200'' wide; the widest book machine the writer knows of is 176'' wide, and is not yet completed, being in course of manufacture in the shops belonging to the organization with which the writer has the honor of being associated. There is a strong probability that before many years have come and gone a 240'' High Speed News Machine may be in successful operation at a high rate of speed.



PRESS PART.

As paper machines increase in width, the problem that faces the machine designer can be stated under the following heads:—

(1) To make the rolls, especially the press rolls, rigid enough to bridge the greater widths, without undue deflection, and without making them too large in diameter to give an efficient working contact at the line of pressure.

(2) To shape and construct the peripheral surfaces of the rolls so as to give the maximum average uniformity of contact between the upper and lower press rolls, for every condition of operation. Machine tenders differ largely in their practice of weighting the upper rolls.

The first condition can only be met by compromise, under the present generally accepted methods of design; the second is covered by a careful selection of material so as to nullify, as far as possible, the evil effects of such a compromise.

In the days when paper machines were almost narrow enough to reach across, the lower press rolls were brass cased and the upper press rolls were made of wood; the "nip", that is the contact between the rolls, was very narrow, not only because of the absence of the resiliency and softness of rubber covering, but because the rolls were of small diameter. It is obvious if we take a little thought, that the area of contact between two large diameter rolls must of necesstiy, be greater than the corresponding area of contact that maintains, if the rolls are of smaller diameter. Now the quantity of water pressed out of the paper is directly proportional to pressure per square inch of area of contact of the rolls; that is, the efficiency of the press is not merely measured by the total pressure, but by the total pressure divided by the area of contact.

The custom of covering the lower press rolls with rubber is the result of two causes primarily; i. e., the necessity for an automatic adjustment of the line of contact by an elastic medium so as to correct for faulty crowning, under differing conditions and also to prolong the life of the felt.

Any beam bridging any span will deflect because of its own weight in addition to any other load that it may support; consequently, such a beam will sag in the middle; this condition is as true of a roll in a paper machine as it is of any beam. It follows then that two rolls ground with true cylindrical surfaces will, when placed one on the other, and supported at the ends, show by the light showing through, that they do not touch at the centre. This condition is corrected by crowning the lower roll, which naturally sags the most, enough to insure perfect contact from end to end. A roll is said to be crowned when it is ground so that the diameter at the center line is greater than at the ends, gradually tapering away to them.

When the papers made on the machine differ in weight and quality the amount of pressure exerted by the top roll is varied by shifting the weight on the levers, operating on the journals of the top roll. The amount of deflection varies as this pressure varies, and therefore, the initial crowning of the rolls is not suited to every condition of working, its efficient action being only possible between comparatively narrow limits of variation in the position of the weights; the use of a rubber covering largely increases the limits of working pressure obtainable under these conditions.

Unfortunately, the rubber in adjusting itself to the working conditions, largely increases the width of contact between the two rolls and so decreases the dehydrating action of the press, as explained above. To make a long story short, the rubber covering of a press roll corrects for faultly crown, preserves the felts, but lets the paper get to the dryers with a larger percentage of moisture than if rubber or any resilient coverings were not used, and this is still more the case when the rubber is soft.

In the writer's experience, the quality of rubber covering selected by paper makers, as suitable for the same work, varies between wide limits, from B.H. to B.M.L.C., or from 5 to 4-½, according to the make; the plastometer readings varying from

$$\frac{\text{1. K.W.} - 80}{.125} \text{ to } \frac{\text{1 K.W.} - 40}{.125}$$

It is possible that the amount of crown given to the lower roll is generally excessive, the elastic quality of the rubber covering correcting the error for any given working condition by the additional pressure added by the machine tender when he shifts the weight on the journals. The advantage obtained by using a soft rubber covering is, however, great, in that the life of the felt is considerably prolonged; when hard rubber or metal rolls are used, we have the results that maintain despite the greater dehydrating power.—

Felt meshes fill and become hard twice as quickly, causing breaks at press, due to the felt marks and small lumps becoming crushed while passing through press;

Loss of time due to frequent washing of felts;

Shorter life of felt because of frequent washing, and because of the lack of cushion in hard rubber covered rolls. Felt must be of considerable softness in order to successfully do the work, when hard rolls are in use.

Felts taken from press with hard rubber are seldom really worn out, rather they have lost just enough of nap which makes them thinner and too hard to give good results with hard rolls. Two weeks or twelve running days of twenty-four hours each is the limit of running time for felts used with hard rolls,

Again, when hard rolls are used, it is necessary to wash felts at least once every twenty-four hours to keep them soft.

The proper density of rubber covered rolls is given by the Plastometer, as $\frac{\text{1 K.W.}—50—60}{.125}$ If this density is used, the running time of felts is doubled as to washing and the life of the felt is also doubled; they then can be used for four to five weeks and even longer. Very little trouble is experienced with felt marks or crushed spots, due to small hard lumps, so it is readily seen that soft rolls deserve the preference over the harder. If there is a disadvantage in soft rolls, it is because they need more frequent grinding. A soft roll should be ground about once every two months; however, a roll covered as stated, will easily give from three to four years run, if properly used and not allowed to corrugate too soon. This life will more than balance for the expense of grinding the roll, as compared with the loss of felts and paper production, inevitable when hard rolls are in use. Hard rolls also have the disadvantage in that they have a decided tendency to check and these check marks or small cracks must be ground out nearly as often as the soft roll requires grinding to remove its corrugated spots.

Many ingenuous schemes have been tried in order to obviate the necessity of crowning press rolls, the most ingenuous and successful is here described—

The principle of the invention that is illustrated by the cut can be applied to press rolls whether they are used in a rolling mill or a paper mill. It has in the words of the Patent — "for objects to avoid or minimize the deflection of such rollers; to enable truly cylindrical or parallel rollers to be employed in lieu of cambered (crowned) rollers as thereby, to obtain a uniform peripheral velocity from end to end of a roller, and also to avoid the expensive and uncertain operation of cambering (crowning); further, to enable rollers of much smaller diameter than heretofore usually employed for the transmission of given pressures; to enable such rollers to preserve substantially their axial straightness from the instant of contact to the instant of maximum pressure; and to provide means for regulating the resistance of a roller at any desired point of its length as may be required by the exigencies of the work to be performed."

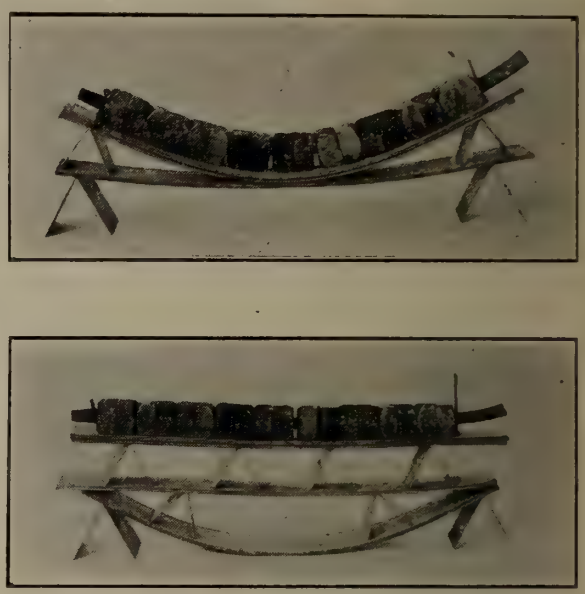


Illustration of the principle underlying design of non-deflecting roll.

Referring to the cut illustrating the principle underlying the design of the non-deflecting roll: — The two figures are photographs of some slips of card board supported on strips of tin bent in a "V" shape; one figure shows the strips arranged to represent the average press roll when the whole pressure load, here visualized by a string of steel nuts, is born by the outer envelope of the roll. In this case, all the deflection here grossly exaggerated is in the outer envelope, no where else! The companion figure in a similar manner represents the design of a non-deflecting roll; here again the upper strip immediately supporting the string of nuts, representing the pressure load, represents the outer envelope of the roll, and the lower strip represents the interior shaft, continuous from journal to journal. It will be noted that there is a third element introduced, which we will call the inner shell; this functions as transmitter of the roll deflection from the outer shell to the center shaft. There may be two or more of these transmitting inner shells, according to the diameter of the roll, but it is evident that this method of design gives a roll that has an axially straight cylindrical surface, so eliminating the necessity for cambering or crowning. The non-deflecting roll is heavier and more complicated in design, also demanding attention to the mechanics of the bearings, in order to compensate for inner shaft deflection.

It, however, is a coming substitute for its predecessor that will some day make the press part a more efficient part of the paper machine than is now possible while we have to compensate for error in design, by using not only large diameter rolls, but have to crown them, and then make the given crown cover a larger limit of error by using soft rubber covering. The straight line of contact that we strive to obtain by the above compensations, between the press rolls, is too often too wide to give good efficient pressure per square inch of contact, and the paper maker is often tempted to increase this pressure by moving the weights out on the levers, in some cases corrugating the rubber covering.

If the straight line is not obtained and the peripheral speed at the center of the press rolls is faster than at the ends, due to the crown, then not only is the paper unevenly dried, which is worse than being insufficiently dried, but the felt tends to fill up more quickly because the pores become diamond shaped, instead of square. The parallelism of the seam of a felt to the axes of the felt rolls is sometimes a measure of the accuracy of the crown on the press rolls, too much crown causing the center of the felt to run ahead of the edges; as this speed factor is continuous increment, it is evident that the cross thread of the felt will be no longer at right angles, but will incline to the center, reducing the area of the openings in the felt by making them diamond shaped.



NON-DEFLECTING ROLL

The writer followed with interest, the chequered history of what he believes to be the first non-deflecting roll tried out on this side of the Atlantic. It was a success in design and in operation; unfortunately, the cast steel hollow inner shaft developed a foundry strain that finally caused such an uneven movement in the bearings that this roll had to be discarded. It is a satisfaction to remember that the final failure of this roll was due to a cause which was not humanly speaking, possible to foresee. The next roll which will appear when financial and ultra-conservative obstacles are overcome, so the experiments, necessary for the final success of this design can be carried to a triumphant issue, will not have any unreliable material used, A cold rolled or even a hot rolled steel shaft, if it had been used instead of cast steel would have made the first non-deflecting roll an unqualified success. "The best laid plans of mice and men gang aft agley", and epimethean regrets cannot undo lack of promethean ability.

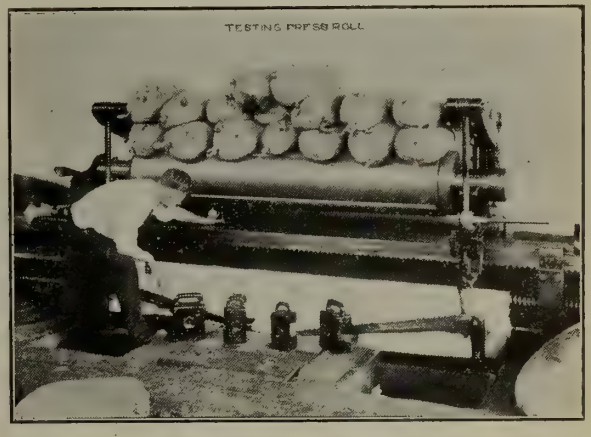
The question of the best length of felt is worthy of careful study; the writer offers the following remarks for the guidance of the reader:—

It is readily seen that the felt is a belt and drives many otherwise undriven rolls, all of which act as brakes, or snubbing posts, to which is added, on some machines, the braking action of suction boxes. It is also evident that the point of greatest stress is next to the diver, at which point the sum of all the "holdback" is concentrated. This naturally brings in the question of type of bearings and kind of lubrication used on the journals of the felt rolls which are driven by the felt.

A long felt is supposed by many to be better than a short one. This is far from being the fact in most cases. If additional rolls accompany a longer felt, there is no gain; for instance, a 45 foot felt running around nine (9) rolls is no better than a 35 foot felt running around seven (7) rolls. In fact, it is worse on account of the hold-back of the two additional rolls, which evidently adds to the sum of the stress, next to the driver.

Whippers should be on the outside of felts, for the felt is knocked away from the dirt or filling; the whipper does not beat the dirt into the felt as some suppose, but it works like beating a carpet with a stick — the most dirt flies out on the switched side. Another good reason for keeping the felt whipper outside is for the convenience of putting on or taking off a felt from the machine without interference.

Shower pipes should be placed on the inside of felts, and by the velocity of the jet action, combined with the whipper action, force all dirt out of the felt on the side from which it entered.



TESTING PRESS ROLL

The felt rolls should be made of a quality and a thickness of shell so that for the selected diameter they may be strong enough to withstand the strains induced by the continuous reversal of stress, due to the turning of the roll in the clasp of the pulling felt. Take for instance a felt roll eight inches in diameter on a high speed news machine; such a roll may revolve on its own axis over three hundred times a minute, giving six hundred reversals of stress in the same period. This action must some day crystallize the metal in the roll at the point of greatest bending moment, as surely as you can break a piece of wire by continuously bending it backwards and forwards. The life of these rolls depends on the selection of good material, proper thickness of shell, and diameter and finally, they should be in dynamic balance.

If the observer standing alongside a paper machine will note the water escaping from the "nip" of the press rolls he will realize that the faster the machine is running, the less chance the water has to escape, because the upcoming surface of the lower press roll continually tries to carry the water back into the nip. This condition gets worse the larger the diameter of the lower press roll. Attempts have been made to place water ductors close up to the "nip" to lead this water away; they have been invariably successful in this duty but unfortunately, so many accidents occurred owing to their use, where tried, such as the ductor getting into the nip, etc., that they are seldom if ever used.

If a press roll is made too small in diameter and is running at high speed, it is almost impossible for the machine tender to "pick off" the paper.

Many a fault blamed on the dryers, is due to the lack of uniformity of the press action on the paper, giving extra wet or extra dry streaks that invariably increase the standing order for "broke" for the beaters. Whenever the felts are renewed, the press rolls should be carefully calipered as a check on the accuracy of the crowning, and also examined with a plastometer every six inches of face; this examination is not alone valuable because it indicates the necessity for repairs, as it arises, but also is of great value and interest when it is tabulated with other periodical readings of the same roll, and is then compared with the corresponding records of the other press rolls, and the record of output of the machine while the rolls have been in service.

MARKET FOR PAPER IN CHINA.

(United States Commerce Reports.)

China's import trade in paper is in a very healthy condition. It is improbable that the domestic manufacture of paper along modern lines will be greatly extended in the near future, and this means that foreign paper will be required to supply an increasing demand. The changes within the country during recent years have vastly increased the number and circulation of native newspapers, and the output of publishing houses, for school and other books. Advertising, both by foreign and Chniese dealers, also is increasing with the result that the market for foreign paper and paper requisites is expanding.

Three Mills Equipped to Compete With Imported Paper.

Although the Chinese paper industry is probably the oldest in the world, the methods used are very crude. Only three mills in the country are equipped to produce paper similar to the imported article. Two of them belong to the Chinese Government, and are situated in the adjacent cities of Honkow and Wuchang, on the Yangtse. The third is at Shanghai.

The two Government mills are equipped with American machinery, and engineers were brought out from the United States to install and superintend the work. One is the property of the Provincial Government of Hupeh, and the other of the Central Government. They have been idle the greater portion of the time since their installation, for several reasons including breakdowns in the machinery. The one belonging to the Central Government is now in operation, and there has been talk of reopening the other. The former is a large and well-equipped plant, capable of turning out most grades from common cap to bank-note paper. At present the output consists of cheay news and book paper, cover paper, and coloured sheets, the bulk being of the first of these classes, for the native newspapers. The mill employs both sulphite and mechanical wood-pulp.

The mill at Shanghai is owned by a Japanese concern. It is well equipped with three large machines and has a daily capacity of 50 to 60 tons. The output consists of machine-glazed cap, cheap news print, and wrapping and tissue paper. The total product is said to be sold for several months in advance, so far does the demand for foreign style paper in China at present exceed the supply.

The imports of paper for the eight years from 1908 to 1915 show an expansion of 75 per cent up to 1914 while in 1915 there was a small falling off, but this was due wholly to a shortage, not in the demand but in the supply.

Wood-pulp in the Country's Import Returns.

Wood-pulp first apepared in the import returns in 1909, with a quantity of 1,526 short tons; and this had increased, with some fluctuations, by 1915, to 2,245 tons. Prior to the outbreak of war the principal countries of origin were Sweden, Norway, Germany and Great Britain, with negligible amounts from a few other countries, including the United States. In 1915 Great Britain and Germany had disappeared from the list, and Japan stood second only to Sweden; while imports from the United States, though still small, had materially increased. Practically all of the imports are entered at Shanghai and Hankow.

The number of foreign newspapers in China is small, and the circulation is in no case very great. Nearly all use their paper in sheets. In the Chinese newspaper field the circulation of some of those in Shanghai is beginning to compare favourably with that of smaller metropolitan papers in Europe and the United States The leading Shanghai paper claims 30,000 copies a day. This is the only one using paper in rolls, all the others purchasing in sheets. This sheet paper comes at present mainly from the Scandinavian countries and Japan, though a considerable quantity is made at Hankow.

Demand for various classes of Foreign Paper.

The classes of foreign paper for which the demand is greatest are machine-glazed cap, cap with one side calendered, print paper (calendered, uncalendered, and coloured), news print in cheap grades, cover and art paper, glazed and tissue paper, kraft and wrapping paper, and strawboard.

Machine-glazed cap is manufactured particularly for the Chinese market and heads all other varieties in the import returns. It is almost a tissue paper, and the large demand for it can be understood by referring to the customary form of Chinese books and pamphlets, which are usually printed with uncut leaves and on one side of the paper only. It comes in sheets, 25 by 44 inches, 500 of them weighing 16½ pounds. Large quantities are received from Norway and Sweden, and smaller quantities (in normal times) from Germany and Austria.

Coloured printing paper—pink, green, yellow, and orange—is much used for posters, street advertising, etc. It may be glazed on one side, but usually is unglazed. Cheap news print is bought mainly in the 31 by 33 inch size, 37 pounds to a ream of 500 sheets. There is some demand for 27 by 40 inch and 25 by 30 inch sizes. It is this paper that is mainly used for Chinese newspapers, job work, Chiness account books, scratch pads, wrapping paper in silk shops, and linings for tea boxes.

Many other classes of Paper in use.

Cover and art paper, glazed and embossed, is much used for covering fancy boxes and making Chinese envelopes. Glazed and tissue papers, in white and many bright colours, are used for making paper ornaments and artificial flowers and many other purposes of a similar nature. Kraft and wrapping papers have a fairly large sale. Strawboard comes almost entirely from Japan, being imported in all weights, and by the ton. There is some demand for foolscap paper in the 16½ by 27 inch size, 32 pounds to a ream of 480 sheets; for glazed printing papers in the 27 by 40 inch size, 60 pounds to 500 sheets, and the 31 by 43 inch size, 70 pounds to 500 sheets; and for unglazed printing paper in the 27 by 40 inch size, 60 pounds to 500 sheets. These are used for the better class of Chinese books, for books printed in English, and for foreign account books.

The Pulp and Paper Mill Town

By WILIAM E. HARRIES, Landscape Architect,
Toronto.

(Written specially for Pulp and Paper Magazine.)

One of the questions that is coming to be considered of vital importance to companies planning the erection of their mills at any distance from "civilization" is that of their future town sites. Whether there is an existing settlement close to the site of the proposed mill or whether an entirely new community must be built up, the question of how the labor is going to be cared for outside of working hours must usually be settled by the company. In either event the responsibility for the future character of the new town must rest upon the shoulders of the company management.

Most of the existing mills are feeling the scarcity of labor and realize that there is no prospect of immediate relief. Several of the larger companies have recently seen their engineers and skilled mechanics leave their employ,—foregoing higher wages in the bush for the sake of the comforts and enjoyments of more highly organized communities. The Canadian Manufacturers' Association is greatly improving through their Safety Work the working conditions, but the labor situation is steadily growing worse. Of course the war and the great demand for labor in manufacturing are rightly blamed as the chief causes.

But there is one factor in the situation that has been overlooked by some of the plants. That is the question of proper housing and the establishment of a decent community life for the workers and their families in the new mill town. For living conditions go hand in hand with working conditions and these are becoming factors of equal weight in determining the reduction — or otherwise — of the "labor turn-over". High wages are not so attractive when they are accompanied by no prospect of fair living conditions and as competition becomes daily keener for their services even unskilled labor begins to pick and choose the nature and place of its employment.

Thus the paper companies realize that their interests demand a careful and thorough consideration of the question of how to secure and retain efficient operatives.

Many conscientious efforts have been made by large manufacturing concerns to provide model villages for their employees and in a great many instances these schemes have come to grief. The two chief causes of failure have been in the high cost of land and in allowing the proposition to assume too paternalistic a tendency. But the larger Canadian plants are locating where land is cheap and if their managements are wise they will avoid any attempt at dictatorship in the ultimate affairs of the new towns. Their best interests will be served by starting things right and developing the town on a business basis — not necessarily as a matter of real estate promotion, — but with due regard for reasonable returns on the investment — and in such a manner as will require a high standard in the management of civic affairs which will be kept up when the settlement becomes an incorporated town or village.

A proper start should be made by devoting care to the preparation of a town plan, as on this depends so largely the success of the housing, the future of the community life and the financial returns on the real estate development.

TOPOGRAPHIC SURVEY:

The first step toward the preparation of the general plan should be taken as soon as the plans for the location and arrangement of the buildings of the plant have taken definite form. This is the surveying and plotting of the topography of the 300 to 800 acres that will be embraced in the ultimate layout of the town. The choice of the land that will be devoted to the town site depends so largely upon the size of the plant and the relative locations of the mill, the Railroad and the river, that only rarely can all of the ideal location factors enter into the plan. An attempt should be made to secure a site upstream and to windward of the mill, where good drainage can be secured, danger from forest fires minimized, where street grades are "easy" and where the Railroad station can be located as a part of the business center.

GENERAL CONDITIONS.

The general idea to be followed in the planning of the street arangement is to secure (1) the best possible communication between the residential sections, the business district, and the mill buildings, (2) an effective "zoning" of the different classes of property, (3) the maximum advantages of the liberal use of land without an unreasonable increase in the cost of improvements—roads, sidewalks, sewers, water and light service, etc., (4) control by plan of the areas not coming under immediate development so that the proper start will not be set at naught by the eventual growth of the town, and (5) a sufficiently economical plan to ensure a profitable return on the money invested in improvements and buildings through rentals and sales.

With such data as the survey of the existing topography supplies the actual planning can be started. Here the following suggestions should be born in mind:

BUSINESS CENTRE:

(1) Establish a business section where the activities of the town will centre. Locate it close to the Railroad so the station can count as part of the scheme for the centre of town. Here provide sites for the first company store, the hotel, the post office, the future shops and other business buildings not part of the mill organization. Three or four blocks of lots of fair depth and frontage, on the main street or the square will usually suffice.

GENERAL STREET PLAN:

(2) From the business section provide streets of ample width along such lines as will furnish direct communication with the industrial section and the rest of the town. Let ease of access to and direct communication between the various portions of the town by the key note of the planning. Get away from the absolute gridiron layout in planning the main streets, so that there will be some open space and irregular lots to allow for special development. But do not go to an extreme in curved streets or acute angles or the proportion of streets to lots will become unbalanced, frontage cut down and improvements made too costly.

RESIDENCE SECTION

(3) Arrange the residential section in accordance with the three general classes of people to be housed—reserving a well defined location to the salaried men, resident officers and engineers of the plant and others of that class. Separate with equal care the districts for the homes of the skilled workmen and mechanics from those for the unskilled labor. Allow plenty of space for a really high class section for the first class, restricting it to three or four houses per acre if possible and give it the best location, taking care that the subsequent growth of the town will not hem it in. Plot the sections for the labor in accordance with the types of houses to be built. Do not let the lots for the higher paid labor average less than 50 x 125 feet and for the unskilled class less than 40 x 110 feet. The increased value of the land due to good development and the existence of the town itself will not make the cost of improvement too high. As the plan progresses the question of future extension of streets and residence districts should be constantly borne in mind.

GRADES:

(4) Run street lines as nearly parallel with the contours. or lines of equal elevation, of the property as possible to avoid bad grades for traffic and prohibitive depth in securing continuous fall for sewer lines. Grades should be figured constantly as the streets are plotted.

SPECIAL BUILDINGS:

(5) Sites for community buildings should be reserved on prominent corners or lots of inconvenient size or shape for subdivisions where ample grounds can later be used as small parks or recreation areas. Sites for two churches must be provided and of course schools depending in number on the probable size of the town. A hospital building and a club or Y.M.C.A. will also be necessary.

OPEN SPACES:

The main streets should also be at least 80 feet wide and building line restrictions laid down far all residence streets to keep the houses back from the property line. Playground areas and parks may not be needed for the first few years when so much vacant property will be available but if a few of the pleasantest sites are reserved along the river and on land difficult of subdivision the ultimate results will point to the wisdom of thinking ahead. Another necessary adjunct to the "life" of the town is the setting aside of a definite tract of land on the outskirts of the planned area for a cemetery.

CONCLUSION:

The value of the careful forehanded planning of the town will be evident at the start in that close estimating can be done on the cost of improvements before the ground is broken. It will prevent the location of the first buildings, offices, boarding houses, etc., — where they would interfere with the proper development. Together with the scheme for housing, the Welfare or Real-estate department of the company can gauge the development work by the growth of the town, figuring more closely on the ultimate return on the investment and so guide the march of civic events during the first few years that a clean, healthy, self-respecting community will result.

Successful industrial villages and housing schemes are becoming more numerous every year and under intelligent management they are showing excellent results in increasing the efficiency and stability of labor and improving its general character.

Technical Men of Canada and United States Meet in Joint Conference at Erie, Pa.

The joint meeting of the Executive Committees of the Technical Section of the Canadian Pulp and Paper Association and the Technical Association of the Pulp and Paper Industry, held in the Assembly Room of the Lawrence Hotel, Erie, Pa., March 22nd, 1917, was attended by the following representatives:

Mr. Henry P. Carruth, of the American Writing Paper Company, Holyoke, Mass.

Mr. Thomas J. Keenan, Paper, Incorporated, New York.

Mr. Henry E. Fletcher, of the Fletcher Paper Company, Alpena, Michigan.

Mr. Ernst Mahler, of Kimberly-Clark Company, Appleton, Wisconsin.

Prof. John D. Rue, of the University of Michigan, Ann Arbor, Michigan.

Mr. Raymond S. Hatch, of Crocker- McElwain Company, Holyoke, Mass.

Mr. Henry F. Obermanns, Hammermill Paper Company, Erie, Pa.

Dr. John S. Bates, Forest Products Laboratories, Montreal, Que.

Mr. Olivier Rolland, of the Rolland Paper Co., St. Jerome, Que.

Mr. G. W. Dickson, of the Riordon Pulp and Paper Co., Hawkesbury, Ont., these three of the Executive Committee of the Canadian Association. and,

Mr. J. N. Stephenson. of the Pulp and Paper Magazine, Montreal, Que.

Mr. Sigmund Wang, of the Riordon Pulp and Paper Company, Hawkesbury, Ont.

Mr. Albert O. Bowness. of the E. B. Eddy Co., Hull, Ont., was recalled by telegram before the conference opened, because of Mr. Ludington's death.

The meeting was called to order at ten-thirty o'clock by Mr. H. P. Carruth, who opened the meeting thus:

"I certainly believe that it is distinctly a step forward for the two organizations to get together in this way. Personally, I hope that as a result of this meeting of the Executive Committees, we will be able to arrange for joint meeting of the whole Societies sometime at some convenient place.

"The suggestion that brought up this meeting tends toward co-operative work: I think in the first place, along the line of distributing journals and that sort of thing, and I presume that will be discussed later, also the discussion of joint committee work, so as to avoid duplication; and the question of joint meetings and joint action in general."

Mr. Carruth then asked Mr. Keenan as secretary to start the thing by enumerating the suggestions that had been made.

Mr. Keenan: Mr. Chairman, I think that most of the gentlemen are familiar with the correspondence we have had regarding a program for the meeting.

First of all, might I read a letter I have just received this morning from Mr. Robert B. Wolf, regretting his inability to be present at the joint meeting.

Mr. Keenan then read communications from the following gentlemen:

Mr. Martin L. Griffin—relative to suggestions regarding work of the Societies.

Dr. Kress, of Forest Products Laboratory, Madison, Wisconsin.
Prof. John D. Rue.
Mr. Olivier Rolland.
Mr. A. L. Dawe, Secretary of the Canadian Association.
Mr. Henry P Carruth.

A letter from John S. Bates of the Canadian Technical Section regarding the joint council meeting was read.

Dr. Bates read parts of the minutes of the Council meeting which were published in this Magazine March 15th. At Mr. Carruth's request he explained that the Technical section meets three times each year. The fall meeting, usually in October, at a convenient place and the winter meeting in February in conjunction with the annual meeting of the Canadian Pulp and Paper Association. A spring or early summer meeting was tried last year with great success. This meeting consisted in visiting paper mills and papers and technical discussions are left out. Last year the Thorold district was visited. Another center will be chosen this year.

In the general discussion of the question of a joint meeting, participated in by all present, it was agreed that the fall meeting could easily be a joint meeting. The Holyoke men present, Mr. Carruth and Mr. Hatch extended on invitation to meet at Holyoke. This plan met with the approval of all. The Canadian delegates hoped that alternate gatherings would be in Canada. Watertown was mentioned as a possible meeting place, but Holyoke has the advantage of having a large number of members of the Technical Association. Mr. Obermanns said that the Hammermill Paper Co. would always be glad to have such a meeting held in Erie. Arrangements were left in the hands of the executive committee and the council. The suggestion was made that there be visits to a few mills and a very few papers of general interest, so as to have plenty of time for thorough discussion. Such a meeting would also be an opportunity for consideration of joint committee work.

The point was brought out, and emphasized, that papers, at least in outline, should be in the hands of the members before the meeting, so as to get the most intelligent discussion.

Abstracts of Literature.

Mr. Carruth asked Mr. Stephenson to speak on joint action on Abstracts. He replied as follows:

This matter of abstracting the literature is under ways; it has been undertaken by the Technical Section with the co-operation of the Committee on Abstracts of the Section of which Mr. Bryant of the Forest Products Laboratory is chairman. The papers that have been so far abstracted. include the Lumber journals, which are taken care of by a member of the staff of the Forest Products Work in Montreal; the British and American Paper Trade Journals and the Scandinavian papers. I presume a batch of German and Austrian papers are now in the hands of the Abstractors of "Chemical Abstracts." These will be gone over and published. Arrangements have been made whereby the Pulp and Paper Magazine is furnished by the editor of "Chemical Abstracts", with proofs of the abstracts of recent patents, and those which have to do with pulp and paper are reproduced in the Magazine. Those that are about cellulose, etc., are not included. I might say that some of the Engineering papers are also looked over so that we not only cover the purely pulp and paper mill processes, but also articles of more general interest.

Undoubtedly, in fact we know, the field is not completely covered, although we are trying to cover it as completely as possible. At the present time we have five men working on the abstracts, besides the articles that I pick up myself. Occasionally an article of general interest is found in some of the more popular papers, for instance, in the supplement of the Scientific American.

Schemes for printing abstracts in final form for filing were suggested. The possibility of co-operating with and assisting "Chemical Abstracts," was discussed, as were the several methods of indexing. A plan that had been previously worked out for co-operation between the Canadian and American committees was described.

A motion was made by Mr. Keenan, seconded by Mr. Hatch and amended by Mr. Fletcher that the chairmen of the Abstract Committees be allowed a budget by their respective councils, the said chairmen get together and determine the best method of procedure, reporting the same back to their councils for approval and start operations. This was withdrawn as a motion and put in the form of the following resolutions submitted a joint committee (Messrs. Fletcher, Keenan, Rolland and Stephenson), and carried.

First.—That the respective Societies present be asked to make the appointment of the chairman of the Abstract Committee immediately, from members so situated that they will be able to meet and work together.

Second.—That these chairmen be instructed to meet at the expense of the Societies and determine the most feasible means and methods for obtaining the best results.

Third.—That these chairmen refer their findings to their respective councils for approval.

Fourth.—That these respective chairmen be allowed an appropriation by their Societies to be spent as they see fit. Would suggest Mr. Stephenson and Mr. Rue as the two men to be appointed. Their expenses to be taken care of by their respective Societies through this appropriation. That they are free to spend the appropriation as they see fit.

Employment Bureau.

After considerable discussion of the advisability of having a committee on employment, it was decided that such a movement would have more drawbacks than advantages and it was voted to drop the matter for the present.

The meeting next discussed of the manner in which the Technical Section and the Technical Association could support the National Exposition of Chemical Industries.

Professor Rue, for the American section moved that the National Exposition of Chemical Industries be endorsed by the Technical Sections of the Pulp and Paper Associations.

This motion is seconded by Dr. Bates for the Canadian Section and carried.

Mr. Rolland suggested the desirability of having a series of papers on successive processes of paper making by experts and that these be collected in permanent book form. The need of suitable text books was brought out by Dr. Bates. It was felt that this matter could be left to the committees on Literature and Education.

Co-operation on Standard Methods.

(The discussion of work which is actually being done is given practically in full).

Mr. Carruth: Supposing we now proceed to take up the question of bringing together the work of the standing committees. Now the Technical Association have standing committees on Sulphite Pulp, Soda Pulp, Sulphate Pulp. In regard to Standard Methods for Testing Materials used in the manufacture of paper. Application of formulae, abstracts, and standard specifications for the purchase of wood. A committee on dyestuffs and bibliography. I think the point for our consideration this afternoon mostly deals with raw material such as chemical pulp, ground wood, materials used in the manufacture of paper, purchase of wood and paper testing. Now the idea is as we understand it that the Canadian section have committees very similar to ours.

Mr. Bates: We have just two committees, The Committee on Standards and the General Standing Committee.

Under General Committee on Standards, we have provisions for special committees.

Mr. Bates: The Committee on Testing Moisture in Pulp is a sub-division of the first.

Mr. Carruth: Our Committee on testing dye stuffs is one of a dozen sub-divisions.

Mr. Fletcher: The way we have in our Association at present provisions are made in the fall meeting. We have Committee on Sulphite Pulp, Soda Pulp, Sulphate Pulp. We also have Committee on Standard Testing of Materials used in the manufacture of paper. Committee on Sulphite Pulp will propose a standard method for testing sulphite pulp. Committee on Soda Pulp will perhaps propose a little bit different standard method. Committee on Standard Methods of Testing Raw Materials used in the manufacture of paper, propose still a different method and these co-operate with the members of the other two committees, who may be widely apart in their views and it brings the two committees on standard methods of testing raw materials used in the manufacture of paper together. It seems to me there might possibly be some way to simplify the whole thing, although I cannot suggest the method.

Mr. Bates: Our policy is to take one thing at a time. Committee on testing moisture in pulp is considering an important question and working on that subject trying to get it settled.

Mr. Keenan: The American Pulp and Paper Association, American Societies of Wood Pulp Importers and the big manufacturers have all joined together to establish standards for moisture in pulp and they employ one of our members as a chemist, that is Mr. Klutzen and it seems highly desirable that we should have a committee of the same kind as the Canadian Association.

Mr. Bates: Our idea was that we did not want to bother with testing moisture in pulp at all unless we did it on a scientific basis. We have quite a basis for experimental work for this committee and with money for its work.

Mr. Carruth: Can you suggest a method of co-operation along this line, Dr. Bates:

Mr. Bates: The only possibility I see at present is that we have our individual committees on the same subject and keep in touch with one another so that the work is not duplicated and I would like to ask how you get proposed standards actually adopted.

Mr. Keenan: They have not been adopted by the whole Associations. We report the methods accepted and it is understood these reports, after being gone over thoroughly and compared with reports of the committees will come up for adoption by the societies.

Mr. Carruth: Committee reports should be adopted as committee reports at one annual meeting and then adopted as standard methods at the following meeting, giving a year's time for trying out by the various members and a chance for discussion at the annual meeting.

Mr. Fletcher: Accept the committee's report according to their findings and allow a year's time to elapse before these findings are made standards. At the end of that year's time if findings are proven out they would be made standards.

Mr. Keenan: Would it be possible to form an international committee on that subject?

Mr. Fletcher: Suggest that joint committees work together. Let chairmen keep each other notified on what they were working on so work would not be duplicated.

Mr. Hatch: In addition, the chairmen could get together and lay out a programme to work on.

Mr. Bates: We could only afford to work on one or two things at a time.

Mr. Hatch: I believe the only way results can be accomplished is by taking up one or two subjects at a time and complete them, instead of starting a whole lot of stuff.

Mr. Stephenson: It is important then for each Section of the Association to recognize the work being done by the corresponding committee of the other section.

Mr. Carruth: With few exceptions our lines are identical.

Mr. Bates: Have you found that your committees really do work?

Mr. Carruth: That question can be answered both in the affirmative and negative.

Mr. Bates: Work on standards should be based on scientific work done and not simply rehash reports.

Mr. Hatch: It would not be right to consider the value of the work already done because we would be simply doing work that was well done all over again.

Mr. Bates: Permit me, Mr. Chairman, if I read from the minutes of our society. (He read instructions and suggestions sent to committee for testing moisture in pulp).

Mr. Carruth: There is one way to get at this question of materials used in the manufacture of paper. We had a feeling that there probably are in use in some of our mills a satisfactory method, at least a reasonably satisfactory one. We also know that there are very unsatisfactory methods, sometimes very erroneous methods used for the same materials and we hope by co-operation of the members to get copies of the various methods which our members are using, and by collecting that information and giving it the consideration of the committee through which it would pass, to throw out a great many unscientific methods and narrow the discussion down to perhaps one or two methods which offered the best results, even if not perfect or known to be imperfect. We will know better then what is used and could be recommended as the best method and at the same time the committee would have done good work. As we have stated, no method of analysis is ever final, it is always simply a settle-

ment of the condition of the order of science at that particular time.

Mr. Fletcher: All we can do on that subject is simply to recommend that the chairmen of these respective committees communicate with each other and keep in touch with their individual methods.

Mr. Carruth: The motion is made that the Secretaries of the respective societies notify the chairmen of the various committees and the corresponding chairmen in the other society to get in touch with each other and co-operate.

Mr. Mahler: Are the methods used by us or by the Canadian Section to be approved by the other side before publication?

Mr. Stephenson: There is no doubt but what the value would be considerably increased by having them O.K.'d and checked by both Technical branches.

Mr. Carruth: Personally I feel that if a method is published as the best method at the time, even if not perfect, still if it is the best, it is better to publish it and get it into use.

Mr. Bates: Trouble is that we have not actually adopted anything.

Mr. Carruth: I do not think that is strange. Both Societies are young, there has not been a great deal of time for work, we have had only one actual working year, and we have published the findings of our committees; in fact, considerable work has been done, and some of it very good work.

Mr. Hatch: The possibility exists that some of the work which was originally considered very good, like for instance the recently published report on Sulphite Testing, when tried out in various localities, may not prove to be the best method finally, but it may be up to the present time the best method available.

Mr. Fletcher: How would it be for the two chairmen to summarize and arrange all the methods and have them passed on by the respective councils?

I believe that the best results will be obtained if this conference recommends that the chairmen of the two committees of the two Societies take up their work together, adopt just as many operations as they can up to date, even just as they are, and then as a new operation or a new system comes along, let the Societies decide whether it is an improvement and if they consider it is an improvement, hold it up and adopt the new one.

Just to bring the matter to a focus, I will make the motion that the Chairmen of the respective committees of the Societies work together and adopt processes and standards.

This motion was seconded by Mr. Sigmund Wang and carried.

Vocational Education.

Mr. Carruth: That brings us to the consideration of the last item, that of Technical Vocational Education.

I would like to hear from Mr. Mahler.

Mr. Mahler: I am chairman of the committee but there was no work done at all. I brought papers with me for discussion with you gentlemen, on what we are going to do about this question, but the question in my mind is this—Is it possible to have joint schooling with the Canadian Section or is that an impossibility right from the start? I think we have two different questions before us.

First.—Actual education in schools.

Second.—Putting out books, hand books, etc., as Mr. Rolland referred to.

Is it possible at all to have joint schools, or is it an impractical thing? I would like to hear your opinions.

Mr. Carruth: There are four ways in which this subject can be approached:

First.—By local municipal schools.

Second.—A state trade school on the order of the Lowell Textile School.

Third.—Federal, which might be international in scope.

Fourth.—Purely Industrial schools.

Mr. Mahler: That is just what I wanted to bring out. I have not the slightest idea how the Canadian Government stands on the proposition of joint schooling.

Mr. Bates: We have two types of schools, one for technical men, having either University training, or special education along pulp and paper lines, similar to the University of Maine, and second, trade schools, for foremen and superintendents and men who have not had a technical education. We cannot see any possibility of combining these two.

As far as joint support goes, I do not think any government would support a school outside its own country.

Mr. Mahler: That is done in some places, by foreigners paying twice as much as others.

Mr. Bates: A school on paper making for technical men seems to me would have to be organized in connection with a University, perhaps. All existing schools of that type are.

Mr. Fletcher: I do not think this can be taken up in an international way.

Mr. Mahler: Suggests that the committees on educational work in the two Societies get together to discuss work and standard plan or studies for a certain course which would be adopted in both countries.

Mr. Bates: Read instructions to committees on educational work, suggested the investigation of educational facilities of technical schools throughout the country with special reference to paper making itself; looking into more important paper making tests with a view to arranging in classes for mill men; setting aside a suitable room for mill men with good books and literature on paper making; doing something in the way of abstracting information in paper and pulp magazines, and working up simple text books, and co-operation on the safety movement.

Mr. Fletcher: Would it be feasible to take this up with the International School of Correspondence?

Mr. Bates: In Thorold early in the Fall Mr. Carruthers worked out a scheme for night classes in that district, and they got after the Thorold High School and arranged for night classes. There was a very good attendance from the pulp and paper mills. We hope to take this up in two or three or four paper making centers in Canada this Spring, with a view to starting night classes at these points next Fall and trying to get the men to go all winter.

Mr. Obermanns: You used to have quite a number of evening classes in Holyoke on paper making, what success did you have?

Mr. Carruth: We have a regular course of paper making evening extension work for men actually employed in the paper making industry, and that was fairly successful the first two years. It failed the third year, I believe, almost entirely due to poor executive control. A few months ago the American Writing Paper Company offered to the City of Holyoke, the use of one of their plants as a paper making school. Nothing

definite has been done. There are several plans under discussion now, both by the city and state, and it is possible that something will be done this coming Fall. Just what form these instructions will take is not known. There will probably be classes for paper engineers, paper dyeing, machine tenders, everything that is applicable to the paper industry. Classes for chemists; for steam engineers—to enable men to get steam engineer's license—and all branches which are in any way connected with the paper industry, either as actual paper making or any of the subsidiary vocations.

There is a sharp difference between trade schools and vocational schools. You must adopt studies which are of actual every day use to the men.

Mr. Obermanns: I think there is a desire on the part of the men to enter into such schools. We have never had any in Erie, but I have recently been approached by quite a number of our men, asking whether or not it would not be possible to introduce such a school.

Mr. Mahler: We started in our company to give a series of lectures regarding the chemical process of paper manfacture and it was only after the second lecture that it had to be divided into two courses. We started with twenty-eight, which grew to one hundred



Technical Men at Hammermill Paper Co.

Sitting: J. S. Bates, H. F. Obermanns, H. P. Carruth, H. E. Fletcher, E. Mahler, O. Rolland.

Standing: J. N. Stephenson, G. W. Dickson, A. O. Spierling, S. Wang, J. D. Rue, R. S. Hatch, T. J. Keenan, F. P. Klund, W. C. Culberson.

and thirty. There is a great tendency on the part of the men for more learning.

Mr. Carruth: I believe a school operated by the company would be more acceptable to the men than a school operated by municipal authorities. The idea was that if the company operated the school the men would be more likely to feel that it would be beneficial to them, as they would feel that it would mean more pay, or a better chance of promotion.

Mr. Mahler: In some schools the men are paid by the company for their attendance at their regular hourly rate.

Mr. Bates: Our idea was to have the men sent to some school for a period of six months.

Mr. Keenan: Does the Technical Section of the Canadian Pulp and Paper Association have any supervision over the school in Thorold?

Mr. Bates: Just co-operative.

Mr. Keenan: It seems an admirable plan for paper making centres.

Mr. Fletcher called attention to the conditions of affairs now existing which has a vital effect on the future of the paper making industry, and all others, that is the great loss of men, and the necessity for educating the men, so that one man can do two or more men's work.

Mr. Keenan: Would anything be accomplished if this conference adopted a resolution to notify the boards of education in paper making localities that we have committees on vocational education, with particular applications to processes of paper making and that any time the services of the committee would be at the call of the authorities if they desired to take up that work.

Mr. Mahler: First we want to hold ourselves to strictly vocational education. Do you think it proper to localize vocational education, or do you think it would be better to have two or three schools all through the country?

Mr. Fletcher: Quickest results will be obtained by localizing.

Mr. Carruth: There is one thing we could do. Our committee could be in position to supply special lectures to these local schools on certain subjects. Get different types of men, men specializing on different subjects to lecture on their particular subject.

Mr. Mahler: We do not want to give a man too much technical stuff. Give him actual facts which he can use and understand.

Mr. Fletcher: Mr. Carruth's suggestion calls for consideration in choosing men.

Mr. Mahler: If we go into vocational training we ought to build up a regular course of training which is laid down by the law. Start in with processes of chemistry and building these men up gradually.

Mr. Carruth: Our experience in Holyoke with our lecture course was that it was not wise to talk very much about general chemistry, but confine to a popular presentation of chemistry as applied to paper making.

Mr. Mahler: Give the men finished facts. Do not attempt to fill them up with all kinds of things.

Mr. Mahler moves that the chairmen of the two committees of the Canadian Technical Section and the Technical Association have a joint meeting, and lay out a suitable plan for vocational training.

Mr. Bates: My personal opinion is that all the Technical Sections can do is to suggest, to endorse the policy of local vocational education, not to do the work.

Dr. Bates makes it a motion that we endorse the policy of local vocational education.

This motion was seconded by Mr. Mahler and carried.

Mr. Mahler moved that the chairmen of the vocational education committees of the two Societies co-operate to the fullest extent in the exchange of ideas.

Motion was seconded by Mr. Fletcher and carried.

Mr. Mahler: I move that the chairmen of the vocational educational committee of the respective societies co-operate to aid in every way the local authorities in starting developing and perfecting work of vocational education by providing speakers and suggesting text books and courses of study.

This motion was seconded by Mr. Stephenson and carried.

Mr. Fletcher: Mr. Carruth, I move you that at least

(Continued on Page 330)

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Bulk of Paper.—The World's Paper Trade Review, Vol. 67; No. 2; Jan. 12, 1917; p. 14.—The principal causes which influence the bulk of paper are: (1.) the fibrous material, (2.) the beating process, (3.) the amount of mineral matters and (4.) the calendering. (1). Cotton produces the bulkiest paper because of its physical structure. Esparto ranks second because its short cylindrical fibre does not suffer much disintegration in the beater. Soda pulp makes bulkier paper than sulphite. (2.) Prolonged beating with dull knives manipulated so as to draw out the fibre makes a thin, hard dense paper, while quick beating with sharp knives will give a bulky, light and opaque sheet. (3). Mineral matter adds to the weight of the sheet without materially increasing the thickness. (4.) The bulk is reduced by calendering, the thickness being decreased 30-40 percent. The reduction depending on the pressure and number of times calendered.—E.K.M.

Testing Bear Grass for New Fibre Supply.—Paper Trade Journal; Vol. 64; No. 10; Mar. 8, 1917, p. 14.—The State Department of Agriculture of Texas have been requested to carry out some tests on bear grass as a possible new source of fibre supply. There are millions of acres of land in Western Texas upon which this plant grows. In some localities two or three tons of this grass can be obtained per acre. In the past few years considerable quantities of the grass have been used in paper manufacture. The raw material selling at the shipping point for about $12 per ton.—E.K.M.

Continuous Forest Production of Privately Owned Timberlands as Solution of the Economic Difficulties of the Lumber Industry.—B. P. Kirkland, Journal of Forestry, Vol. XV, No. 1, 1917.—A discussion of the following problems in the United States from a financial point of view,—

1. An overload of standing timber in private hands.
2. Over-investment in mills and logging camps.
3. As a result of over-investment in timber and in mills, a most destructive competition constantly waged, no let up on which is yet on sight.
4. Defective methods of distribution of forest products to the consumer.
5. Competition of substitutes.
6. Excessive cost of capital, due to the industry depending upon speculative capital.
7. A heavy annual depletion charge against the industry, due to handling the timber as a mine instead of as a self-perpetuating resource.—H.N.L.

Save Us From Invading Pests.—J. G. Sanders, Am. For. Vol. 23, No. 279, 1917, pp. 147-153.—Descriptions of important insect and fungous pests, including the pine shoot moth, poplar canker, chestnut blight and white pine blister. Excellent illustrations.—H. N. L.

Logging Engineering.—C. V. Wilson, West Coast Lum. Vol. 31. No. 371, 1917, p. 112. Accurate engineering methods, detailed cruising, making of contour maps, are invaluable to the logger and in the long run are more efficient in final economy and in ascertaining costs.—H. N. L.

A Comparison of the Cruising Systems Employed in Pacific Northwest.—H. G. Foran, West Coast Lumb., Vol. 31, No. 371, 1917, pp. 54, 55, 58, 120.—A very comprehensive analysis of cruising methods.—H. N. L.

Motor Truck Logging in Pacific Northwest.—West Coast Lumb., Vol. 31, No. 371, 1917, p. 70.—Equipment costs and capacity of the motor truck in logging.—H.N.L.

The following are corrected abstracts to replace those printed last week:

Handling of Wood in the Mill.—"Papir-Journalen" (1916), No. 24, p. 281.—The methods used at Holmen's Papersbruk, Hallsta, Sweden, for transport of the wood from the river through the various operations to the digester are fully described, with illustrations.—B. J.

Fibre-Boxes.—"Papir-Journalen" (1917), No. 1, p. 5.—Boxes and containers of pasteboard are now manufactured in Sweden and are replacing tin-boxes. The new "Hercules-boxes" are made by pasting together two kinds of paper of which one is of a parchmentised quality. The paste itself gives the paper a further impregnation. The pasteboard is sent through a cutting machine and subjected to various treatments before it reaches the machine, which forms the container. Bottom and cover are made separately.—B. J.

Paper and Paper Yarn. — Paul Ebbinghaus in "Papir-Journalen" (1917) No. 1, p. 6.—The extremely strong kraft papers produced in the northern countries is an excellent material for spinning purposes. The strength of the paper is due to the density of the wood as a result of the cold climate and the special qualities of the soil.—B. J.

PATENTS.

(Courtesy of Chemical Abstracts).

Rendering Paper Transparent and Impervious to Air and Water.—H. Oeser. Ger., 291,198, Sept. 2, 1915. Addition to 285,978 (C. A. 10, 1269).—Paper treated according to the principal patent is claimed to be suitable for use in the manufacture of cigarette paper if a small amount of fusel oil is added to the saturating liquid. This oil is said to preserve the flexibility of the paper for working, and does not volatilize rapidly. A coating of color or bronze powder is sprinkled upon the saturated surface thereby imparting to it a mat and lustrous surface.

Drying Paper and Pulp Webs According to the Counter Current Method.—W. Labroisse. Ger., 291,154, July 31, 1914.—The web is led past heating elements.

Wood Pulp.—C. N. Waite. U. S., 1,212,158, Jan. 9.—Wood pulp is prepared by digesting the raw material in a NaOH solution containing about 0.25% of Na_2S. The latter acts to prevent formation of oxycellulose during the digestion.

Utilizing the Waste Gases of the Sulfite Cellulose Manufacture for the Production of Digester Acid.—H. O. V. Bergstrom. Ger., 290,680, Feb. 24, 1914.—A suitable apparatus is specified.

UNITED STATES NOTES

UNITED STATES NOTES.

The stockholders of the Barrett Company at a special meeting last week, approved the directors' plan to increase the preferred stock from $5,000,000 to $12,500,000, and the common from $15,000,000 to $25,000,000. The company's report covering 1916 operations shows gross earnings of $9,547,604, an increase of $2,894,965 over the previous year. Final profits before dividends were $4,256,629, a gain of $1,766,665. After payment of $333,249 in preferred dividends, the balance, $3,914,608, was equal to 32.1 per cent. on $12,089,100 outstanding common stock, compared with 21.19 per cent. earned in 1915.

Fredinand W. Roebling, who, among many other prominent connections, was president of Union Mills Paper Manufacturing Company and treasurer and general manager of the John A. Roebling Sons' Company, builders of the Brooklyn Bridge, and other great structures, and widely known in the wire rope industry, died Friday of last week, at his home, 222 West State Street, Trenton, N.J.

The paper mills and coating mills of the Bardeen Paper Company at Otsego, Mich., were closed down as the result of a strike last week. The employees in the paper mills walked out, demanding a wage increase of 25 per cent. The company offered a 10 per cent. increase, but was refused. It was then necessary to close down the coating mill because of lack of raw stock. About 40 0employers are involved in the trouble. In addition to this trouble, there is much unrest in the Wolverine Paper Company, and much talk of strike of a sympathetic nature, though none has been called as yet. The first inkling of anything like dissaeisfaction in Otsego came last month when the Mac-Sim Bar Paper Company failed to follow the lead of the Standard Paper Company and Western Board and Paper Company, Kalamazoo and the Eddy Paper Company, Three Rivers and White Pigeon, and go on the three-tour system. Many of the Mac Sim Bar employees came to Kalamagoo and sought employment. They also did much bitter talking against the management. No mention was made at first that the Mac Sim Bar paid its first dividend in 1916 during its eleven years' existence. The Bardeen Paper Company and Wolverine Paper Company have been running on the three-tour system for practically twelve months, and have, in addition, granted considerable increases in the pay of employees.

The Holyoke, Mass., correspondent of the Paper Trade Journal, says that F. J. Marshall, general manager and vice-President of the Mars Paper Corporation, which purchased the mill and entire property of the Crane Brothers' upper paper mill at Westfield several months ago, will start operations in May. Since the purchase of the property by the Mars Paper Corporation, Messrs. Marshall and Brinker have been engaged in supervising the remodelling and repairing of the mill. The repair work, together with the other changes necessary, will probably be completed so as to permit the plant to be opened for business in May. Mr. Marshall would not divulge the nature of the product at this time, but intimated that the largest percentage of the product of the new company ha already been placed.

Ellis Hollingsworth, for many years connected with the paper trade of this city as a director of the Hollingsworth and Whitney Co., died at his winter residence, 38 Fairfield Street, Boston, Mass., on March 14. Mr. Holingsworth was fifty-seven years of age, and had been seriously ill during the past six weeks from acute Bright's disease. He was born in South Braintree, Mass., on February 9, 1860, the younger son of Ellis Anderson Hollingsworth, and Suson Summer Hollingsworth. He received his education as a boy in the public schools of Braintree, and later at Adams Academy, in Quincy, and at Chauncey Hall School, Boston. He then entered business with his father, who was the founder of the Hollingsworth and Whitney Co., and retained his interests with that company until his death.

The Vermont Products Company is a New York company charter at Utica, with a capital of $50.000. The objects are listed as manufacturing paper and wood pulp, mining iron pyrites and business of chemists and druggists. The incorporators are: John M. Richards, Daniel F. Strobel, Ralph D. Willoughby.

The annual financial statement of the Hampden Glazed Paper and Card Company, of Holyoke, Mass., follows: Real estate, $77.000; machinery and merchandise, $61,722; ttoal, $339,337. Capital, $56,000; accounts payable, $123 122; surplus, $72,000; Profit and Loss $79,215; total, $339,337.

A despatch from Troy, N.Y,. dated March 18, says that Senator George B. Wellington, in behalf of a syndicate, has made an offer of $500,000 for the stock of the Iroquois Pulp and Paper Company, provided property of the concern proves satisfactory to his clients after an examination by expert mill engineers and expert accountants. Attorneys failed to agree as to the form in which the proposition should be submitted, and it was finally decided that before the next hearing the interested attorneys are to have a consultation, and Senator Wellington is to hold a consultation with his clients.

The petition filed by the Mechanical and Chemical Pulp Division of the American Paper and Pulp Association against storage charges for pulp stored at the ports of Baltimore, Newport News and Philadelphia, was denied at a general session of the Interstate Commerce Commission, held at Washington, D.C. The Commission, in answering the petition, said, "Upon further consideration of the record in the above entitled proceeding, and of the petition filed on behalf of the various uses of wood pulp for further proceedings here, it is ordered, that the said petition be, and it is hereby, denied." The denial of the petition means that the schedule of storage rates for wood pulp filed by the Baltimore and Ohio Railroad et al, is upheld, and will go into effect immediately.

BOOK REVIEW.

Diseases of Occupation and Vocational Hygiene.—Edited by George M. Koher, M.D., LL.D., and William C. Hanson, M.D.; published by P. Blakiston's Son & Co., Philadelphia, 1916. PP. XXI & 918. Price $8.00.

The excellence of the book is indicated by the names of the contributors, who are: John B. Andrews, Ph.D.; Irene Osgood Andrews, George F. Apfelbach, M.D.; Bailey K. Ashford, M.D.; Clarence John Blake, M.D.; John T. Bowen, M.D.; Louis Casamajor, M.D.; C. H. Crownhart, LL.B.; Prof. Dr. L. Devoto, Seward Erdman, M.D.; Langdon Frothingham, M.D.V.; Alice Hamilton, M.D.; Emery R. Hayhurst, M.D.; Charles R. Henderson, Ph.D.; Frederick L. Hoffman, Ph.D.; Frederic S. Lee, Ph.D.; Thomas S. Lee, M.D.; Thomas M. Legge, M.D.; Harry Linenthal, M.D.; Owen R. Lovejoy, Sir Thomas Oliver, M.D.; Thomas Ordway, M.D.; Harry C. Soloman, M.D.; Elmer E. Southard, M.D.; Prof. Ludwig Teleky, John W. Trask, M.D.; Ernest E. Tyzzer, M.D.; George C. Whipple, S.B.; Harry V. Wurdemann, M.D.

The aim of the Editors has been the "presentation of the basic data concerning the diseases of occupation in such a way as to render them available not only to physicians, but also to employers, employees, efficiency experts, public health officials and legislators; for it is only as a knowledge of the character, gravity, causes and prevention of these diseases is diffused, that corrective and preventive action can be expected."

"Part I. deals with Specific and Systematic Diseases of Occupation. It also treats of Fatigue and Neuroses.

Part II. deals with the Causation and Prevention of Occupational diseases and accidents.

Part III. is intended to be of service to those who may be called upon to investigate in the shop, the factory, in the dispensary and hospital the relations of occupation to disability and disease."

Part II. will doubtless be of greatest interest to those who labor or employ labor in industrial work.

In the Preface the Editors review the growth of industries and factories and the accompanying development of occupational diseases. Conditions are outlined for different periods in Europe and America. The books, monographs and legislation on the subject are given attention, with a description of the type of industrial museums of safety that have been established in 14 European cities.

Valuable information is given in pointing out where and why an occupational disease may occur, describing the effect and also giving preventive measures. Statistics are given for many industries. These show that local conditions in the same trade vary greatly with different localities where more or less attention is paid to proper working conditions.

It should be noted that this book has but little to say of accidents. This subject is taken up under the following headings—Accidents and alcohol, fatigue, night work; prevention of accidents, and summary of accidents in steel plants, about seven pages in all. The accident risk by occupation for only a few industries is given. For instance, the pulp and paper industry ranks quite well on a hygenic basis, but a recent report made a commission in the State of Maine, shows it to have a rather high accident liability. This is in no sense a criticism, as ordinarily understood.

The book is wholly commendable both in its wealth of information and in the printing and binding. Our only suggestion would be that the chapters might be rearranged in groups of allied industries and these groups, with the chapters of general information desirable for all industries, could then appear as smaller volumes which might find more general distribution.—J. N. Stephenson.

MR. STEELE SAYS:

"Owing to the fact that several companies have stopped making news print paper in the past twelve months, one would naturally expect a falling off in the production of this grade of paper in February, 1917, but with forty-four companies reporting in February, 1916, the production averaged 4,794 tons a day, while with forty companies reporting in February, 1917, the production averaged 5,050 tons per day."

"As regards stocks on hand, for the first time in over a year there is an apparent increase in storage stocks. This increase is caused by difficulties in procuring cars and making shipments from the mills, and in some cases mills were forced to shut down during the month on account of their inability to store any more paper and the impossibility of procuring cars in which to ship the same."

"Reports coming into this office from various producers indicate that there is no decrease in the demand for newsprint paper, and there is likely to be none."

"The pulp and paper business in Scandinavia has been growing steadily worse, and is now almost paralysed. New building is at a standstill .Conditions cannot remain as they are forever, and a thorough understanding of to-day's difficulties will prepare our membership for what is to come when the life of Scandinavian industry is renewed."

SHERWIN-WILLIAMS CO. — MANUFACTURE DYE STUFFS.

This present war has taught manufactures on this side of the water a great many things—amongst these the necessity of supplying raw materials for home consumption. Manufacturers are making materials which previously they would have stated could only be obtained from Europe, and find the work very successful.

Dyes previous to the war were obtained largely from Germany. This source of supply has been cut off, and in order to take care of home demands several American firms decided to go into the dye business. One of these, the Sherwin-Williams Co. are now manufacturing dye stuffs which will interest woolen, paper, leather, cotton and silk manufacturers, and are turning out products that are equal to the best that were imported previous to the war.

A special representative, Mr. W. F. Prescott, who understands the dye proposition thoroughly, has been added to their staff.

The equipment and expert knowledge which has been obtained to handle this special industry is second to none, and the dyes and chemical colors which are now being offered are of the finest quality, and since starting the manufacturing of these, this end of the business has grown considerably, necessitating the employment of the most expert chemists and chemical men. This should be welcome news to those firms in Canada who are now having so much difficulty in securing their colors.

PULP AND PAPER NEWS

A. G. McCormack, who has been secretary of the Board of Trade, Port Arthur, has resigned to take an important position with the Port Arthur Pulp and Paper Co., who have opened office in Port Arthur, and expect to break ground next week for their new sulphite mill on which construction will be rushed.

Good progress is being made with the reorganization of forestry protection work of the province of Ontario, under the direction of E. J. Zavitz, Provincial Forester. Several excellent men have been secured to fill the most important executive positions, and J. H. White, lecturer in botany and forestry in the University of Toronto, who has been appointed assistant provincial forester, has entered upon his new duties. He will, however, devote several hours a week to the work of the forestry faculty of Toronto University.

At a recent meeting of the Printing Trade Accident Association, held in Toronto, Douglas Murray, of the Murray Printing Co., was elected President, and L. W. Manchee, of the Rudd Paper Box Co., Vice President. D. J. Hay is the safety engineer of the printing trades, succeeding A. P. Costigane, who was recently entered upon his new duties as safety engineer of the Ontario Pulp and Paper Makers' Safety Association.

The charter of the Trent River Paper Company of Frankford, Ont., has been surrendered and cancelled, and the corporation dissolved. The Trent River Paper Co. is now part of the Canada Box Board Co., which was organized some months ago, and has its headquarters in Montreal.

A charter has been granted to the Brantford Stationers, Limited, with a share capital of forty thousand dollars, and headquarters in Brantford, Ont. The company is empowered to manufacture and sell paper, stationery and calendars. Charles Smith, of Brantford, is at the head of the new organization.

The Fort Frances Publishing Co., Limited, has become incorporated with a share capital of forty thousand dollars, and headquarters in Fort Frances, Ont., to carry on printing, publishing and bookbinding, and to purchase the business carried on under the name of the Times Publishing Co. by Jos. A. Osborne. The incorporators are B. A. Reeves, A. G. Murray, Herbert Williams, W. H. Elliott ,and A. E. Dear, all of Fort Frances.

Feldspar Quarries, Limited, have been incorporated with a capital stock of forty thousand dollars, and head offices in Toronto. The company is empowered, among other things, to mine talc.

L. W. Manchee, President of the Rudd Paper Box Co., Toronto, is spending a few weeks in the southern states.

I. D. Bradshaw, President of Bradshaws, Limited, manufacturers of waxed paper, Toronto, and wife, are spending a holiday at Atlantic City. Br. Bradshaw has three sons who are doing overseas duties.

All the paper box factories are very busy at the present time, and, in spite of the fact that prices have advanced from fifty to one hundred per cent. during the past year, orders are far from being filled on time. The factories are having great difficulty in getting sufficient labor, particularly girl help. At the recent annual meeting of the Canadian Box Manufacturers' Association held in Toronto, D. H. McDermid, of the Somerville Paper Box Co., London, was elected president; L. W. Manchee, of the Rudd Paper Box Co., Toronto, was elected vice-president; S. J. Frame, Toronto, secretary-treasurer. Advisory Board, C. T. Reid, of Charles Reid and Co., Hamilton; A. Harries, Canadian Paper Box Co., Montreal, and W. C. Jephcott, of Dominion Paper Box Co., Toronto, together with the president and vice president. The Association embraces all the leading manufacturers of set-up and folding boxes from St. John to Winnipeg. A. Sproule, of Collett-Sproule, Limited, Toronto, gave an address on "What is the Matter with the Paper Box Business." W. C. Carlson, president of the Western Paper Box Manufacturers' Association, Milwaukee, Wis., spoke on "Costs and the Benefits Derived from Membership with the United States Paper Box Manufacturers' Association." . Lawrason, of Lawrason, Doughty Co., printers, Toronto, gave an interesting address on labor conditions.

J. R. Booth, the millionaire pulp and paper manufacturer, of Ottawa, and often styled the "lumber king of Canada," will celebrate his 91st birthday on April 5th. Mr. Booth started the first ground wood plant in Ottawa about fifteen years ago, and has since branched out in the news print, box board and sulphate lines. To-day he is the largest timber limit owner in the Dominion.

The many friends of R. B. Foulis, superintendent of the coated paper mill of the Provincial Paper Mills Co., of Georgetown, Ont., are congratulating him on the advent of a son and heir.

It is understood that the late John R. Barber, of Georgetown, Ont., who passed away recently left an estate of about seven hundred thousand dollars.

The death of William D. Hay occurred in Montreal on March 20th. For nearly fifty years he was with the Canada Paper Co., in that city, being on the selling staff for a long period and afterwards in the warehouse.

A federal charter has been granted to The Paper and Hardware Products, Limited, with a capital stock of $49,000 and headquarters in Montreal. The company is empowered to manufacture, sell and deal in paper, felt, chip board, straw board, waste paper and paper mill stock as well as pulp and pulp wood, etc.

Dodd-Simpson Press, Limited, with head offices in Montreal and a share capital of fity thousand dollars has been given a federal charter to carry on the business of printing, advertising, engraving and publishing in all its branches.

The Toronto Paper Mfg. Co.'s plant at Cornwall, has closed down for a couple of weeks owing to the water being let out of the Cornwall canal, on which the locks will be repaired and a new water wheel installed for the Cornwall water works system. During the time of the shut down the paper mill will also receive attention and everything put in shape for the coming season.

The Provincial Paper Mills Co., Limited, Toronto, have declared a quarterly dividend of one and three-quarter per cent on the preferred stock of the company and one per cent on the common. The Abitibi Power and Paper Co., Montreal, have also declared a quarterly dividend of one and three per cent on the preferred stock.

An action to determine the rights of a company operating under a Dominion charter to operate in Ontario without a license is being heard this week in Toronto by Mr. Justice Masson in the Supreme Court. Horace B. Currie, a shareholder in the Harris Lithographing Co., 125 Sterling Road, Toronto, has instituted a friendly action against the Harris Co. and has joined the Attorney General of Ontario with him They jointly ask for an injunction against the firm from continuing business and a declaration that the lease they hold on the premises they at present occupy is not valid.

J. L. McNicol, formerly superintendent of the Baxter mill of the Provincial Paper Mills Co. at Georgetown, and for some time attached to the experimental staff in the Forests Products Laboratories, Montreal, has been appointed manager of the Wax and Glassine Paper Co., who are erecting a plant at Cookshire, Que., for the manufacture of wax, glassine and greaseproof papers. Mr. McNicol, who has many friends in the trade, has entered upon his new duties.

At the annual meeting of Barber-Ellis, Limited, Toronto, of which company the late John R. Barber was President for some forty years, J. F. Ellis, was elected President, F. M. Ellis, Vice-President; Harold Holt, secretary-treasurer. Directors, C. G. Ellis, Brantford and E. H. Ellis, Toronto. The company had a very successful year and the prospects for 1917 are regarded as exceptionally promising.

CHARLES P. LUDINGTON DIED LAST WEEK.

Upwards of five hundred paper-workers, Masons, friends and relatives were in attendance at the funeral of Charles P. Ludington, superintendent of Eddy's paper mill, which was held from his family residence, 33 Chelsea Road, Hull, Sunday afternoon. The cortege was one of the largest that has been witnessed in Hull for a decade or more.

With the death of Mr. Ludington one of the most widely known figures in the manufacturing paper trade of the Ottawa district passes. His death occurred suddenly Wednesday afternoon, when, after leaving his office in apparently good health he went home, had dinner, and shortly afterward died of heart failure.

The late Mr. Ludington has been connected with the manufacturing end of the paper trade for almost half a century, he at one time having owned his own mill in New York State. He was born in 1857, at Marcelles, N.Y., and at the age of twelve years began to learn the paper manufacturing trade. From Marcelles he went to Tulaskar, N.Y., where he operated his own mill for a time. He then went to Phoenix.

Twenty-six years ago he entered the employ of the Eddy Company, and for the last eighteen years had been superintendent of the paper mill. After the memorable conflagration of 1900, which wiped out the E. B. Eddy plant, he helped reorganize and equip the paper mill.

The immediate surviving relatives are: his widow, five daughters, Misses Etta, Ona, Minnie, Ida and Eliza, and three sons, Charles P., Jr., Kirk, with an Ottawa battery in France, for two years, and Percy Ludington.

COMMISSION STILL FACING NEWS PRINT TROUBLES.

Now that the Federal Trade Commission has done so well in setting the price of news print for the manufacturers, it is confronted with the somewhat more difficult problem of bringing about an arrangement whereby the smaller publishers will be able to get the supplies of paper they need. It is true that, in its report, the Commission suggested that the smaller publishers band together so as to be able to reap the benefit of the price per ton. It is also true that, at the same time, when the price of news was set at 2½c. a pound, a number of the larger consumers were asked to relinquish 5 per cent. of their contracts. Such a request was necessary, in order to create enough of a surplus to take care of the smaller concerns. Now, however, that the larger concerns have gotten what they want—namely, the price has been fixed at a low rate and a number of the large mills have agreed to stand by it—these large consumers, or a good part of them, are somewhat averse to giving up any portion whatsoever of their contracts.

The requisitions are coming in from the smaller publishers, who want to get their respective shares under the redistribution and it is all too evident that the calls will be in the aggregate far in excess of the relief reserve even if every big publisher gives up his full five per cent. Meanwhile, neither publishers nor paper producers are falling over themselves to sign the 2½c agreement. The trade commission has issued no statement on this subject during the past week, probably it will not issue a statement for a little while. It is understood, however, that there have been no additions to the agreement, on the part of the paper mills. It looks as though the Commission is still up against a very hard problem. As is well known, there is the greatest competition among the newspaper publishers, and for this reason many of them, and, in fact, most of them, are fearful of giving back even five per cent. of the present contracts for fear that their competitors will not do the same, and that, therefore, they will have no advantage over them. Another problem that is now confronting the Commission is how it is going to keep some large publishers from buying up a lot of free tonnage, donated by smaller publishers throughout the country, on the plea that they need it. In its agreement, the Commission says that a publisher, after having given up his five per cent. for free tonnage, may buy on the open market if he needs any extra paper. It might so happen that he is very much of the opinion that he actually needs ten per cent. more, therefore he willbe five per cent. to the good in spite of the Commission's plan. This is only one of the many problems that the commissioners are facing.

R. W. JOLLY.

The Markets

CANADIAN MARKETS.

Toronto, March 27.

Business in all lines of the paper trade, with the possible exception of news print, has slowed down somewhat, and conditions are not so sharp and active as they were some months ago. This state of affairs is not unwelcomed by the plants generally, as it is affording them a chance to catch up with orders. Prices have not changed for some weeks, and, while they remain stationary, there is no present indication that there will be any recession. Much will depend on the state of the ground wood market, and supply of pulp wood, which at present is very acute, and as high as fifty dollars has been offered for mechanical pulp at Canadian plants.

Business wtih jobbing houses is very good, although in some lines there is a little laxity, especially in kraft papers. There is a scarcity of manillas and grey browns, owing to one plant having closed down for some weeks, due to water conditions.

There are no new features in the news print situation, and the figure of two and a half cents at mill will prevail for the next two months, it already having been in effect for one month. If, at the end of that period, the mills can show cause for an increase and submit the necessary evidence to the customs department, there may be a revision in prices. Complaints are still heard on all sides regarding the arbitrary interference on the part of the government in disturbing the law of supply and demand in connection with a great national industry and menacing its future. It appears that nothing can be done regarding the situation, for the present, at least, particularly as some United States plants have accepted the ruling of two and half cents from the Federal Trade Commission for the time being. Meanwhile, the scarcity of news print is being daily more accentuated. There are rumors of two or three big new mills being undertaken, but nothing official has been announced.

Sulphite pulp remains at the old figure, and imports from Europe do not show any material increase. Ground wood pulp is growing scarcer all the while, and the railway embargoes have not helped conditions any. American plants are scouring Canada for raw supplies, and buying up quantities, large and small, wherever they can lay their hands on any. One feature that has loomed up during the past few weeks is the number of representatives of American mills making writing, book and other papers, coming to Canada to feel out conditions and endeavoring to secure orders. Some concerns on the other side are slack at present, and are looking for business, and are said to be cutting prices in certain instances to secure bookings to keep their machines going. Jobbers in Montreal, Toronto and Winnipeg, who have been pretty heavily stocked up are now getting cleared out, and will soon have to enter the market and make fresh purchases. They cannot hold aloof much longer. There is no indication, however, that quotations will fall. On all kinds of board such as straw, chip board, filled board, etc., orders are not coming in with the rapidity of a few months ago, and the prices, which went into effect in December last, and were guaranteed for three months will, it is understood, continue until the end of June unless something unforeseen occurs in the market.

There is a feeling now that conditions in the pulp and paper arena have assumed a more fixed and definite basis than for some months past. Buying is regulated more by the law of supply and demand, where previously there was an artificiality and fictitious character to the market. Jobbers and large consumers were buying up in immense quantities in every line in anticipation of inflated values, and wanted to be in "a state of preparedness." They clamored to have everything filled as soon as possible, and would not take "no" for an answer. Now a saner and more normal view is taken of things.

A hopeful tone is imparted to future conditions by the action of the Laurentide Co. in increasing its dividends from eight to ten per cent. This is regarded as an excellent criterion that business will continue good, for the Laurentide Co. has been ac- of securities of other companies on the market, and cepted as a sort of barometer of trade conditions. The placing of securities of other companies on the market, and the figure commanded for the stocks show that where the proposition is sound, ably managed and not over capitalized, there is every prospective encouragement.

While the prices for all kinds of paper boxes have gone to from fifty to one hundred per cent., all plants are busy. Envelope factories are also fairly active, although not as rushed as before the advances from ninety to one hundred per cent., which became effective a few weeks ago. Conditions will, however, right themselves in the near future.

One interesting feature in connection with unbleached chemical pulp is that Canada last year sent to Great Britain 475,459 hundredweight, valued at $1,724,244, whereas in the previous year the shipment was only 11,950 hundredweight, valued at $22,-186. The British Board of Trade has now petitioned the British Wood Pulp Association to have the imports of pulp from Canada separately classified in future. The importation of chemical pulp from the Dominion has heretofore been among "other countries" on the list as the shipments have been so small. As the Swedish source of supply has been cut off by the war, the "other countries' have been looked to to do more. The Dominion has so nobly responded that in future she will be listed apart from them.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75

Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

RAG AND PAPER STOCK.

There has been another big drop in book and ledger prices, the third within the last month. The dealers declare that the mills are simply heartless in forcing such conditions. There is a very small demand for cotton rags, and practically nothing doing in roofing stock.

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	2.00
Heavy ledger stock	2.75
Soft ledger and writings	2.05
No. 1 magazine	1.35
No. 1 book stock	1.25
No. 1 manila envelope cuttings	2.80
No. 1 print manila	1.40
Folded news	.95
Over issues	1.15
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	4.50
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.50
Tailor rags	1.50

TWINES.

The following are the prices charged by jobbers on various lines of twine in which a good trade is being done, with prospects much better for the next few months.

3-ply Soft Cotton, per lb.	40c. to 45c.
4-ply Soft Cotton, per lb.	42c. to 45c.
5, 7, 10, 15, 20-ply Soft Cotton, per lb.	45c. to 50c.
Sea Island Bulk Twine, per lb.	75c.
Do., in boxes, per box	75c
Flax Sewing Twine, 3 to 8-ply, per lb.	50c.
Mattress Twine, per lb.	1.00
Hy. Jutes, 2, 3, 4, 5, 6, 8-ply, per lb.	17c. to 21c.
Fine Jutes, 2, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	20c. to 25c.
Unfinished Hemps, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	27c. to 30c.
Yucatan Twine, per lb.	27c. to 30c.
Finished heavy jutes, (sizes 201, 301, 401, 501) per lb.	22c. to 25c.
Fine finished jutes, (sizes 202, 204, 208), per lb.	35c. to 40c.

CANADIAN CHEMICAL MARKET.

Prices in paper makers' chemicals remain firm. The only change to be reported this week is in salt cake. The price of this commodity is now $0.85 to $1.00, an advance of 10 cents a hundredweight over the previous figure.

The following are the prices in the Montreal market for not less than car load lots.

Alum, ammonia, lb.	5½c@6c
Alum, potash, lb.	6½c@7c
Blanc Fixe, paste, lb.	4c@4½c
Blanc Fixe, powder, lb.	5c@5½c
Bleaching powder, lb.	5¼c@5¾c
Brimstone, f.o.b. New York, long ton	$45.00
Casein, lb.	25c@30c
Caustic Soda, 76%, lb.	5¼c@5¾c
China Clay, imported, ton	$30.00@$40.00
China Clay, No. 1 white, ton	$20.00
" " " 2 " "	$15.00
" " " 3 " "	$12.00
Lime, ton.	$7.52@$8.00
Sal soda, bags, 100-lbs.	$1.25@$1.30
Sal soda, bbls. 100-lbs.	$1.35@$1.40
Salt cake, 100 lbs.	85c to $1.00
Soda Ash, lb.	3¼c@3¾c
Starch, lb.	4¼c@6c
Sulphate Alumina, technical, lb.	3½c@4c
Sulphate Alumina, iron free, lb.	5c@5½c
Talc, American, ton	$13.00@$18.00

NEW YORK MARKETS.

New York, N.Y., March 24.

The fact that it was possible for the railroads to avert the threatened strike, which was to have gone into effect on Saturday of last week, has caused considerable relief in various branches of the industry, especially to the grinders of wood pulp. Even as it was, the very fact that the strike was threatened was not without its affects, for, in anticipation of the event, many of the railroads found it advisable to issue embargoes several days in advance. This, of course, was a precaution so that the freight yards and depots should not become stocked up with goods that it was not possible to ship. While it may not seem likely, even this aided in the "boosting" of the ground wood market. The fact is that the wood shortage is being felt more and more all of the time. Just now, with some

mills, the question of operating at all is dependent upon whether or not they are able to get wood supplies. And it is known that, by the summer, there will be many more in this same plight. The outlook for a better supply has not changed in the least, despite the brilliant report recently issued by Secretary of Agriculture Houston. It may be true, as this gentleman says, that the forests in the possession of the United States are sufficient to take care of all of the wood demands made by the paper manufacturers in this country. But what good is that doing now, ask the pulp producers. We are dependent upon Canada for a large part of our supply. Because of freight and labor conditions in the Dominion, there is very little possibility of getting anything nearly like the quantities needed. Yes, and the same conditions exist in the United States, with prospects of becoming much more acute within the next few weeks. There seems to be no question in the minds of the men in the trade that President Wilson has called the new Congress to convene two weeks earlier than the date set for the special session for the sole purpose of deciding that we are at war with Germany. As a matter of fact, opinions have already been expressed by officials of the government that "a state of war exists" because of the sinking by Germany of American ships.

No doubt, calls will be made for volunteers, and the result will be, almost immediately a decidedly more acute shortage of labor than that which already exists. Transportation difficulties will only commence, for in time of war, the government will get precedence over everything. Then again, the news print situation is far from being settled, even if the Federal Trade Commission has assured the public that it has arrived at a "reasonable price for the sale of news print to the publishers. To-day, ground wood is as scarce as it can be, with a good demand. Apparently, the paper manufacturers are willing to pay the high prices being asked for a report states that there is a tendency to store stock, wherever possible. This simply means that a number of the mills are awake to the situation, and that they are not going to take any chances, with respect to the future. At the present time, it may be said that quotations are about $50 to $55 per ton, f.o.b. shipping point.

One of the features of the week in chemical pulps was the authoritative denial that there was any foreign pulp being stored for speculation at Baltimore. It may be remembered that one of the New York dailies came out with the statement that about 25,000 tons of foreign chemical pulp was being kept at Baltimore for the purpose of speculation. It was also stated that imports from Sweden were now five times as great as in normal times. Both these reports, of course, were ridiculous. As a matter of fact, importing is now at its lowest and the prospects are far from being bright. Up to the end of April and early in May, there will not be much material coming from Sweden, owing to the closed condition of the Baltic Sea. After that time, it is pretty much a matter of speculation as to what will happen. Some of the importers believe that long as it is possible for Germany to carry on her submarine warfare in the manner she is now doing, that we have practically no right to expect pulp from the other side. Domestic manufacturers are as busy as they can be, considering raw material handicaps and other contions. It is reported that the current demand is not as strong as it has been, but this is not regarded as a reflection against the market. Prices remain firm, and no effort is being made to dispose of whatever stock available. There is, however, very little, comparatively speaking, pulp for immediate delivery. Foreign bleached is nominal at about 10c. and higher; domestic bleached ranges from 8¼c. up; easy bleaching sulphite is scarce at 5¾c., and much higher; foreign unbleached is said to be unobtainable at less than 5¾c.; domestic unbleached is bringing over 5c. The kraft situation is as acute as ever, with prices firm and inclining strongly. Quotations to-day are about 6½c. to 7c. Bleached soda pulp is quoted at over 6c.—this is entirely nominal.

No new developments were reported in the rag market during the past week. Interest is inactive, as has been recorded in these columns for the past few weeks. Perhaps this was a most propitious time for the meeting of the National Association of Waste Material Dealers, which was held, during the week, at the Hotel Astor, and which was attended by many of the largest paper stock dealers in the country. Despite the quietness of the situation, an optimistic spirit reigned. The dealers maintain firmly that there is to-day in the United States a shortage of rags. At the present moment, it is not being felt because the mills have been able to keep out of the market to a considerable extent for a rather long period. But the mills continue to operate—perhaps not at capacity, as was the case until recently—and busier times are sure to come, the rag dealers reason. There has ben a notable falling off in the volume of the collections. Fairly good interest is reported in roofing rags. New white shirt cuttings have to-day reached as high as 9¾c; old white shirt cuttings are hovering around 5c and a little over; house soiled whites are being quoted at about 3½c; street soiled whites at about 2¾c; thirds and blues, at about 2½c; and black stockings running between 2¼c and 2¾c.

Prices in baggings remain about the same. Buying is said to have dropped off considerably, because several of the consumers have ceased to operate their machines at capacity. However, because of the scarcity of the article, the market has not been affected by the curtailment of interest. Gunny ranges from 3¼c to nearly 3½; bright bagging is quoted at as high as 3¼c; sound bagging is held around 2¾c; mixed bagging is quoted at about 2½c. Manila rope has not changed at all and continues to be quoted at around 6c.

The waste paper market has been hit by a considerable decline in demand, which has, in turn, forced dealers to shade their quotations and to allow the market to assume lower levels in several of the grades. The decline in white shavings has been notable and really cannot be accounted for except by the cessation of extraordinary activities on the part of the paper mills. Hard white shavings are to-day being quoted at about 5¼c to 5¾; soft white shavings at 4¾c to over 5c.; magazine stock is quoted at a little less than 2c.;; ledger stock is hovering about 3c.; old krafts have gone as high as the 4c. mark—as high as new stock used to be. In old newspapers the demand seems to continue strong, and prices are still on the ascendency. Strictly over-issue is quoted as high as 1½c.; strictly folded news is bringing as high as 1¼c., while mixed papers are still going well at about 85c. to 90c. per hundred pounds.

The paper market has not yet taken any definite stand. The jobbers are still engaged in bearing the market, while the manufacturers are doing whatever they can to hold their prices. It is true that in certain jobbing circles, there is the belief that prices are bound to start declining within a short time. They point to

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the fact that reports are now constantly being received telling of the number of machines being shut down temporarily by various mills—everything pointing to a condition, the jobbers feel, where the manufacturers will have no other alternative but to bring their prices down. Manufacturers, however, cannot see any possibilities of quotations suffering a relapse in the near future. The cost of raw materials continues high, with further increases now and then. A good many of the mills realize that they may have considerable trouble in getting their pulp supplies this summer, owing to the transportation difficulties and other inevitable obstacles. At all events, prices are being firmly maintained, even though buying has decreased materially in volume. In news print the demand continues good, but the situation is still uncertain for some of the mills have agreed to bind themselves by the decision of the Federal Trade Commission, while a good many others have not announced any such intention, and are still getting what they themselves believe to be the rightful market prices for their product. Book papers are strong in most grades. In this line, also, the work of the Federal Trade Commission has worked considerable harm. It is known that the Commission is planning to do some sort of damage to the book manufacturers, but, as in news, the situation is still a complex one. In wrapping papers that is krafts and manilas, a good demand exists and prices are firm. Fibres, however, have not yet recovered. The demand for high grade writing papers has dropped off remarkably. This may account for the large number of machines which ordinarily run on these grades, now being idle. In low grade bonds and ledgers, however, there is a good demand. Tissues maintain their high prices.

(These are a nominal range of prices).

Ground Wood, f.o.b., mill	Up to $50 a ton and higher.
Foreign bleached sulphite, ex-dock, New York	10c and higher
Foreign easy bleaching sulphite, ex-dock, New York	6c and higher
Domestic bleached sulphite, f.o.b. pulp mill	8¼c and higher
Foreign unbleached sulphite, ex-dock, New York	5¾c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¾c
Domestic unbleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Easy bleaching, f.o.b. pulp mill	6c and higher
Kraft pulp, f.o.b. pulp mill	6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	12c and way up
Best grade writings	20c and higher
Regular superfine	18c and higher
Ledgers papers	13c and way up
News, contracts, f.o.b. mill	$2.50
News, spot lots	$2.75
Book, super	9c and higher
Book, coated	8c and higher
Tissues, good sulphite, bleached, per ream	$1.30
Tissues, ground wood, manila, per ream	$1.30
Kraft	9c and higher
Manila	7c and higher
News board, per ton, f.o.b. New York	$70.00

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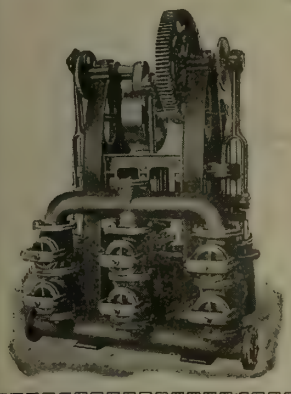
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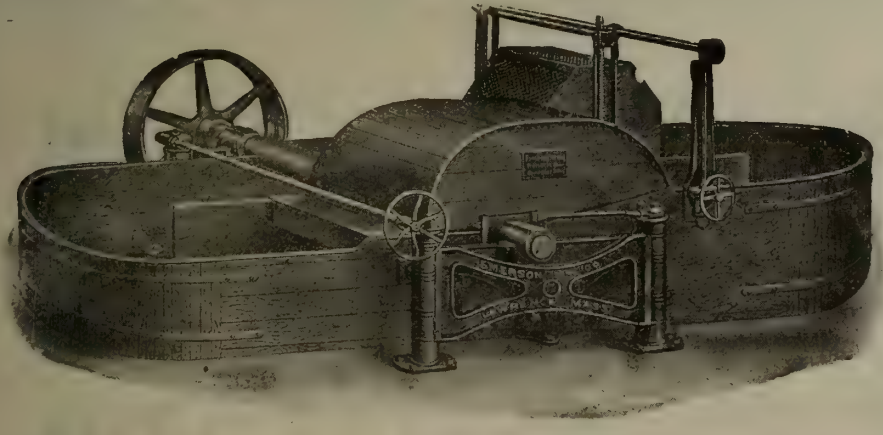
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TECHNICAL MEN IN JOINT CONFERENCE.

(Continued from Page 314.)

once a year we hold a joint conference of the councils of the two Societies in order to go over just such matters as we have been going over to-day.

This was seconded by Mr. Dickson and carried.

Dr. Bates: I would like to ask about your policy on application for membership. We find it hard to tell when a man is qualified for full membership, when qualified for the outside world.

Mr. Fletcher in answer handed Dr. Bates copy of application blanks.

Dr. Bates: I move you that we give a vote of thanks to the Hammermill Paper Company for their courtesy and hospitality. Seconded by Mr. Hatch and carried.

Mr. Obermanns: Invited the men to visit the Hammermill Paper Company Friday morning.

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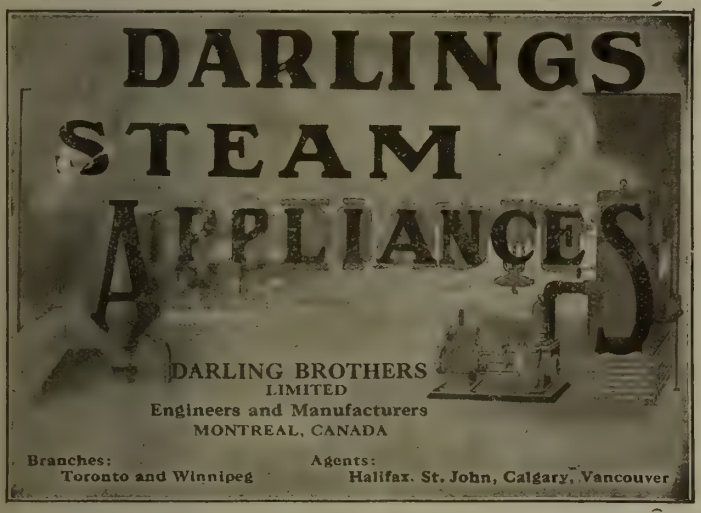
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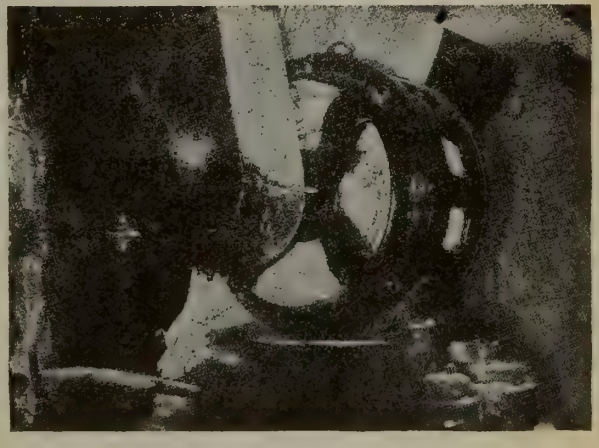
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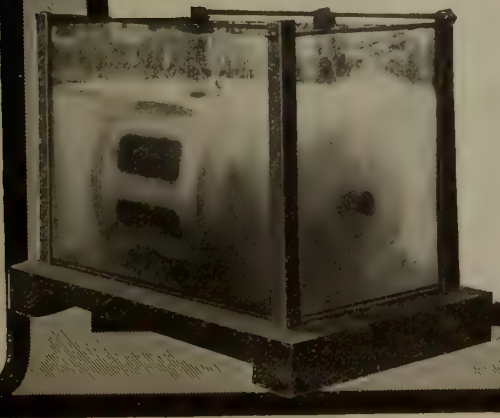
You can put your motor exactly where it is needed---couple it direct to the engine or pump ---locate it underneath belts or beaters and still be assured of constant service



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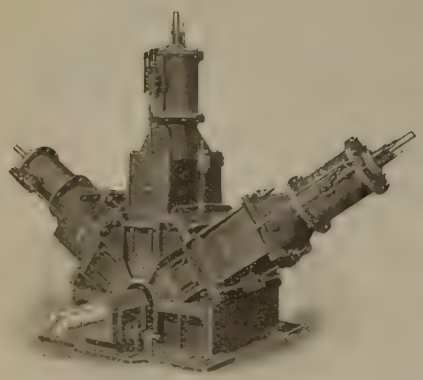
This Standard Lincoln Motor has operated under water for 3 years without damage to windings.



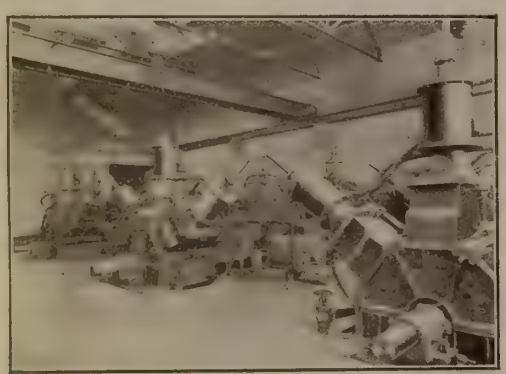
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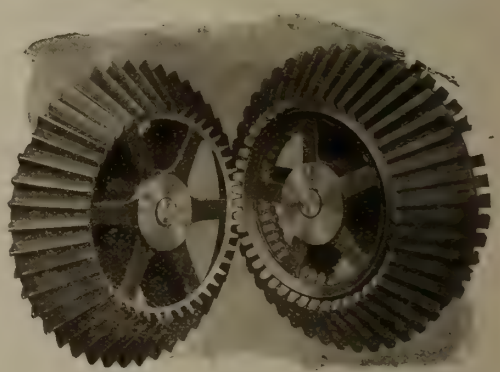
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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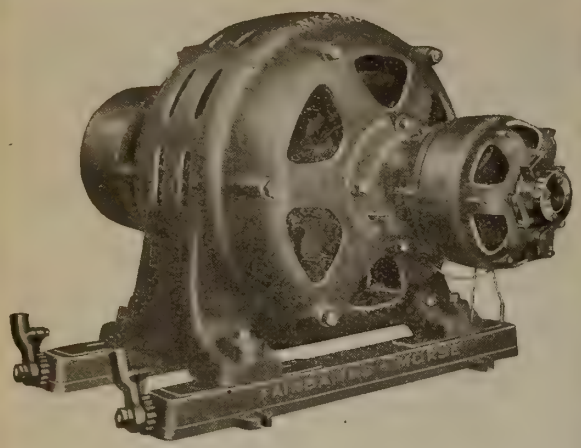
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

UNITED STATES AT WAR.

The state of war that has actually existed for some time between Germany and the United States will have been officially recognized by the time this is printed. The American people have been in close touch with the war in many ways. Many industries have felt its effect; not the least of these is the paper industry and trade. Further disturbances are quite likely to occur, most likely because military exigencies will require cars, coal and men.

With the drain that has already been made on the paper mills by the men who have come into Canadian mills, a further depletion of labor would probably necessitate many mills going back to two tours. It would hardly seem possible to employ women to a greater extent than is now done in the mill end. Some few clerical positions might be available.

Fortunately the movements of freight are getting easier, though cars will doubtless be scarce. This can be very largely remedied by more direct routing of shipments and more prompt release of cars by quicker loading and unloading. Co-operation of railroads as well as industries should be fostered instead of the competition that has been encouraged by the Government.

The American Government has indeed been "slow to anger, and plenteous in mercy," but now—watch them fight!

PAPER MAKERS APPRECIATE EDUCATION.

One of the features of the recent joint conference of American and Canadian Technical men at Erie, Pa., was the earnest discussion of means for providing a more suitabble and serviceable education for workers in the pulp and paper industry. It was the unanimous opinion of the delegates that the first step should be local schools, where the fundamentals could be studied. Any doubt as to the attitude of the workers to such attempts as have been made to give an opportunity for study was cleared up by statements of the success of schools and special courses at Holyoke, Mass., Neenah, Wis., and Thorold, Ont.

The workmen want to know more about their jobs and about the industry at large. The latter phase of the matter can be met by general lectures by experts on the more important divisions of the manufacture of pulp and paper. The former phase must be met by an intensive study of fundamentals, boiled down and presented as concrete facts, that the man can put to use directly in his work. It will not do to give theories or undigested data and expect the workman to reason out in logical fashion their application to his everyday work. As Mr. Mahler put it: "We can't give these men the formula for rosin. That won't help him. Give him something practical that he can see. Probably more than 90 per cent. of paper makers do not know why they add alum to the beater."

The attitude of the Governments toward vocational or trade schools varies considerably among the various States and Provinces. Massachusetts requires that students in a State-aided vocational school be employed in the industry represented. Ontario requires that the school be open to all. This makes it impossible to give in the Government supported night or continuation school in Ontario the narrower but more direct instruction in the principles of a particular industry that are practically required in Massachusetts. This does not preclude the giving of excellent and much needed fundamental instruction under the public school system of Ontario. This province is simply taken in order to have an actual place in mind. Other localities would offer more less similar conditions. The Province of Ontario offers very encouraging inducements to the establishment of extension schools, specifying the equipment and general character of the work. The scheme is quite adaptable to local conditions.

The Technical Section has a committee on Technical Education which is actively at work on this problem, and is glad to co-operate with local authorities and mill roganizations. There are several directions in which such co-operation is quite practicable. First in planning the course of study, so as to insure the offering of such instruction as will be essential and leaving out or curtailing that which is only incidental. Second, in recommending text books or revising those in use, perhaps by providing supplements, so as to best serve the interests of the men in the classes. Third, by furnishing lecturers on special features of the work. In some cases the technical men in the mills may be called on to supplement the local teaching force where a particular subject or department is not represented in the faculty.

In some sections the paper industry is probably big and important enough to support its own vocational school. Such an arrangement would have several advantages. In the first place the course of study could

be laid more strictly in accord with the actual and immediate needs of the men in the mills and in the second place the men would probably feel that with the mills giving their time and money to the work, such education would have a guaranteed practical value.

At a meeting held recently in Montreal under the auspices of the Industrial and Educational Press, Prof. Dale, of McGill University, showed the extraordinary success in Scotland of required attendance at continuation schools of a vocational character. The mills and factories pay the boys and girls the regular hourly rate for the time they are in school. This is but an extension of the age limit for compulsory education, along which line there is much to be desired in Canada.

Vocational education is a matter of vital interest to the pulp and paper industry, and deserves the hearty support of every manufacturer. The initiative must be taken by the mills. Any such sound move toward the betterment of the community will be heartily supported. It is not in any sense a matter of charity. It is giving the workers an opportunity they are justly entitled to, good business on the part of the mill and the obvious duty of the community.

CANADA'S WOODEN GOLD MINE.

There is many a wooden gold mine in Canada. Unusual opportunities to sell unlimited quantities of pulp wood at unheard of prices is a great temptation for anyone having forest land to go in and slaughter the wood that can be got to market in the quickest time. There is one very essential difference in these two kind of mines that is frequently overlooked or disregarded. In the gold mine, when it becomes difficult to get ore to one shaft, another can be made, but in mining a forest there is often only one possible shaft, the river and its feeders. These cannot be changed at will, except that by stripping a forest area, the value of a stream may be very seriously endangered.

In a recent U. S. Government bulletin, Samuel T. Dana says: "A stop must be put to reckless destruction of the forest, to uncontrolled fires . . . . . For the sake of the farmer in particular, and the public in general, steps should be taken to retain and restore the forest cover in the mountains, under public ownership or supervision." Farms and forest are intimately and inseparably connected. It is frequently the farmer with considerable timber on his farm who is the worst offender as a forest murderer. He can skin his wood lot and sell the whole hide—just now at a very attractive figure. An animal grows but one hide, and a forest area will grow but one, if instead of clipping the full grown fleece of mature timber, the very ground is bled of all possibility of reproduction.

By all means let the farmer and timber owner profit from his wood. His opportunity in the future will be as good as, or better than it is now. This is especially true of sections near the American border. Pulp wood can just as well be a farm crop as oats, especially as trees will grow where oats will not, and the growth of the trees is a protection to the possibility of raising oats, and other food.

The private timber owner should be required to conform to proper methods of forestry. Generations to come should have the privilege of exporting wood from the land he happens to own now. Generations to come should have their farms protected from the erosion and their lives and property protected from the destruction of floods, which are largely prevented by our forests.

WOOD FLOUR.—MAKE IT IN CANADA.

Wood flour is an important ingredient of explosives of the dynamite class, and also finds other uses, as in the manufacture of linoleum and oatmeal paper. As far as we can find out, this material is not made in Canada. There is plenty of suitable wood, both poplar and pine, for its manufacture. The process is not complicated, and the machinery required can readily be made in Canada. The wood employed is usually poplar or pine. This is reduced to small size, and then rubbed to a powder with just enough water to prevent burning.

Power, wood, and labor are principal items of current expense. Power and wood are certainly to be had in Canada in abundance, especialy as wood waste, or wood now little used, as poplar and birch, can be used.

The product, wood flour, has a market in the dynamite industry that is permanent and constantly increasing. Canada will use increasing quantities in mining, road building and for many agricultural purposes. Canada grows tons of flax-seed for the manfuacture of linseed oil. It would therefore be reasonable to expect Canadian manufacturers to combine the wood flour and linseed oil in a very satisfactory linoleum industry. Still further quantities of wood flour could well be used in "oatmeal" wall papers, the paper of which is certainly indigenous to Canada.

No doubt other uses for wood flour can be found or invented, possibly along the line of moulded articles, composition, flooring, etc.

A BOUQUET.

While we are proud of our paper we are not overburdened with compliments. Our vanity impells us to quote the following from the "United States Paper Maker":—

"The paper industry in Canada is to be congratulated upon the remarkable growth of the Pulp and Paper Magazine of Canada, which since the first of this year has been issuing each week an ably edited sixty-eight-page paper. The large volume of advertising being carried indicates that this journal is receiving the hearty support of the pulp and paper manufacturers and the makers of mill equipment and supplies. This is, however, no more than is warranted by the editorial excellence of the paper."

Wood as a Raw Material in Papermaking

By DR. BJARNE JOHNSEN, Forest Products Laboratories of Canada.

[The following paper was read by Dr. Johnsen at the Winter Meeting of the Technical Section of the Canadian Pulp and Paper Association in Montreal, January 31, 1917. A thoughtful discussion of the various points brought out by Dr. Johnsen showed that there is an appreciation on the part of the technical men in the mills for the research work that is being done at the Forest Products Laboratories. There is no doubt but that the industry must adopt, sooner or later, more scientific methods in making pulp, taking into consideration such facts as are continually being discovered by such work as is presented in this paper. The sooner the industry does this, the better for Canada.

The pulp and paper industry requires enormous quantities of certain raw materials, which are not always obtained on the market with the same degree of purity. In most cases analytical methods are known which allow the mills a certain control of the raw materials, which are brought into the manufacturing operations. Not only from a business point of view is this a very important factor but it is an absolute necessity in order to understand perfectly the processes in the various plantts. For a proper control of the acid plant in a sulphite mill it is just as important to know the quality of the pyrites or sulphur as it is necessary to know the quality of the fuel in studying the efficiency of a boiler. When we consider, how very little we yet know about the chief raw material in papermaking, namely the wood, we can understand why in spite of the rapid development of this industry the exact knowledge of several of the important processes involved is still very limited, and we can imagine how much valuable material will still be wasted before we can say that this raw material is properly utilized according to its physical and chemical properties.

I am convinced, however, that while the processes for obtaining pulp from wood are still based more upon practical experience than upon scientific knowledge there are many details connected therewith which could be discussed with advantage at the present time with regard to the economy of wood. This subject includes many factors such as forestry, handling, transportation, purchase, etc., which it would be impossible to discuss this morning. I believe that when we confine ourselves to a consideration of the raw material after it reaches the mill, it will give us plenty of material for discussion. I will also take this opportunity to include the results of a few investigations carried out at the Forest Products Laboratories chiefly in order to study the characteristics of the various Canadian woods and their value as raw material for papermaking.

An interesting point in the purchase of wood in countries where the wood is not so cheap as in Canada is the attempt of Swedish foresters to co-operate with the pulp and paper industry in establishing various grades of pulpwood based upon its condition delivered at the mill as a result of the previous handling of the wood. In Canada with such a variety of wood used in this industry it would be well also to include the values of the different species as raw material. In some countries the groundwood mills are viewing the increasing price of pulpwood with considerable alarm. The yield of pulp in this process can hardly be increased, therefore they are attempting to improve the quality of the pulp in order to obtain a higher market price.

The results of these attempts can not be taken up in detail here, but I would like to mention the Enge process, in which a previous treatment of the wood with boiling water under high pressure improves the quality of the fibre to such an extent that it can replace in some cases the more expensive chemical pulp. Using this method a newsprint paper can be manufactured without the addition of chemical pulp and with better results as to strength. Also the old idea of treating the wood with waste liquors previous to the grinding is again the subject of interesting discussion.

On this continent the economy of wood is being taken into consideration much more of late than in the past. The recent improvements of drum barkers is certainly a great step toward economy and the waste in chipping is claimed to be greatly reduced by improved construction of chippers. But I believe that further improvements can be effected in methods of storing and operations in the woodroom in order to deliver a product of more value to the chemical pulp mill.

I am sure that a discussion of these questions, which I have only touched upon, could be taken up by some of the experts present and that they would be of general interest to us all. In considering further the evaluation of wood as raw material I now take pleasure in reporting some results of a few preliminary investigations carried out by Mr. R. W. Hovey and myself in the laboratory of the Pulp and Paper Division of the Forest Products Laboratories.

We considered it necessary as a preliminary work to the study of the cooking processes to obtain as much information as possible on the chemical and physical properties of Canadian woods as related to the pulp and paper industry.

As cellulose is the ultimate product of chemical processes it was considered important to determine the cellulose content of the common Canadian pulpwoods. In spite of the significance of being able to estimate the cellulose in the raw material, there has been no reliable method established for the determination of this most important constituent of wood. One only needs to look through the literature to observe the large variation in values given for the cellulose content in the same wood, the value for spruce for instance varying from 35% to 65%. Considerable work was therefore done to establish a method which would fulfil the requirements of a rapid and reliable method, and this we think we have accomplished by using a modification of the chlorination method suggested by Cross and Bevan. A description of the method will be published in the official organ of this association at a later date.

The results of some of the determinations on common Canadian pulpwoods are contained in Table I:

Table I.—A Few Characteristics of Some Canadian Woods.

Material.	Age Annual rings.	Diameter without bark.	Cellulose P.C.	"Lignin" P.C.	Soluble in boiling water P.C.
Black Spruce .	74	9½ "	50.64	27.59	7.24
Red Spruce . .	69	10½	51.80	28.45	5.08
White Spruce	83	10⅜	56.48	27.58	3.00
White Spruce	50	7⅜	56.40	27.00	4.93
Balsam Fir . . .	54	6¾	50.98	32.75	4.80
Jack Pine . . .	61	8⅜	49.24	30.43	6.73
Hemlock.	120	12	48.70	.....	....

As will be seen in this table there is a considerable difference in the cellulose content of the various species. Of course, a fixed cellulose content can not be given for each species, as this may vary slightly with the conditions of growth. A special study of the cellulose content at various heights of the tree was made for two Canadian species, namely white and black spruce. This study gave very interesting results, showing a considerable decrease of cellulose from bottom to the top of the tree. Table II shows this variation and also that the lignin content remains approximately constant throughout the same tree, but, as will be seen in table I varies for different species:

Table II.—Cellulose Content of White Spruce and Black Spruce at Known Heights from the Ground.

Distance from the ground in feet.	Age Annual rings.	Diameter without bark.	Cellulose P.C.	"Lignin" P.C.
White Spruce.				
8	63	13¾"	56.42	26.5
24	54	11⅝"	55.61	
40	42	10⅛"	54.30	
56	32	6¾"	52.56	28.65
Black Spruce.				
8	103	10¼"	55.35	25.0
24	84	9 1-16"	53.60	
40	62	6 15-16"	53.13	25.8

It may be well here to point out how these factors may affect the cooking processes. It will be seen from the tables that it is impossible to obtain the same yield of high grade pulp from small sized as from large sized wood, and that the yield may also vary in most cases with the species. With the decrease of the cellulose content the total of the impurities that are to be removed in the cooking processes must naturally increase, and in some cases therefore it may be practicable to separate the old and young woods as well as separating the species, in order to maintain a uniform raw material. When the quality of the raw material is known it is much easier to control the cooking process. The usual mill control is secured by titration of the liquor and estimation of the depth of color. The color varies with the amount of impurities dissolved. Young wood contains less cellulose, accordingly, more impurities, than old wood, hence with the same color of liquor the same degree of purity wood not be obtained. This might explain the hard stock often obtained in cooking young wood.

It may be of interest to show the variation in fibre length in the two trees which I have just discussed with regard to cellulose content. I am indebted to Mr. H. N. Lee for allowing these slides to be shown. They represent part of the work which is being done by Mr. Lee on measurement of fibre lengths of various Canadian woods. The average fibre length is approximately the same in both Species.

(Note: Mr. Lee's remarks on length of fibres will be a part of an article to appear in a later number of this Magazine).

We have so far considered the constituents of wood other than cellulose as "impurities". The "impurities" consist largely of socalled lignin and no exact method for determining this constituent is known. The values for lignin given in the previous tables represent that part of the wood insoluble in 72 per cent sulphuric acid after three hours treatment. I can not yet state as to the accuracy of this method for lignin, but it has been used by several other investigators, and can be used for comparison of the various woods, until the work we are doing to establish if possible a correct method, is finished. The lignin content as determined by this method differs considerably for balsam fir and the spruces. This would mean a greater consumption of SO_2 in the cooking process thereby using more lime. As this question is of great importance to the cooking process, we hope to undertake a series of investigations comparing the consumption of SO_2 by spruce and balsam fir.

It is generally recognized that the yield of pulp from black spruce is higher than from white spruce. In the two trees referred to in the table the per cent of cellulose on dry weight of wood is very nearly the same in black as in white spruce, but the black spruce is considerably denser. As a general rule the black spruce is denser, (has a higher specific gravity) and will therefore represent more cellulose by volume than the white spruce. A digester charged with black spruce should therefore yield more cellulose than the same digester charged with white spruce. A consideration of the density of balsam fir and spruce also leads to the conclusion that a certain volume of balsam fir must give a lower yield than the same volume of white spruce and as the cellulose content of balsam fir is also lower than that of spruce the yield from balsam should be considerably lower. With the same species the value for density, of course, changes somewhat with the conditions of growth, but we can say that in the same tree the specific gravity decreases from the bottom to the top of the tree. So that with regard to volume lower yields must be expected from young wood than from old.

There is another point to be considered in connection with the yield by volume, namely the shrinkage of wood by drying, which amounts to about 10 to 11 per cent for spruces and about 8 per cent for balsam fir from green to bone dry wood. The rate of shrinkage, however, seems to be dependent on the density of the wood but we may say that the volume of the spruces remains nearly constant by drying down to around 30 per cent moisture; from here the shrinkage is rather slow till about 15 per cent where a more rapid shrinkage is noticed. We have now considered the theoretical yield by weight and by volume. Experience however teaches us that it is hardly possible with the usual cooking method to obtain in practise the theoretical yield of high grade fibres. The reason may be due to many factors but in my opinion one of the most important reasons must be the variation of the wood

aterial with regard to its chemical and physical qua-ties and the uneven penetration by cooking liquor esulting from this. Ideal conditions would be to have he chips saturated with liquor before the cooking re-ction begins so that the surface of the chips would ot be cooked down long before the interior part of the hips. If these ideal conditions did not prevail, the esult would be an uneven stock, shives mixed with vercooked fibres, which means a low yield of really ood pulp.

As the beginning of the investigation of the sulphite ooking process a series of experiments have therefore een made with the intention of studying the effect f various factors upon the penetration of chips by ulphite liquor. For a better understanding of how

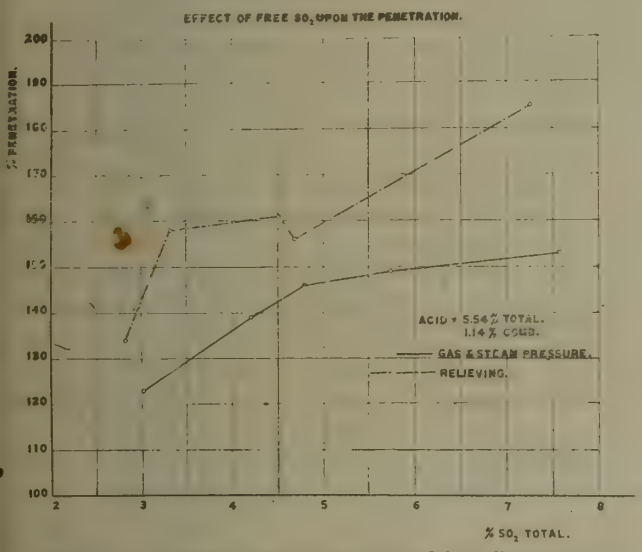


Fig. 1.—Curves for Airdry White Spruce.

hese tests were made I would like to show you a sketch f the digester in which the experiments were carried ut, and which will be used for the preliminary work n the cooking process.

The autoclave was made by Messrs. Farand and elorme, Montreal and is a bronze digester with a team jacket. The digester, which has a capacity of bout two pounds of chips, was at first lined with lead n the usual way, but this lining did not prove satis-actory owing to leakage at the joints. Later on it as decided to try out the new metal spraying me-hod. Since then we have had no trouble at all with he lining. The cover has a gauge, thermometer well nd a relief valve for gas. At the bottom there is a alve for relieving liquor. As in a digester like this o condenation of steam takes place, no hydraulic ressure is obtained directly; on the contrary there ill soon be a gas space above the liquor due to the bsorption of liquor by wood. To be able to copy the onditions in practice and study also the effect of pres-re the bottom pipe is connected up to a hydraulic ump so that water can be added to the digester at any ressure.

It is known that in cooking wood the specific gra-ity of the liquor and the percentage of solid matters n the liquor begins to increase at a temperature very ttle above 100 deg. C. and increases from this point ery rapidly. This shows that at this temperature wood ubstances go into solution, and that the penetration ught to be accomplished below that temperature. We sed in all these tests the same temperature curve, namely a gradual increase of the temperature up to 100 deg. C. within 2½ hours at which temperature the digester was kept for a half hour. Then the liquor was drained off at the bottom and measured, and from the liquor added and the weight of the wood the per cent absorption on bone dry weight of the wood was calculated. The moisture in the wood was always calculated as absorption.

In the following curves the results of these tests are seen. The first curve (Fig. 1) shows the influence of increasing the free SO_2 with constant combined 1.14 per cent when air dry spruce was used. One curve shows the per cent penetration when the top valve was kept closed all the time, the other curve gives the penetration, when the air was allowed to escape through the top valve at temperature below 55 to 60 deg. C. As it will be seen the penetration increases with the free SO_2 and when the air was allowed to escape. In these tests the pressure was really not kept constant as this, of course, varies with the free SO_2 content and with the removal of air. It was therefore necessary to study also the effect of pressure separately. Further it was considered to be of interest to study the effect of moisture, as the question of drying chips has of late been the subject of considerable discussion The liquor was kept constant in all these tests, namely 5.54 per cent total and 1.14 per cent combined, and the same temperature curve was used as in the previous tests. When hydraulic pressure was applied this was regulated so as to be 70 pounds at 100 deg. C. The maximum pressure, when the air was relieved was 37 to 38 pounds, with no relieving of air (gas and air pressure) the maximum pressure was 46 to 48 pounds depending on the moisture content of the wood.

The second curve (Fig. 2) may give opportunity for considerable discussion. I must say that I am myself not very anxious to put forward any theories at the present stage of this investigation and it would be of great value to the continuance of this work if any-

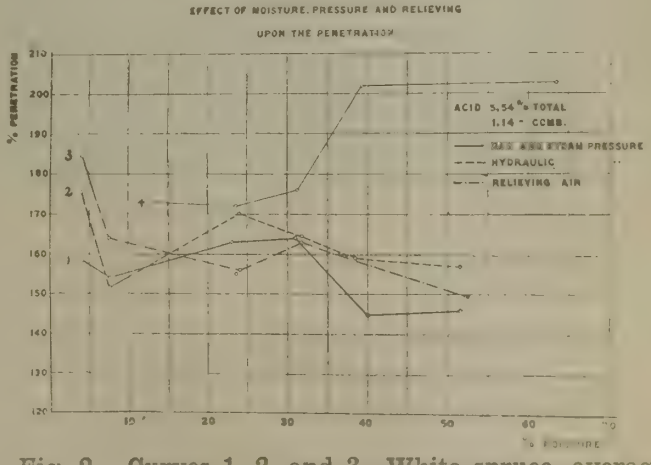


Fig. 2.—Curves 1, 2, and 3. White spruce, average diameter 11''. Curve 4, Balsam fir, average diameter 6''.

body present would be kind enough to speak of his experience with regard to the behaviour of wood of different moisture content.

In this case there are two interesting points namely where the three curves intersect each other at about 30 per cent and at 15 per cent moisture content, that is approximately at the point where the shrinkage begins and at the point where the rapid shrinkage begins, which is generally considered as air dry condition. Below this point the chips are filled wtih air,

therefore the best results are obtained with relieving. The application of high pressure is here of no use. Between the two points the best conditions are obtained with pressure, which apparently will have the greatest effect between 25 and 30 per cent moisture for this spruce. I will mention here the apparent connection between this point of maximum penetration and the so-called "fibre saturation point" where all the "free" water is considered to have been removed, and only the water of the cell walls is present. This is also the point where by further drying of the wood the shrinkage begins. Another interesting feature is the drop in the absorption curve by relieving. This drop seems to be typical for a certain concentration of the liquor, and is always observed when the pressure is reduced. If we look back upon the previous curves and also take a look at the third curve (Fig. 3) we will notice that the same thing happens nearly at the same concentration of the acid or when this concentration is reached by dilution with the "moisture"—water. I will call your attention to the high penetration at 4 per cent moisture. In this case the chips had been practically bone dried and then brought up to 4 per cent moisture. These values must therefore be considered abnormal. There is apparently a physical

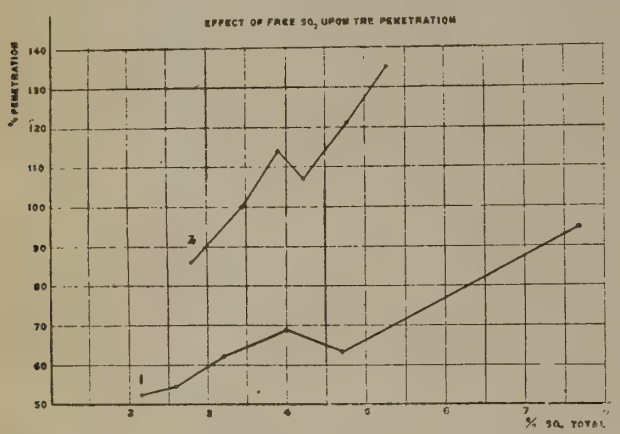


Fig. 3. Curve 1 represents green spruce. SO_2 combined, 1.15%. Curve 3 represents airdry spruce. SO_2 combined, 1.35%.

change in the condition of the cell wall. This is believed by some to be due to a splitting of the cell walls which not only opens up the fibres but at the same time would probably cause a decrease in the strength.

If one considers the values for penetration and the moisture content of the wood one will notice that apparently very little liquor is absorbed in cases where the moisture content is high. On the other hand the titration of the relieved liquor shows that in all cases the concentration of the SO_2 on the wood at the time of relieving was nearly the same, namely from 10 to 14 per cent.

These curves represent results of experiments on spruce of specific gravity of about 0.52. To get an idea of the penetration of a wood of lower density some experiments were carried out with young balsam fir of about 0.36 specific gravity. The fourth curve shows the results obtained with no relieving of air.

In continuing these experiments it is our intention to study further the effect of relieving and pressure as well as vacuum. It is also intended to determine the effect of adding certain chemicals to the liquor.

We see from these curves that the penetration depends upon the species as well as the moisture condition of the wood. This seems to be another point in favor of the separation of species for the obtaining of constant raw material for the cooking process.

Another point to be considered in the question of separating species is the resin content. We hope to be able to investigate the nature of the resin in various species and the effect of handling and methods of storage upon the resins.

In closing I would like to point out the possibilities of producing various grades of even pulp. With a high penetration we can assume the action of the liquor to the same throughout the chips, thus enabling the cook to be stopped at an earlier stage of the process. This would mean the production of an even pulp with high yield to be used in lower grades of the paper.

I shall not discuss the utilization of waste liquor, although this is a very important point in the question of economy of wood. It is difficult to give any opinion of the various methods a the success of these methods largely depends upon the composition of the liquor, which in turn depends upon the raw material and the cooking process.

I have taken this opportunity to report on the results of certain investigations being carried on at the Forest Products Laboratories, although these are not by any means complete, in hope that suggestions and criticism may be received from the industry to assist us in completing this work in such a way that our results may be of the greatest value to the pulp and paper industry of Canada.

EMPLOYMENT IN FORESTRY.
Opportunity to Provide for Many Returned Soldiers.

In solving the problem of providing suitable employment for returned soldiers, the possibilities in forestry and fire protection work should not be overlooked. For many of these men, such work would be highly attractive. In carrying out a plan for the establishment of vocational schools for the training of returned soldiers, provisions should be made in some way for special courses of instruction is forestry work. Such courses should be of the most practical character, calculated to make the services of the men of great value to Dominion and provincial forestry and fire-protective organizations, and to private timber owners as well.

Technical forest schools are already in existence at Toronto, Quebec and Fredericton, and another is contemplated at Vancouver. It should be possible to secure the co-operation of these schools in the establishment of supplementary ranger schools, specializing primarily in the several classes of forest engineering work which would best fit the men for the practical duties with which they would be confronted in the lines of government or private employ. Another possibility is the establishment of such courses of instruction direct by the several governmental fire protective organizations, Dominion and provincial. Each of these should be able to provide employment for quite a number of returned soldiers, with great mutual advantage, providing the men are properly trained.—Conservation.

The Russian Minister of Agriculture has been given power to create on Crown lands reserve areas for the preservation and breeding of fur-bearing animals and of birds.

The Manufacture of Lead Pipe and Sheet Lead

By H. C. CROW, Canada Metal Co., Toronto.

Progressive pulp and paper makers want to know what their apparatus is made of and how it is made. When a particular bronze or babbitt alloy is known to give good results for a valve or bearing they want to know what it contains, and when this material is ordered it must not only contain the proper constituents, but must also be made in the approved manner. The casting must be free from blow holes and the bearing metal must be homogeneous.

Lead pipe plays a very important part in the the manufacture of chemical pulp. Not only is its purity of interest to the user, but also the care and skill with which it is made. Until recently it was impossible to buy a seamless lead pipe of large diameter. A 12'' pipe, for instance, was made by bending a sheet of lead into a cylinder and burning the edges together. The modern method is to extrude or push the metal through a suitably designed die. Enormous pressure is required and composition of the alloy and other factors must be carefully regulated, so as to avoid any strains or lack of uniformity in the product.

For this purpose a 1,500 ton hydraulic press has recently been installed by the Canada Metal Co. of Toronto. This press is operated by a 5,000 lb. hydraulic pump, and is capable of making lead pipe from ¼'' to 12'' in diameter, and varying in thickness of the wall from .010'' to ⅝''. The pipe on the press illustrated is 12 ft. long by 12'' in diameter, and weighs very nearly 600 lbs. It is made of pure Trail electrolytic lead with an addition of 5 per cent. antimony. It is part of an order for one of the largest pulp mills in Canada. The company has six of these hydraulic presses, making all sizes of pipe, etc. They can be changed from one size to another very rapidly.

Not many years ago anything special in the large sizes of lead pipe or antimonial lead pipe was imported, but all requirements in this particular line for Canadian mills can be supplied promptly in Canada, and is an industrial achievement to be proud of.

Another process of practical interest to pulp and paper manufacturers is the process of manufacturing sheet lead. First, the pig lead is taken to the huge melting pots, and when thoroughly melted ,and alloyed if antimonial sheet lead is required, the molten metal is poured into huge moulds and forms slabs of lead 3½ inches in thickness.

After cooling sufficiently these large slabs are transferred to the rolls, and the process of rolling into sheets is commenced. To give one an idea of the amount of pressure required, it is only necessary to state that until the lead is reduced to 1-16'' in thickness it requires 1,000 h.p. pressure transmitted direct to the rolls, and this can be adjusted for special purposes. Once the sheets are reduced to 1-16'' the friction load is sufficient pressure, and this is practically 35 h.p.

Sheets 50ft. in length and 7ft. 6in. wide, and containing 3 per cent. of antimony were recently rolled for British Columbia. Antimonial sheet lead can also be made containing as high as 5 per cent. antimony.

In another department there are other rolls making sheet lead in various lengths. Quite a contrast were the finer rolls making lead foils and tin foils. Records prove conclusively that a large tonnage of sheet lead was imported during 1916. To-day there is absolutely no reason why one pound of sheet lead should be imported. Canadian factories can supply all requirements.



Making Lead Pipe 12'' Diameter.

These industrial achievements which assist to consolidate Canada as a recognized factor in world commerce. Reports of such practical demonstrations of manufacturing, as can be seen at the works of the Canada Metal Co., should do much good in convincing the world that Canada is making colossal strides as a manufacturing country.

R. C. Hawley and S. J. Record report a new enemy to the white pine, namely ants, which girdle young plants, apparently to get rid of the shade. The leaves on the girdled trees turn yellow and the tree finally dies. Other species noted to be attacked were Scotch pine, juniper, aspen, hickory, and gray birch. Killing of the ants is the only remedy.

Boiler-Room Safety Pointers

By M. A. SALLER.

It has been estimated that over 2,500,000 accidents ccur yearly in connection with the industrial plants of his country and that 60 to 70 per cent. of these ıishaps can be traced directly to carelessness and lack f proper safeguards.

This matter is of extreme importance in power lants, because accidents which develop there may rove disastrous, not only involving the parties esponsible, but causing money loss, inconvenience and ven danger to others. The safety slogan should there- ore be impressed on all who are connected with ower-house work and no effort spared in brinigng to heir attention, by means of bulletins, notices, framed ıstruction sheets, etc., the importance of the careful bservance of all precautionary measures; and herever possible the human element should be liminated or minimized by arranging the equipment ı such a manner and with such safety appliances that ; is made difficult for the operators to make mistakes nd expose themselves to danger.

Good substantial hand-rails should be fitted on all tairways and narrow gangways, especially the dark, teep ones, for it is quite a common occurrence for men) sustain serious falls because of a misstep or slipping n stairways. A railing of the proper height will in ıany cases enable the man to check himself without anger. Metal stair treads become dangerously ippery after the rough surfaces are worn down. A ecurely anchored and railed walk should be fixed long coal trestles and pockets around water tanks, :c., where the operators are called upon to go, and long the tops of the boilers parallel to the steam eaders and near the stops and safety valves, and ermanent ladders of generous proportions should be rovided. A loose ladder hastily placed and ascended is roductive of hundreds of accidents.

Special attention should be paid to lighting up all ıe dark passageways and stairs, as there is always the ossibility of something being placed therein over hich a person may stumble and fall. Where it is ecessary to visit such dark places only once a great hile, hence wasteful to have them continuously luminated, lights should be installed so that they can e turned on by means of a snap switch when ecessary. It is highly important to have plenty of ood, clear light around pressure and water gages, etc.,) avoid mistakes in taking off readings.

Put rubber pads on iron stairs or floor plates or ough up with a chisel or roughening tool when worn own smooth. See that all floor planking is kept in ood condition and securely fastened down so that a olid, smooth carrying surface is presented. Special ookout should be kept for rotted planks or supports hich may give way. Also covers to sumps, hotwell its and manholes should be kept in good condition and ecurely in place, for they readily work loose, warp ıd become wabbly when stepped on. It will pay to ave floor boards treated with a creosote filler or else overed with a heavy coat of tar.

Impress upon all the operators the desirability of ening water and steam valves carefully and slowly) prevent excessive shocks on the pipe lines and at or hammer.

Provide cages or covers made of light-weight wire screen or a simple guard railing for all moving parts of machinery which offer possibility for injury, such as stoker, gears, stoker engines, moving belts and fly-wheels. Arrange the outlets for hot water or steam in such a danger that the possibility of scalding passers-by is eliminated. These discharge outlets should be connected to the sump of exhaust pits. Do not discharge even low-pressure traps horizontally from the building in areaways or passages, because their sudden discharge, releasing hot water and steam, is apt to scald anyone working in that vicinity. It is also poor practice to discharge the boiler blowoff horizontally out into the open, even where the plant is isolated, because there is always the possibility of someone being near the outlet and being scalded by the sudden blast.

Safety Valves Should Be Tested Daily.

Impress upon all the necessity of being positive that safety valves are of ample size and in proper working order at all times and that they cannot be tampered with and overloaded. Try each safety valve at least once every day to make sure that it is operative at the desired pressure limit. Pressure gages should be tested and calibrated at regular intervals to insure that they indicate accurately.

It is best not to rely entirely on the gage-glass or high and low-level alarms actuated by floats, etc., but instead, trycocks should be placed in the boiler at various levels and blown at frequent intervals in order to check the indication of the gage-class. Fusible plugs should also be inserted at the minimum low-water line.

Gage-glasses should have protecting guards that do not blur or make indistinct the reading. When putting new glasses in high-pressure gage fittings, it is advisable to admit the pressure slowly so that the glass may gradually heat up and adjust itself to the pressure conditions. It is an excellent precautionary measure to place a board in front of a new gage-glass so as to protect the operator from flying gas and steam in case the glass should prove defective and burst.

When a boiler is shut down for cleaning, it should be carefully examined for cracks, pitting, bags, etc., and to see that all the stays are tight. The boilers should also be regularly examined and tested by a reliable boiler-inspection company. Never neglect a leak or defect in a boiler however slight it may appear—have it repaired promptly.

While boilers are out of service for cleaning or repairs, the valve between the steam header and the boiler should be locked and tagged so that there will be no possibility of the steam being turned into it until steam has been raised in it and the boiler is ready to be put back into service. Guard against the accumulation of large quantities of scale in the boiler; for one thing it is liable to cause overheating and bagging of the boiler plates or gurning of the tubes, often resulting in a dangerous explosion.

It is excellent practice to provide the fireman with amber-colored glass goggles to relieve the glare of the bright fires and protect the eyes in case of a bursting tube which sends through the fire-door a shower of hot coals and ashes.

Proper racks for holding the stoking tools should also be provided so that they are not scattered about the boiler-room floor, a source of danger and inconvenience to everybody concerned.—Power, Jan. 2, 1917.

Slash Disposal as a Commercial Proposition

By B. W. LAKIN, Sup't Crookston Lumber Company, Bemidji, Minnesota, given at Annual Meeting of the Canadian Lumbermen's Association.

I was asked to come here and tell you how be burn ur brush, or slashing, in Northern Minnesota. All I an tell you is that it has been the policy of the Crookton Lumber Company at Bemidji, Minn. for the past



Forest Slash.

en years to burn the slashings in the Spring on the nds we were logging.

In doing this we endeavor to do it in as economical nd efficient way as possible, and it has become such a ystem with us that we consider the benefits more than vercome the expense. Our brush, or slash, burning is ll done in the Spring, and early before the fire is able to spread to adjoining lands, as early spring res will not run in standing timber.

Our country is rolling with practically no stones. We re logging white and Norway pine, spruce, tamarac nd balsam; about 75 per cent white pine, 10 per cent odway, 10 per cent spruce and 5 per cent tamarac and alsam, with an average of about eight thousand feet the acre.



Slash Piled by Contractors for Burning.

We take of the above mentioned timber everything at will make a log 6'' at the top end and 10 feet long. here is still left on the land a great deal of other nds of timber, such as white birch, poplar, maple and m, and in burning we are anxious to save all the timr left standing to be sold later with the land.

We own nearly all the lands from which we are cutting timber, and after the pine timber has been removed our land is valuable for agricultural purposes and we are careful to preserve the timber left, as well as do away with a serious fire risk.

Now we start out logging with the IDEA in mind that the **brush is to be burned.**

In sawing the timber we use a crew of four men—two for the saw, one to undercut and mark the log lengths, and one to trim off the limbs and pile them. Then in spring, as soon as the snow is off, we send our men in to burn the slashing. They, as a rule, do not have to do any more piling of the brush, and we are careful not to wait until its gets too dry. If there is

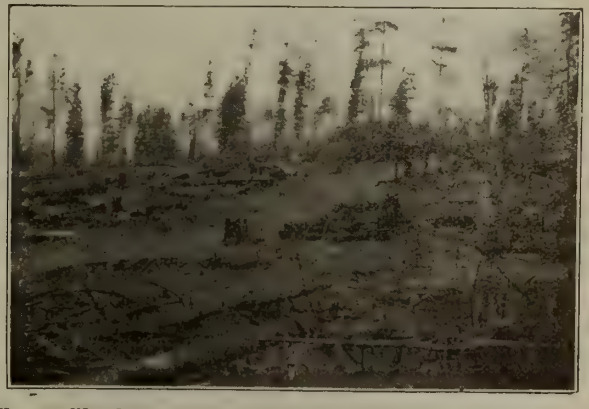


Burning Forest Slash.

any danger of the fire leaving the land we are operating on, we first burn around the outside of the slashing. We find that by burning early and with care, that the fire does not injure the standing timber, nor does it materially affect the small undergrowth. Where a tree has been felted off by itself, we do not attempt to burn the brush, for it alone constitutes no fire risk.

We have a state law that requires that the brush be burned before May 1st, and we find, from experience, that unless it is a very late Spring, that it is unsafe to burn after that, and if we do burn after that it is done under the supervision of the Forest Ranger, and special care is given that the fire is not allowed to get beyond control.

The manner in which the burning is done all depends



Where Slash has been Burned after Logging, No Danger of Fire Now.

on the instructions sent out from the main office. If you instruct your men to be careful they will, no doubt do it, but if you issue instructions that the brush be burned as cheaply as possible, you will have some big fires that will do a lot of damage. That we know from experience, for even in the fall of 1909, when we had such disastrous fires in Northern Minnesota, there

was no trouble, or damage, at any of our operations, though we log over 10.000 acres each year.

Our law has worked out very satisfactorily to us. Our men are all instructed to co-operate with the Forestry Officials, and we have had a great deal of help and advice from them, and never any trouble. But, to do it right, you must give it considerable supervision, and have in mind during all your logging operations, and do not wait until too late in the Spring to do your burning, or you are liable to have a fire you cannot control.

We use Lidgewood cable-way steam skidders in most of our operations, and horses and logging railroads in [illegible]. We are doing no hauling with logging sleight. We use the same brush burning methods at all our operations.

The expense is not great. It need not cost to exceed 50 cents per acre, and the average need not be over 10 to 20 cents per acre to do the burning in the Spring.

Our men use a kerosene torch made out of 1½" gas pipe, with a cap on one end and a reducer from 1½ to ½" with a piece of 1" pipe, about 10" long in it on the other end, filled with wicking. The large pipe filled with kerosene will make a torch that will last two or three hours, and is easily handled.

In conclusion, would suggest, that to do the burning successfully and cheaply, that you must arrange your work with the idea in mind of burning that slash **right.** Co-operate with your Forestry Officials. They will always have some good ideas that you can use to advantage, and after you have burned the slash successfully for a season, you will not care to go back to the old system of leaving the slash as a fire trap.

YOUR ENEMY'S PHOTOGRAPH.

This time it isn't the Kaiser, but the picture of a forest fire which Robson Black, Secretary of the Canadian Forestry Association is sending out. What he says is worth reading and repeating.

"You will recognize here a portrait of your Enemy. His name is the Forest-Fire-Fiend. He lives by pillage.

What he thieves in one year would pay the premiums on $1,000 life insurance for 300,000 Canadians at 25 years of age.

It would almost double the pensions on 19,000 disabled soldiers.

The thefts of this enemy from the storehouse of our wood supplies run from four to six millions and worse per year.

By every December he has left you and your family a little poorer than you would have been without his presence.

Canada is the only country on earth that thinks it can afford million dollar bonfires in war-time.

Every man who fools with fire in or near a forest, betrays his country. You and I are not the owners of the forests and fields. We are trustees.

Sir George Foster said a good thing: "You are drawing the blood of a future generation in Canada when you misuse the forest resources of the country."

Keep this clear: Timber is a crop. Most of our timber is to be found where no other crop can possibly grow.

A forest fire, therefore, usually means that a large area of land has been stripped of its only possible crop. The land lies waste. Nobody gains. The Nation is that much poorer.

Canada has not one tree too many for present and future needs. We own just one quarter of the timber possessed by the United States. Since pioneer days, the Fire Fiend has robbed us of two-thirds of our original forest inheritance. On what remains the most careful economy will be necessary to meet the increasing requirements of the population. Forest protection, then, is just a matter of good citizenship.

How to Keep Canada Clear of Forest Fires.

Commence with your own pair of hands.

If you are a sportsman, a camper, surveyor, sectionman, river driver.—if work or pleasure takes you into the forest—these Veteran's Rules will save you plenty of regrets:

Do not under any circumstances toss away burning matches, cigarettes, or hot pipe ashes, nor start a fire in the woods among dried leaves, dry wood, or against a log, or against any, tree, whether it be dead or alive. Never start a fire in the moss or peat of a dry bog. Never leave a fire until it is surely out. Take no chances with fire for the chances are all against you.

Are you a settler in timbered country? Please do not burn your brush or stumps in a clearing on a dangerously dry or windy day. Stay with your fires until they are completely out. You will do this the more gladly when you know that 110.000 of your fellow Canadians look to living forests for their jobs. There are no jobs in burned forests.

Are you a railroad employee? The Forest Fire is doing its best to thin out your pay envelope. Deserts play traitor to freight and passenger traffic, and Forest Fires are the breeder of deserts. Forests when kept alive produce lumber mills, pulp and paper factories, busy towns, heavy tourist traffic, jobs for everybody. Five thousand forest industries look to you to keep their wood supplies fit for use.

If you see a sign of fire on or near the right-of-way, don't underestimate what it means. Inform the nearest fire patrolman or station agent. Lend a hand yourself. Throw away neither burning matches, pipe ashes, cigarette nor cigar ends.

Some of the biggest forest fires began with a single wisp of flame. At the start, a child could stamp it out. At the climax not a battalion of forest rangers could stay its vicious sweep. Whole townships pass beneath the pall of smoke and smothering heat. Farms and villages are turned to shambles. Lives and untold property heap up the awful penalty.

Keep the whip-hand on fire of every kind. The unwatched clearing fire, the tossed-away match or cigarette, is a straight bid for a newspaper 'horror.' That 'insignificant' flame you are master of right now may be the fuse to a Disaster.

PLAY SAFE!"

The distinctive feaure of the development of the timber sales in Montana and Idaho in recent months is the very pronounced demand for timber suitable for paper pulp. The establishment of one or more pulp mills operating on National Forest timber has been proposed, with capacities from 10 million to 50 million feet annually. It seems very probable that one of these will materialize in the near future.

The Hospitality of Hammermill

A feature of the conference of representatives of the Technical Section of the Canadian Pulp and Paper Association and the Technical Association of the Pulp and Paper Industry that will be long remembered was the hospitality of the Hammermill Paper Co. The courtesy of these progressive paper makers appeared first in the thoughtfulness of Mr. Obermanns, in reserving rooms at the Hotel Lawrence, and continued throughout the conference.

After the morning session on Thursday, a seven course luncheon was served in one of the private dining rooms. Mr. N. W. Wilson, vice-president of the Hammermill Paper Company, very graciously filled the part of host. President H. P. Carruth and Dr. J. S. Bates responded for their respective delegations. He gave the delegates a cordial welcome to Erie, and particularly to the Hammermill plant. An hour of good fellowship around the table made a big family of the party.

The theatre party in the evening was enjoyed by all.

Friday morning automobiles took the visitors to the paper mill, where a group photograph was taken, and the morning spent in going over the plant. There was little that escaped observation and comment, and Messrs. Obermanns, Culberson, Spierling and K[illegible] were very good about explainnig points and answering questions. Everyone appreciated Mr. Obermanns' explanation of the "tickler system," by which work is planned out, checked up and automatically brought up for attention at the proper time. Another feature of the office work is the chart system for keeping records of the operation of various departments of the mill.

The writer made note of a few points about the mill that may be of interest. The capacity of the six digesters is 150 tons, most of which goes into the famous "Hammermill Bond.' Bache-Wiig barking drums are used. The bark is pressed and burned. There are four acid towers for limestone, and a recovery tower in which the acid is brought to a very high content of free SO_2 by the relief gas. Rotary sulphur burners are used, and it was hard to detect any gas in the burner room.

From the thickeners an ingenious device propels the stock to the 5 Bellmer bleachers. This is a trough above which is a rod that is given a reciprocating motion with about a 2-foot stroke. Paddles or pushers are suspended on rollers, so that they are vertical when pushed forward by the rod, but ride horizontally on the stuff on the return stroke. Stuff of almost any concentration could be moved in this way. A trap in the bottom of trough dropped the stuff into the proper bleacher.

The oversize screenings, chips, knots and slivers are reduced in a Howard refiner. This is a cylinder of boiler plate, lined with wood blocks and filled half full of flint pebbles. The screenings are fed in through one journal and discharged through the other. The refined screenings are made into an excellent M. G. wrapping, turning into a profitable product what many mills throw away. For the second time in his travels the writer had proof of the unwisdom of saving money in construction by having two levels in a mill floor. The other case is a mill near Toronto. The saving in such construction is soon eaten up in extra labor or equipment.

There are about 30 beaters, each provided with measuring tanks for alum and size. One of the four machines on bond paper is equipped with the Crane system, which has been installed only two months, but seems to be satisfactory. Rotary screens are used. One machine was seen to be running at 350 feet, although a speed of 400 feet is not unusual in this mill. We take off our hat to the machine tender making bond at that speed. On all the machines suction couch rolls are used. A feature that appealed to the writer was the Obert doctor conveyor that delivered the wet broke directly into a car, thus saving the tender back of the back-tender, and preventing lumps of broke from getting under the roll and spoiling the felt.

The finishing room is furnished with super calenders, sheet calenders, platers, and cutters. A machine said to be giving good satisfaction is the Moore and White cutter and lay boy, which saves the work of several girl stackers as well as considerable floor space.

Cameron slitters and rewinders were in use, and it was surprising how clean paper can be cut with a wheel that does not feel particularly sharp. No scoring could be felt on the roll against which the slitters run.

Both English and American systems of rope drive were in use. One drive was transmitting 2,500 horse power. The boiler horse power of the mill is 7,000, all generated by steam. A new power plant and water filtration plant are being cosntructed. A completely stocked store room carries about every machine in the mill in form of spare parts, even to extra dryers. This saves expensive time in case of a break. There is also a well equipped machine shop. A lunch room is maintained for the workmen, and judging from the appetizing odors emanating therefrom, it should be well patronized.

The loading platform is perhaps 15 feet wide, and long enough for 16 cars to load at one time. Sliding doors along the edge enclose it completely, thus protecting the stock and the workmen. A small building houses the three chemical laboratories, where tests and analyses are made on paper, coal, oils, etc., and sulphite liquor. The color laboratory, equipped with miniature apparatus, must save the company a lot of money in a year.

After the visit to the mill the party returned to the hotel, had a jolly time at lunch, then leaving for homes in Wisconsin, Michigan, New York, Massachusetts, Ontario and Quebec. Seven nationalities were represented at the conference.

CARRUTH HEADS TECHNICAL ASSOCIATION.

W. G. MacNaughton was elected in February to the presidency of the Technical Association of the Pulp and Paper Industry. He has recently been elected General Manager of the Inland Empire Co., on the Pacific Coast. His new position takes him so far from the centre of activity of this association that a change of leadership was deemed necessary.

At a meeting of the Executive Committee held at Erie, March 22nd, H. P. Carruth was elected president, and by previous arrangement, Mr. MacNaughton again becomes vice-president, a position he held for some time before. Mr. Carruth is chief chemist for the American Writing Paper Co., and has always been one of the "live wires' of the Technical Association. The election of Mr. Carruth is the more appropriate because of the coming joint meeting with the Canadian Section at Holyoke in September.

Imports of Paper Into China

The Assistant British Commercial Attaché at Shanghai (Mr. A. Rose, C.I.E.) writes, in the "British Board of Trade Journal," calling attention to an article in a recent issue of the "British Chamber of Commerce Journal" (Shanghai) dealing with the paper trade of China, from which the following particulars are taken:—

In comparison with the great population of China the import trade in foreign paper cannot be said to be great, yet the aggregate of the business done is far from being unimportant, and a study of the figures of the returns of the recent years will show that the trade is expanding annually.

The classes of foreign paper most in demand consist of the following varieties: Machine-glazed cap; cap, one side calendered; printing paper, calendered, uncalendered, and coloured; news print, cheap qualities; cover and art paper; glazed and tissue paper; kraft and wrapping paper; and strawboard.

Machine-glazed cap is manufactured particularly for the China market and exceeds all other varieties in the important returns. It is almost a tissue paper and to understand the large demand for this unusual class one needs to be familiar with Chinese forms of books and pamphlets. A great many Chinese books, pamphlets and folders are printed with uncut leaves, the printing being only on one side of the paper, and the intervening pages left blank. Thus each leaf of a book is really two leaves, and machine-glazed cap is employed for the purpose. Machine-glazed cap is imported in sheets 25 inches by 44 inches, 500 of which weigh 16½ pounds. This paper is furnished in large quantities by Norway and Sweden and to a lesser extent by Germany and Austria.

Pink, green, yellow and orange printing papers are used for posters, street advertising, etc., and may be glazed on one side, but are mostly unglazed. Cheap news print has a large sale as it is this quality which is used for Chinese newspapers. It is imported in sizes 31 inch. by 43 inch. (500 sheets weigh 37 pounds), other sizes being 37 inch. by 40 inch. and 25 inch. by 35 inch. This paper is also made use of for posters and handbills, express notices, street advertising, Chinese account books, scribbling pads, etc., and further as wrapping paper in silk shops, as lining for tea boxes, and for many other purposes.

Cover and art paper, both glazed and embossed, is much employed for covering fancy boxes and for making Chinese envelopes. Glazed and tissue papers, in white and in many bright colours, are employed in making paper ornaments and artificial flowers and for many other purposes of a similar nature. Kraft and wrapping paper have a fairly large sale but no actual figures of imports can be obtained. The demand for this class is much under that for printing paper. Strawboard, purchased by the ton, is imported in large quantities and in weights almost entirely from Japan.

Official figures show that Japan furnished about 33 per cent of the total imports of paper and cardboard in 1915. The portion entered through Hong Kong is entirely imported from foreign countries to be ultimately distributed to South China cities.

While the figures presented do not show that the trade in paper, when compared with that of other countries, is as yet large, still they show that it is in a growing and healthy condition, and there can be no doubt but that a permanent and increasing demand for foreign paper of many varieties will continue to exist. It is improbable that any great extension of paper manufacture along modern lines will be followed in China for some time to come, and foreign paper will be required to supply the increasing demand. The many political changes within the country in recent years have been the means of vastly increasing the number and circulation of native newspapers; publishing houses for the production of school and other books have come into existence, and their number is being constantly added to; and advertising, both by foreign dealers as well as by Chinese themselves, is much in vogue — all of which contributes towards the increased demand for foreign paper and paper requisites in the China market.—Trade and Commerce Bulletin.

War's Effect on Sales of High Class Magazines in England and France

The following notes on the magazine situation in England and France will be of interest to pulp and paper makers on this side of the Atlantic. The class of magazines most seriously affected are those in which grades of pulp and paper made in Canada are most used.

Mr. Thomas B. Wells, secretary of Harper & Brothers, has been in England and France for two months completing the year's plans for "Harper's Magazine", and he found some noteworthy conditions. What he said is of widespread interest to magazine dealers, and we quote it as follows:

"The general periodical situation is better than would be expected. Curiously enough, in England, I found that the high class magazine like "Harper's", "Blackwood's" and the "Cornhill", had been doing well during the war. Some of the popular priced magazines have had a hard time. One class has been particularly successful, that which devotes itself entirely to the war, either seriously or in the way of picture and caricature more after the fashion of the French publications.

"The standard weeklies like "The Graphic" and "The Illustrated London News" are doing well because of their war pictures. Other publications less known in this country have made a new place for themselves because of their humorous cartoons of the war. Bairnsfather's amusing pictures and those of W. Heath Robinson have become quite as well known in England as those of Steinleu, Poulbot and Abel Faivre in France.

"Of course the publishers of all periodicals are suffering as American publishers are from the tremendous increase in the cost of paper and a few publications have been discontinued, but they were not important.

"Incidentally, a system has been arranged so that most of the magazines purchased, sooner or later reach the men at the front or in the hospitals. They can be handed in at any post office, where they are collected and forwarded free of charge." — Bookseller, News dealer and Stationer.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Slash Pine.—W. R. Mattoon, Am. For., Vol. 23, No. 279, 1917, pp. 158-160.—Description of the slash or Cuban pine, which is growing up on cut-over lands in southern U. S. Both for turpentine and for timber this species is a rival to longleaf pine.—H. N. L.

New Process for Fireproof Wood and Other Fibrous Materials.—R. E. Prince, Am. Lumb. No. 2184, page 33, 1917.—Two different solutions are injected into the wood at atmospheric or higher pressure. The wood must be dried throughly between the two injections. Solution 1,—boric acid, or any soluble borate, biborate or perborate. Solution 2,—any soluble salt of zinc, lead, aluminum or copper. The object is to precipitate an insoluble salt into the wood. High temperatures cause this salt to fuse and render the wood resistant to fire. The salt will not leach out. An excess of zinc chlorid serves as a preservative against decay.—H.N.L.

Waste Sulphite Liquor.—Process for Precipitating organic substances. R. W. Strehlenert in Papir-journalen (1917), No., p. 14.—In a continued discussion with Mr. Landmark (See this Magazine 1916, p. 140) the statement is made, that the oxidation of the SO_2 to SO_3 takes places, even when no ozone is present, at a low temperature and pressure (5 to 7 atm.). However, the critical temperature at which the decomposition of liquor takes place is under ordinary conditions at about 190-195 deg. C. and at the corresponding steam pressure (14 atm.), but it is more economical to raise the pressure a little higher. It is possible to decompose the liquor at a lower temperature when the necessary amount of sulphuric acid (2% H_2SO_4) is present, but this high acid content can never be obtained by oxidation of ordinary sulphite liquors as these contain a maximum of 0.1% free SO_2 and not all combined SO_2 can be oxidised The formation of ozone can not increase the amount of sulphuric acid, as this in the first place depends on the available SO_2 in the liquor. In cases when the liquor has previously been used for the manufacture of spirit no free SO_2 is present and it will in any case be necessary to add a small amount of sulphuric acid.—B. J.

Resins in Wood and Pulp.—By Dr. Chr. Bay in Papir-Journalen, 1917, No. 2, p. 16, and No. 3, p. 20.—A review of literature and recent investigations. The amount of ether and alcohol soluble rosin in wood decreases by storing| The ether extract is more soluble in petroleumether than the alcohol extract About one half of the "resins" in wood is fat. The amount of turpentine obtainable from fresh pine wood is about 0.8%, from spruce 0.1% and decreases by storing of the wood. The rosin which causes trouble in the manufacturing operations by depositing in the beater and on the wires consists chiefly of petroleumether soluble "etherrosin". Remarkable is the high percentage of ether-soluble rosin in the sulphite pulp and the very low rosin content in the waste liquor. In order to be able to produce rosin free pulp it has been suggested to remove the rosin from the wod before cooking. The extraction with solvents being impracticable the best way seems to be oxidation with hot air, whereby a favorable change in the nature of the rosin takes place and at the same time the wood is dried.—B. J.

Forest Terminology.—Journal of Forestry, Vol. XV No. 1, 1917.—A complete glossary of terms used in forestry, as compiled by a committe of the Society o American Foresters.—H.N.L.

Pitch in Sulphite Pulp.—By R. E. Cooper, Paper Vol. 20, No. 1, March 14, 1917, p. 13.—Pitch as discussed in this article refers to the resins in the wood and a binder composed of calcium sulphate and calcium monosulphite. The pitch appears as specks scattered throughout the pulp. The pitch varies in form on the paper machine according to the amount of clay, alum and size it collects. The great loss from pitch is in the reduced production of paper on the paper machine the pitch making the dandy, couch and press rolls sticky and causing numerous breaks. Soda ash and kerosene have been found useful as a temporary means of relief from pitch. The analysis of the ash in pitch from the deckers shows that such a binder exists (calcium sulphate, calcium monosulphite or small particles of limestone) and could only come from one or all of the following sources in the acid system: (1) Pulling sulphur in the burners resulting in the formation of calcium sulphate. The sulphur acting as a catalytic agent and changing some of the SO_2 to SO_3 (2) Excess of air in the burners. The per cent of SO_2 becomes low and the excess of oxygen changes some of the SO_2 into SO_3 which causes calcium sulphate to form. (3) Air leaks in the pipes leading from the burners in the towers. (4) Using a soft dolomite stone in the towers. The calcium and magnesium constitments of the stone have different solubilities in SO_2 and water, consequently part of the stone crumbles and forms a residue in the acid. (5) Insufficient cooling surface for the burner and relief gas. If the gas from the burners or relief is too hot or the water in the towers too warm normal calcium sulphite is liable to separate out and form a residue. The gas at the foot of the tower should not exceed 400 deg. C. Hourly tests should be taken of the percentage of SO_2 and SO_3 in the burner gas. It should be kept from 14 to 16 per cent. An average daily ash test on the pulp should be made as a high ash in the pulp indicates pitch. The average ash in sulphite pulp runs from 0.30 to 0.50 per cent while in pulp containing pitch the ash is from 1.0 to 3.0 per cent, almost all of which is lime. M

STREHLENERTS SULPHITE-FUEL PROCESS IN SCANDINAVIAN MILLS.

In addition to the plant at Greaaker, Norway, for the manufacture of fuel from waste sulphite liquor according to Strehlenerts process, two Swedish companies are also installing this process in their mills.

One company, Uddeholmbolaget at Shogball is also building a sulphite, a sulphite and a sulphite-alcohol plant. Svarbviks Travaruaktiebolog is erecting a fuel-plant at Svarbvik, and according to "Papir-Journalen" both plants will be in operation in the summer 1917. Several Swedish pulp mills intend to install the Strehlenert fuel process but the building of the plant had to be postponed, because the necessary machinery can not be delivered at the present time. Several sulphite-fuel plants are planned to be erected also in Finland and in Russia.—"Svensk-Papperstidning." B.J. 8

UNITED STATES NOTES

The South Brewer Pulp Wood Company has been chartered at Brewer, Me., with a captial of $10,000. The officers are: President, George A. DeRusha; treasurer, Ralph W. Moore; clerk, Lewis R. Moore, al lof Brewer.

To meet the inceased demands on its products, The Richardson Paper Company, of Lockland, Ohio, has increased its capital from $1,000,000 to $2,000,000. The company manufactures wrapping, roofing, specialties, box boards, pulp boards and other grades, and also manufactures cartons, shipping cases and folding boxes.

The manufacture of tissue papers, made up in various forms, will be the principal output of the Hollywell paper mills at Chambersburg, Pa., after April 1, when the new owner, Dunbar Rosenthal, of New York, who recently purchased the plant from E. J. Bonbrake, took possession. This establishment, which has been variously operated in the last half century, has turned out numerous articles. At one time straw board was manufactured, at another news print, at others fine linens and bonds, and then papier mache pie and preserve plates.

Announcement has been made that the Baltimore and Southern Paper Trade Association will hold its regular meeting in Richmond, Va., on April 13 and 14. The members of the association will be the guests at that time of the Richmond Paper trade. In addition to the jobbers of the Baltimore and Southern Paper Trade Association, Richmond will be very glad to have as guests mill representatives and representatives from all members of the National Paper Trade Association.

A despatch from Nashua, N.H., states that the Nashua Gummed and Coated Paper Company expects to have its new mill in Middletown, Ohio, in operation very shortly. This mill is to furnish additional product for the firm's wax-paper business. This is the second plant the Nashua Company has established in the past year outside of Nashua, the other being the Carso Paper Company in Dansville, N.Y.

The Niagara Falls, N.Y., correspondent of The Paper Trade Journal says: "Announcement of the amalgamation of the Niagara Falls Power Company and the Hydraulic Power Company is expected to be made soon. It has just been learned that Betram, Griscom & Co., prominent Boston, Mass., and Wall Street bankers, have secured control of a majortiy of the Niagara Falls Company. The Canadian-Niagara Power Company of Niagara Falls, Ont., is subsidiary of the Falls Company. It is said that the banking concern paid $200 a share for the controlling interest of the Falls Company. Negotiations are now being carried on with the Hydraulic Company stockholders to obtain control of that company. Centralization and greater efficiency are said to be the objects of the proposed merger. The new holding company is planning to capitalize the new company at from $75,000,000 to $100,000,000."

The Portsmouth, N.H., Herald, states that the machinery for the new paper mill of the Morley Button Manufacturing Company has been tested and is expected to start operation shortly. The plant is in charge of E. C. Batchelder, who has a crew that promises to give the company all of the paper that will be required.

The preliminary consideration of the project of building a paper mill in North Chattanooga, Tenn., has been favorably reported upon to the stockholders of the O. B. Andrews Company, and they have authorized the officers of the company to investigate further the advisability of building such a plant. The Chattanooga Estates Company has offered five acres of ground on the river near Silver Creek, for the mill site. The officers of the company are: President, O. B. Andrews; first vice-president, Z. C. Patten, Jr.; vice-president, C. S. Andrews; secretary, T. R. Preston;; treasurer, Charles A. Lyerly; general sales manager, V. B. Prater.

Early on the morning of March 27, fire broke out at the mill of the Remington Paper and Power Company, and destroyed about 7,000 cords of pulp wood valued at about $125,000. The paper company's fire department water mains broke, and left the property at the mercy of the flames until fire engines from Canton and Potsdam arrived at noon.

The Zellerbach Paper Company, of San Francisco, Cal., has purchased the Oregon-Washington Paper Company at Portland, Ore., for $100,000. R. D. Hall, who was the principal owner as well as the president of the Oregon-Washington Company, will become identified with Zellerbach. Other officers of the company were: W. A. Ferguson, vice-president, and F. P. Ball, secretary.

The G. W. Wheelwright Paper Company has filed an application at Fitchbury, Mass., to build a three-story addition to its present mill on Fourth street, at an estimated cost of $16,000; also to build a two story $4,000 addition to its present storehouse.

A NEW FIELD FOR SULLIVAN.

After eight years of service with the Eastern Manufacturing Company of South Brewer, Me., as general superintendent, John J. Sullivan is entering another field. He is opening an office in Bangor, as consulting engineer and paper maker, where, according to their contract wtih him, the Eastern Manufacturing Company may call on him at any time. Many other paper mills in the United States and Canada will be glad to know that they can avail themselves of the services of this skillful and experienced paper maker.

While Mr. Sullivan is a papermaker of the old school, he is well informed on modern methods, and developments. He has an almost uncanny knowledge of paper stock, especially rags. It is largely due to his knowledge and skill that the product of the South Brewer mill enjoys its fine reputation.

Success to you, "Genial" John.

NEW U. S. MILLS AND INCORPORATIONS.

The Sanitary Coating Company was recently incorporated at Baltimore, Md., with a capital of $2,000,000. They will manufacture all kinds of paper and paper substitutes. The officials are Samuel H. Moore, Wesley W. Mason, John Luntz, Jr., all of Baltimore, Mr.

Neben Manufacturing Company, a $100,000 concern of Jersey City, N.J., will manufacture wall paper, burlaps, etc. William M. Eysdyk, Anton Singer, Charles H. Weller, Jersey City, N.J., are the incorporators.

The capacity of the Louisiana Fibre Board mill at Bogalusa, La., will probably be doubled following a recent meeting of the directorate. Machinery worth $1,500,000, is now on its way from the North for the Bogalusa Paper Company, and will be installed within 90 days, ready for operations in this southern field.

The two plants will then represent approximately a $4,000,000 investment at Bogalusa, through these two distinct enterprises, the fibre making and paper manufacturing. There are now 400 men employed at the fibre plant, and about 200 at the paper mill. The latter will be increased by 500 in the next 90 days, making a total of about 1,100 employees at these two factories.

The Hartje Brothers Paper Company, which is just starting operations at Toronto, Ohio, at the new plant which is represented in the accompanying illustration, will have a daily capacity of 25 tons of box boards, mill wrappers, indented boards, etc. The mill is equipped with 86 inch cylinder machine made by the Mills Machine Company, Lawrence, Mass.

Birmingham, Ala., March 20.—Establishment of a newsprint paper mill in Alabama to use gum wood in connection with old field pine is being planned, according to information given out here to-day. The plan is backed by newspaper publishers and the Southern Railway.—American Lumberman, Mar. 24, 1917.

WEISS LEAVES FOREST PRODUCTS LABORATORY.

Howard F. Weiss, Director of the Forest Products Laboratory, at Madison, Wis., has tendered his resignation to become effective April 1st. He has accepted a position with the C. F. Burgess Laboratories (Chemical Engineers), at Madison, Wis., and will engage in the development of products and processes involving a more profitable utilization of wood and timber.

As Director of the largest Government laboratory in the world devoted to the study of wood, Mr. Weiss has had charge of numerous investigations in kiln drying, wood preservation, wood distillation, the manufacture of pulp and paper, the mechanical testing of timber, and the production of ethyl alcohol, turpentine, etc., which work has thrown him in direct contact with timber problems in the United States, Canada, Cuba and South America. Several of the government publications are written by him and his book on the "Preservation of Structural Timber" is the most exhaustive written on this subject.

"Chemistry and Engineering have played a very important part in the development of our great industries", says Mr. Weiss, "but the application of this knowledge to wood and timber has ben relatively little appreciated. This, in my opinion, is one of the chief reasons why the saw-mill business, for example, is unattractive to capital in comparison with other lines of manufacture possessing even greater risk. I believe much can be done to remedy this situation and that the owners of extensive timber properties will co-operate in such a movement."

MacNAUGHTON RULES INLAND EMPIRE.

William G. MacNaughton was last week elected general manager of the Inland Empire Paper Company.

Mr MacNaughton succeeds R. S. Talbott, who resigned in January. Mr. MacNaughton is rated among the best chemical engineers of the United States. He is a graduate of McGill University, Montreal, Canada, doing post-graduate work in science after taking the B. A. degree in 1904. He was president of Technical Association of the Pulp and Paper Industry, but resigned on account of his new duties, and distance from the East. He is now vice-president, exchanging places with H. P. Carruth.

For the last nine years Mr. MacNaughton has been manager of the Nekoosa-Edwards Paper Company, of Port Edwards, Wis. He also becomes a stockholder and director of that local company.

Reports from the plant at Millwood are optimistic. Mr. Alexander reports that the new sulphite and bleaching plants are now in operation. The company is employing the largest number of men in its history, 328 at the mill and 210 at the camp, and will add 25 more when the rest of the mill is finished.

WEBER LEAVES AMERICAN WRITING.

Wilhelm A. O. Weber, assistant to the president, Arthur C. Hastings, and who was in charge of the general manufacturing of the American Writing Paper Company, has resigned and left the city for his home in Lee, Mass.

In speaking of his resignation to the Paper Trade Journal's correspondent, Mr. Weber said that he had no definite plans for the future, although he has several excellent offers under consideration. He stated that it was his intention of affiliating with some concern where he can use to greater advantage his broad knowledge of the art of paper making.

Mr. Weber has been greatly interested in vocational education for paper makers, and has done much to encourage this work at Holyoke.

FIRE IN GREAT NORTHERN MACHINE ROOM.

There was quite a blaze in the machine room of the Great Northern Paper Company's mill at Millinocket last week, with a resultant loss of some $10,000, five paper machines being temporarily put out of commission, the main roof of the building badly damaged, and a considerable quantity of paper being spoiled by the flood of water turned on to put out the flames. It is believed that the cause of the fire was when a friction clutch threw sparks upon the dryer felt of one of the papermaking machines.

The starting up of the new paper mill which has been added to the plant of the Hawley Pulp and Paper Co. at Oregon City, Ore., has been delayed by the non-arrival of several electric motors needed to operate some of the auxiliary machinery. It is expected, however, the new unit of the plant will be placed in commission not later than April 1.

Upon opening the pocket of a garment a short time ago one of the girls in the rag room of the Eastern Mfg. at South Bower, Maine, found three dollars neatly folded. Another found a handsome opal ring. Needless to say hardly a pocket goes by unopened.

PULP AND PAPER NEWS

Considerable excitement was caused Friday night about 6.30, when the roof of the Davie Pulp mill at Thorold took fire. The firemen were called and soon had the fire under control. The damage was very slight, and will not amount to $25.

Captain J. H. A. Acer (244th Battalion), past president of the Canadian Pulp and Paper Association, has left for the front. Prior to his departure he was entertained at luncheon at the Ritz Carlton Hotel, Montreal, by a few of his friends in the pulp and paper trades. Mr. Howard Smith presided. Some informal speeches were made, wishing Captain Acer the best of luck.

The Bagoda Manuacturing Company, Limited, has been incorporated with head office at Toronto, and capital stock of $115,000, to carry on business as manufacturers and dealers in pulp and paper. The provisional directors are W. A. McFarlane, S. Tutty and S. Ross.

The strike of employees at the Ha Ha Bay Sulphite Pulp Company near Bagotville, P.Q., has come to an end. It will be recalled that the strikers seized the works for a time. They were persuaded to leave the premises under the promise that they would not be prosecuted. It is understood that the erection of the plant will be suspended until a little later on this year.

Present indications are that the United States market will continue strong, and will absorb all the small stocks of spruce. New Brunswick manufacturers expect that Quebec logs this year will go very largely into pulp. If this is the case, the market for spruce will be relieved of a large quantity of stock that usually comes upon it in the form of deals.

A quick job of building was accomplished recently by the Mackinnon, Holmes Co., of Sherbrooke, P.Q. Their main building was completely gutted by fire, but repairs were made with characteristic energy, and in three weeks work was resumed as usual.

C. J. Bastido, who was formerly at Windsor Mills with the Canada Paper Co., is manager and superintendent of the new Port Angeles, Wash., plant of the California Paper and Board Mills. This company has three other mills on the coast. The Pacific Coast plants are very busy.

Thomas Gain, sales manager of the Don Valley Paper Co., Toronto, who was laid up a couple of weeks, is now able to be around and attend to his duties.

S. F. Duncan, of Toronto, secretary-treasurer of the Provincial Paper Mills Co., has returned with his wife and family after spending a few weeks at Dayton Beach, Florida.

Mrs. Heyland, mother of E. R. Heyland, secretary-treasurer of the Monteith Pulp and Timber Co., died at the home of her son in Toronto very suddenly last week. The remains were taken to Norwich, Ont., for interment.

L. R. Wilson, who recently resigned as general manager of the Atlantic Sugar Refineries, has been elected a director of the company. Mr. Wilson is now connected with the Abitibi Power and Paper Co., and will reside in Montreal.

James Thompson, M.P.P., East Peterboro, who is President of the Monteith Pulp and Timber Co., and met with such a severe accident while attempting to board a train on the T. and N. O. Railway a few weeks ago, is now able to be around and is in daily attendance at the sessions of the Ontario Legislature. Mr. Thompson is minus a couple of fingers on the left hand and his left knee is still stiff. He intends spending the summer in Havelock, Ont.

Mr. Justice Masten has reserved judgment in the action of Currie and the Attorney-General of Ontario vs. the Harris Lithographing Co., Toronto. This is a test case to determine the rights of the province in connection with companies operating under a Dominion charter.

Fire broke out recently in the roof of the Reg N. Boyer wall paper factory in New Toronto. One of the employees just coming to work noticed the blaze which was soon extinguished, otherwise, owing to the large amount of paper in the buildings the loss might have been a very heavy one.

A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers' Safety Association, Toronto, paid a visit to the Barber plant at Georgetown last week. He reports that the mill has been well equipped with safety guards and that a live safety committee has been formed. The new soda pulp plant in connection with the mill is nearing completion.

The contract for the concrete foundation and excavation of the new pulp mill of the Port Arthur Pulp and Paper Co. at Port Arthur, has been awarded to the J. F. Hewitson Co., Limited, of Port Arthur. The work of erecting the superstructure will be carried out by the company itself under the direction of Thomas H. Murphy, chief engineer. The offices of the Port Arthur Pulp and Paper Co., which are now located in the Bell Telephone Building, Toronto, will be permanently removed to Port Arthur on May 1st and construction will be rushed. Ground would have been broken ere this had it not been for a severe snow storm up north.

The net earnings of the Provincial Paper Mills Co. of Toronto, for the year just closed amounted to $416,594. Allowing for a year's dividend on the preferred stock the balance was equal to twelve per cent earned on the common stock. After all dividend payments for the year, the company carried forward $278,818.

The estate of the late Denis Murphy, of Ottawa, is valued at $1,945,233. The sum of $400,000 is left to be divided equally between three children of a deceased daughter of the late Mr. Murphy; Mrs. George R. Warwick, of Toronto. Mr. Warwick is a member of the firm of Warwick Bros. and Rutter, manufacturing stationers, Toronto.

According to "What's Doing," published in Port Arthur, Mr. J. J. Carrick, M.P., who was awarded the Pic River concession, by the Ontario government, has succeeded in organizing a company with a capital of several million dollars and will establish a large paper industry on the land owned by Mr. Carrick lying

directly to the north and adjoining the city of Port Arthur. It is also stated that the capitalists interested have either bought or were negotiating with Sir William Mackenzie for his interest in the land. When the plans have been fulfilled the mills to be established will have a total capacity of two hundred tons of paper per day. The operation of mills of this large capacity will entail the labor of hundreds of men in and around the works and in the bush. "What's Doing" also says, "Should these plans upon which Mr. Carrick has been working for several months, be successfully negotiated, and should other plans which are under way, be carried out, the probability is that, at the head of the lakes, there will be produced upwards of five hundred tons of paper daily. In addition to the Port Arthur Pulp and Paper Co.'s mills, now an assured fact, and the mills which are being promoted by Mr. Carrick, it is quite possible that a big paper mill will be established at Fort William. This will if the gentlemen who have the matter in hand are successful in negotiations now under way. This scheme involves the land holdings of the Grand Trunk Railway, with the possibility of securing a favorable freight rate upon the government road into Fort William Negotiations have been under way for several months and the promoters were so confident a short time ago, they would be successful in their efforts, that they allowed the information to escape and it is now common knowledge in the neighboring city. There is said to be ample wood on three of the blocks of land for the operation of a large mill. Should this scheme be worked out the site of the mill will be on the lake shore in the neighborhood of the Grand Trunk elevator. Certainly if it were in the power of the people to do anything to push forward the cause of any of the companies involved in the big schemes, it would be done."

The Powell River Pulp and Paper Co., of Powell River, B.C., now represents a ten million dollar investment. About seven hundred men are employed in the plant and the average monthly pay-roll is from sixty to sixty-five thousand dollars. The company maintains an office in Vancouver, but the bulk of its business is done at Powell River. About ninety per cent of the output of newsprint from Powell River is exported either to the United States or to the Antipodes. In a recent interview William McBain, manager of the company, said that, at present, the consumption of newsprint in Canada and the United States is about 8,000 tons daily. There is in reserve in all America about forty thousand tons or enough to supply the demand for five days, and this reserve is being eaten into too. The Powell River Co. tries to maintain a reserve of 2,500 tons, but at times it is considerably reduced. With the increased consumption of newsprint which has practically doubled in ten years, with the depletion of the United States sources for raw material and the supply entirely cut off from Norway or any other European source, Mr. McBain could not see any prospect for lower prices for newsprint. He intimated that the newspapers would have to increase their subscription rates and cut down the number of pages in order to break even.

Mr. W. Fraser, who is well known in the pulp and paper industry, has found it necessary, owing to the large increase in his business, to move his offices from 83 Craig Street West, to Suite 404, McGill Building, Montreal. Mr. Fraser handles locomotives, rails, cars, etc.

The Davy section of the Foley-Reiger Pulp Mill had a small blaze on the roof near the chimney which called out the Thorold Fire Department; the blaze was caught before it gained any hold and no serious loss was sustained.

Mr. Chas. Buss, superintendent of the Mille Roches Division of the Provincial Paper Mills Co., Ltd., was in Thorold for a couple of days during the week visiting the Montrose Division of the company. Mr. Buss was on his way to Toronto from Baltimore where he was in hospital undergoing an operation. Although not very actively engaged for the last three or four months owing to health we trust to see him back at his old post before long.

The starting up of the new news machine at the Ontario Paper Mills, Thorold, has been delayed owing to a strike of the pipe fitters. These men have, however, been replaced and they expect to be running within the next two weeks.

Mr. G. Hutchinson, of Bonvier and Hutchinson, Toronto, was a visitor at the Montrose Division of the Provincial Paper Mills Co., Ltd., on Saturday.

The Industrial Evening Classes connected with the Technical Section of the Pulp and Paper Association, which have been in progress in Thorold High School during the winter months, have now closed for the season.

Mr. George Carruthers, President of the Interlake Tissue Mills at Merritton, who has spent a great deal of his time as chairman of the Industrial Evening Classes at Thorold, has very generously offered to present a gold medal to the most successful student of the chemistry class in their examination which will be held after the Eastern vacation.

Mr. Dan Daverin, superintendent of the Montrose Division at Thorold, has invested in a new Studebaker six passenger car.

Mr. S. F. Duncan, secretary-treasurer of the Provincial Paper Mills Co., Ltd., spent a day in Thorold, on his way home from Florida, where he was on vacation for the past few weeks.

2,000,000 PIE PLATES A DAY.

There is a pie-plate factory at Fairfield, Me., that turns out no fewer than 2,000,000 pie plates a day. They are made from wood fibre. If these plates were laid in the adjointing fields, they would make a carpet covering two hundred and thirty-eight million square feet, and if they were placed on edge, just touching, there would be a line seventy-four thousand two hundred and forty miles long in a year. 17 styles of plates are made in this factory, and each machine will turn out one hundred and thirty-six a minute. Girls count and pack these plates very rapidly, and an expert can do fifty thousand a day.

The most interesting process in this factory is that which goes on in the drying-rooms, and there are thirty miles of pipes carrying the steam so as to heat these rooms sufficiently. The hot air becomes saturated with moisture from the drying plates, and every twenty-four hours cold air is let into the rooms, the moisture condenses, and for a few minutes there is an indoor shower.

The "Paper Mill" sarcastically refers to the proposal of 2½ cents for newsprint as **magnanimous**. We should spell it **M-U-S-S-**.

The Markets

CANADIAN MARKETS.

Toronto April 2nd, 1917.

The newsprint situation still continues to grow acute and there is no relief in sight. The difficulties are being enhanced by the growing scarcity of pulpwood and the delay in getting in coal. In many instances the coal is not up to half the strength that it formerly was and the cost of producing paper is increasing all the time.

Then there is still shortage of cars and the embargoes have by no means been lifted. The uncertainty of pulpwood supply is getting worse and one company, which had practically no opposition in the buying line last year, report that they have fully two dozen competitors this season. Hundreds of cords are piled along the railway tracks and it is impossible to get cars to move the wood. Labor is getting very scarce and the difficulties attending paper manufacture seem to multiply from week to week.

Jobbers are again entering the market for all kinds of paper and the lull which was reported last week is about over and mills are again being called upon to face big business. There is no softening of prices in any line and the spring will see the plants rushed as much as they were last fall. Groundwood pulp is getting very scarce and as high as fifty-five dollars has been offered to Canadian plants. Jobbers report a splendid business for the Easter period and they look forward to a very active summer. Printers are working to much better advantage than they were a while ago and spring trade in all lines appears very bright. There is a scarcity of some kinds of wrapping papers, but this is caused by low water with some mills, shortage of coal and other reasons.

Speaking of the pulpwood situation, a leading operator in Ontario this week said, "We have about twenty thousand cords, nine of which we have sold to be delivered to mills in Wisconsin. For the balance, which we have up north—some 11,000 cords—we have received several good offers, but are holding it yet a while. The prices that we are paying along the Transcontinental railway and the T. and N. O. are five dollars per cord with an eighteen cent freight rate, six dollars and a half with a fifteen cent freight rate, and eight dollars and twenty-five cents with a ten to twelve cent freight rate. Of course, we are not selling at this figure. There are many bidders out for wood of all kinds, and most of the wood is being shipped in the rough, as many mills have drum barkers which effect a great saving in rossing over the old style disc barkers. We have several men out in Ontario picking up all that we can secure."

The apparent shortage is daily becoming more accentuated judging by the number of inquiries received and the army of buyers that are scouring every point. Every stick of wood, which is ready for shipment, will come out of Northern Ontario by the middle of the summer, that is, if cars can be secured. There has been a lack of men to get out the wood, lack of horses to draw it to the railway tracks, and lack of cars and locomotives. It would seem as if conditions are getting worse all the time. Where mill men assemble there is one point of discussion and that is the growing cost and scarcity of raw materials.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$50.00 to $55.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 hard white shavings	$5.75
No. 1 soft white shavings	4.75
No. mixed shavings	1.10
White blanks	2.00
Heavy ledger stock	2.75
Soft ledger and writings	2.05
No. 1 magazine	1.35
No. 1 book stock	1.25
No. 1 manila envelope cuttings	2.80
No. 1 print manila	1.40
Folded news	.95

Over issues	1.15
Kraft	3.50
No. 1 clean mixed paper	.80
Old white cotton	4.50
Thirds and blues	2.65
No. 1 white shirt cuttings	7.25
Black overall cuttings	2.75
New light flannelettes	5.25
Ordinary satinettes and flock	1.50
Tailor rags	1.50

Twines.

3-ply Soft Cotton, per lb.	40c. to 45c.
4-ply Soft Cotton, per lb.	42c. to 45c.
5, 7, 10, 15, 20-ply Soft Cotton, per lb.	45c. to 50c.
Sea Island Bulk Twine, per lb.	75c.
Do., in boxes, per box	75c
Flax Sewing Twine, 3 to 8-ply, per lb.	50c.
Mattress Twine, per lb.	1.00
Hy. Jutes, 2, 3, 4, 5, 6, 8-ply, per lb.	17c. to 21c.
Fine Jutes, 2, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	20c. to 25c.
Unfinished Hemps, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	27c. to 30c.
Yucatan Twine, per lb.	27c. to 30c.
Finished heavy jutes, (sizes 201, 301, 401, 501) per lb.	22c. to 25c.
Fine finished jutes, (sizes 202, 204, 208), per lb.	35c. to 40c.

NEW YORK MARKETS.

New York, April 2, 1917.

In the paper market, in general, conditions seem to be at a stand still. The lull seems to be more impressing, perhaps because of the uncertainty of the situation in general. Now, everyone is waiting to hear what will be the result of the special session of Congress, which convened to-day. No doubt, the events of the next few days will have considerable bearing on the activities of the next few months. That is, if it is certain that war is declared, then it is only natural that prices will become even firmer than they are to-day — and they are firm, despite the absence of buying. Already a call has been issued for volunteers and the country is beginning to feel more keenly than it has up to this time, the shortage of labor. Perhaps of just as much importance, is the prospects of a coal scarcity. Manufacturers calculate that the coal supplies of the nation will be commandeered by the government. At all events, the government will have preference in every case. And then there is the inevitable fact that the government must have precedence in all matters of freight transportation. It is true that everything will be done to enable industries of the country to continue as normally as possible, but there is certain to be interruptions which will reflect themselves seriously.

Already conditions have more than manifested themselves in ground wood pulp, which, by the way, is not suffering from any lack of interest on the part of the consumers, as we have stated about the paper market in general. Each day, the realization seems to be more impressing that the future will know no limit. Dealers predict freely that the summer will witness the greatest shortage of wood that the industry has ever known. This, of course, will be due to the scarcity of the proper kind of men to get the lumber for the market. Comparatively little can be expected from Canada, for the situation there is believed to be rather severe. In the United States, matters are becoming worse — and freight conditions will add to the general disturbance. Judging from the reports being received, there is very little ground wood available today. The grinders seem to be operating at their capacities as far as they are able, but, in many cases, it is necessary to shut down a few machines because of weather or water conditions. The price is quoted —nominally—at $50 and higher. It is said that sales have been made at higher figures—and this seems reasonable, that is if the buyer were caught in an emergency. Despite these high figures, however, there is still considerable tendency on the part of paper mills to seek stock to be stored. Another thing that will affect ground wood to a material extent is the "botch" that the Federal Trade Commission has made of its handling of the newsprint situation. Immediately after the announcement that "2½c was a reasonable price," it seemed that a bearing effect on the ground wood market might result. But now, it is evident that the Commission acted on the assumption that everyone concerned would be "nice" and abide by whatever decision was made. To-day, it is the publishers who are themselves fighting over the situation and unable to come to any agreement. Of course, many of the newsprint manufacturers refuse to be bound by any such nonsensical agreement — and it seems that the "2½c newsprint idea" is doomed to a short life. This means certain added strength to ground wood.

Activities in the chemical pulp market are rather dull — that is, there doesn't seem to be any buying interest. This is due to the quietness of the various kinds of papers — and to the high prices being asked. It is certain that the quantity of pulp available today is ridiculously small, when compared to what the demand will actually be, within a short time. Pulp dealers are satisfied that the demand for pulp will become as exciting as it was before, within a month or so. No imports are being received from abroad, nor is there likely to be anything in this way done on a large scale. The Baltic Sea will soon be open for navigation, but it is considered not likely that any effort will be made to get Scandinavian pulp to this country, so long as there is danger from the German U-boats. The domestic mills are working at capacity taking care of their obligations and report that stocks are pretty nearly all taken by reason of contracts. Producers are holding firmly to the high prices, convinced that the market will continue to ascend. Those who are trying to bear the market refer to the many sulphite mills that are being built in different parts of the country. Most of the new mills will not be in a position to be of any use for some time. And if they actually did put pulp on the market, it is a question as to whether the effect would be a decline in prices. For, with the foreign supplies practically cut off altogether, the new mills will simply help to make up the deficit — which will not be completely filled.

A marked lack of interest is still noted in rags. Efforts are being made by the local dealers to hold the market to its present level, but it is of no real influence in stirring matters. Prices are about as we have quoted them in our last issue.

In old waste papers, the best demand still is for newspapers of all sorts. Perhaps the key to this particular situation is that a good many of the consumers of ground wood are reclaiming the pulp from old newspapers as far as they find it practical. As a matter of fact, the "New York World" which now has its own mills in the Black River Valley, has been advertising for old issues of its publications, offering to pay one cent for six daily or two Sunday copies. To those who

have foresight, this market will continue to take on strength for some time. This appears only natural in the face of the dubious prospects for both ground wood and chemical pulp. While some of the better grades of waste papers are not in as great a demand as might be the case, prices are being held fairly firmly for dealers believe that there is no doubt that the market will "come back" within a short time. Hard white shavings are quoted from about 5c up to around 5¾c and are moving fairly well. Soft white shavings are going at around 5c and a little higher. Magazine stock is still hovering around 2c. Ledger stock is held for around 3c. Old manilas are selling as high as 1½c; krafts are being sought actively and have reached the 4c mark. Over-issue news is going at around 1½c; strictly folder has 1¼c as its high limit, while mixed papers seem to be well on their way to 90c for a hundred pounds.

The bear movement has not made any definite impression on the paper market. Jobbers seem to be holding off from buying, pretty well but the manufacturers claim that they are not being deceived by this fact, for they feel that it is only a matter of time — and a very short time at that — when activities must commence. While there is undoubtedly considerable need for newsprint, the demand is not at its fullest because of the uncertainty of the situation. A good many of the smaller publishers, knowing of the decision of the Federal Trade Commission, believe that "everything has been settled," and that it is only a matter of asking for newsprint at 2½c. For this reason, it is known that many have refused to pay more that this sum, to mills who have not signed the Commission's proposal. Now, with the matter of general distribution "up in the air," the solution of the situation seems to be farther off than ever before. Tissues have taken on a little added life. However, buying is far from normal at this time. Nevertheless manufacturers are maintaining thei rprices. Krafts and manilas are moving well, with a considerable shortage still reported. Fibers have not shown any improvement. In writing papers, the demand seems to be entirely for the cheaper grades. In the better papers, there seems to be almost a total absence of interest —and many of the mills are now finding it impossible to keep up any sort of continuous schedule on their machines. Boards remain strong, and the same is true of book papers.

New York Quotations.

(These are a nominal range of prices).

Ground wood, f.o.b. mill	$50.00 to $55.00
Foreign bleached sulphite, ex-dock, New York	**11c and higher**
Foreign easy bleaching sulphite, ex-dock, New York	**6¼c and higher**
Domestic bleached sulphite, f.o.b. pulp mill	**8¼c and higher**
Foreign unbleached sulphite, ex-dock, New York	**6c and higher**
Foreign unbleached sulphite, No. 2, ex-dock, New York	**5¾c and up**
Easy bleaching, f.o.b. pulp mill	**6c and higher**
Kraft pulp, f.o.b. pulp mill	**6½c and higher**
Foreign kraft pulp, f.o.b., ex-dock, New York	**6½c to 7c**
Bleached soda pulp, f.o.b. pulp mill	6c and higher
Foreign unbleached soda pulp, ex-dock, New York	**6c to 6½c**
Foreign easy bleaching soda pulp, ex-dock, New York.	**6½c to 7c**
Bond papers, sulphite	**12c and way up**
Best grade writings	20c and higher
Regular superfine	18c and higher
Ledgers papers	**13c and way up**
News, contracts, f.o.b. mill	$2.50 to $4.25
News, spot lots	Up to 5c
Book, super	**9c and higher**
Book, coated	**8c and higher**
Tissues, good sulphite, bleached, per ream	$1.30 and higher
Tissues, ground wood, manila, per ream	$1.30 and higher
Kraft	**9c and higher**
Manila	7¾c and higher
News board, per ton, f.o.b. New York	$70.00
Straw board, per ton, f.o.b. N. Y.	$60.00 and higher
Chip board, per ton, f.o.b. N. Y.	$65.00

R. W. JOLLY.

Under a new factory law which recently went into effect in Japan, the maximum number of working hours per day provided for labourers is twelve. It is expected that the new law will greatly ameliorate the conditions under which 2,000,000 girls work in the fibre-producing factories. — Conservation.



SMITH

Hydraulic Turbines

Will Meet Any Requirements

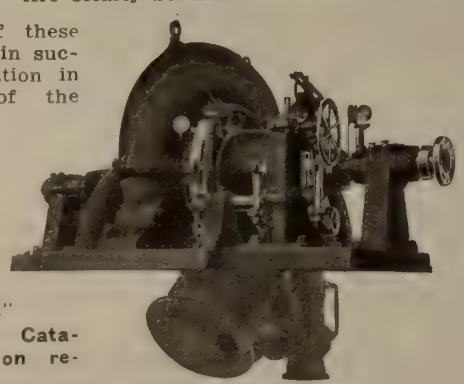
from a small standard vertical shaft turbine under a low head, to a large capacity Francis type scroll case turbine under a high head.

The Accompanying Illustrations Show These Two Extremes, in Which

SIMPLICITY OF DESIGN AND HEAVY SUBSTANTIAL CONSTRUCTION

Are Clearly Set Forth.

Hundreds of these turbines are in successful operation in all parts of the world.



If interested submit your proposition to our Department "F."

Descriptive Catalogue sent on request.

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Pulp & Paper Production involves the Consumption of Power



Canada's Natural Resources offer the cheapest available Permanent Power Supply.
We offer the skilled Engineering and Construction Organization necessary to place that power at your disposal.

THE FOUNDATION COMPANY
LIMITED

MONTREAL WINNIPEG

ARGENTINE MARKET FOR PAPER BOXES AND LABELS.

United States Consul William Dawson, Jr., Rosario, in a report to his Government, published in the Commerce Reports, states that there is very little demand in Rosario at present for paper boxes and labels for druggists and similar lines. Before the war the market was considerably better and boxes were imported from Germany, France, and the United Kingdom; while British, American, German, and French labels were used.

The total imports of pasteboard boxes of all kinds into Argentina in 1913 were officially valued at a little under $100,000. Imports of paper and pasteboard labels were valued at about $66,000. Boxes and labels are made in Argentina, which has numerous lithographic establishments. The difficulty of securing foreign merchandise promptly, as well as high freight rates, has given the Argentine industry a new advantage as its relative share of the market has been considerably increased by the war. Imports of boxes into Argentina in 1915 were valued at about $30,000, while labels imported were valued at about $37,000. High freight rates naturally fall more heavily on boxes, which occupy more space. Probably less than 10 per cent of imports of boxes and labels are entered at Rosario or elsewhere in this district. On the other hand a considerable proportion of the articles entered at Buenos Aires eventually find their way into the interior.

Import Duties.

As respects cost of production, the Argentine industry can not compete with those of the leading manufacturing countries. In addition to the higher cost of imported raw materials and supplies, skilled labor is expensive. The industry is, however, protected. Pasteboard boxes for druggists are classified under paragraph 3551 of the Argentine import tariff and are subject to an import duty of 25 per cent, to which must be added the usual surtax of 2 per cent levied on all imports the duty on which is 10 per cent or over. Labels for druggists, liquids, etc., are classified under paragraphs 2454 and 2455 and are subject to an import duty of 40 per cent, plus the usual surtax of 2 per cent. The foregoing duties are not assessed on the market or invoice value, but on the "aforo" or officially fixed value for customs purposes, which is, for small pasteboard boxes for druggists, etc., 80 gold centavos (77.2 cents) per kilogramme (2.2 pounds), and for labels classified under paragraphs 2454 and 2455, 1 gold peso (96.5 cents) per kilogramme if in one color and 1.30 gold peso ($1.2545) per kilogramme if in two or more colors. This makes the duty in reality equivalent to a specific rate of 9.45 cents per pound for boxes and 18.4 cents and 23.9 cents per pound, respectively, for labels. Boxes are weighed with their wrapping. In addition to the import duty and surtax, the Argentine tariff prescribes certain official charges for customs handling, storage, and statistics which amounts to a little under 1 per cent of the value of merchandise. The foregoing duties and charges apply to boxes and labels from all countries, there being no preferential or conventional rates.

When Possible Representative Should Visit the District.

As a rule not a great deal is accomplished here through correspondence and catalogues alone, except when solicited in advance. Where the possible demand appears to warrant the expense, the most satisfactory method of securing a foothold in the market

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y.

HOYT METAL COMPANY

HOYT SHEET ALLOY

This Sheet Alloy is meant to take the place of what is usually called Chemical Sheet Lead. It is 5% lighter in weight, has greater acid resisting properties, and has greater tensile strength and rigidity. It does not creep or buckle, but stays exactly in the position in which it is placed.

We would be glad to give your full particulars of this Sheet Alloy which is very rapidly displacing Sheet Lead.

Write for our Babbitt catalogue.

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LAWRENCE, Mass.



PAPER MILL MACHINERY

Dillon Calender Doctors and Feeds are hung up to the Rolls by means of steel levers and links. They are self-adjusting, and follow the rolls in any position. **They are the only doctors that have this feature.**

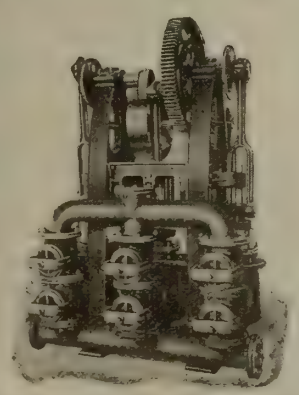
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McGILL BUILDING -:- -:- -:- MONTREAL, Que.

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is by sending out a personal representative to study conditions and get into touch with customers. This visit may be repeated periodically or an agency may be placed with some local firm.

The recognized credit terms here are ninety days from the arrival of goods, but many importers are accustomed to pay cash against documents when dealing with American firms. It is often well to give the customer an opportunity to inspect the merchandise before accepting the documents. If it is desired to build up a permanent business, it is advisable to offer some credit facilities.

Prices quoted f.o.b. New York are acceptable to the leading Rosario houses. C.i.f. quotations are, however, to be preferred, particularly when dealing with smaller concerns whose facilities for information may be limited.

At present, very few vessels come through to Rosario from American ports. Goods can, however, be transhipped at Buenos Aires.

Correspondence and catalogues intended for Argentina should be in Spanish.

ADVERTISING IS EDUCATION.

"We're busy, and don't need any advertising just now," is a companion to "Trade is so slow it wouldn't do us any good to advertise." Advertising men are familiar with both. Neither position is logically tenable; yet many concerns continue to wait for the propitious time to advertise, instead of realizing that advertising is education, and that educational work should be continuous, consistent and reiterative. — Bookseller and Stationer.

THE SEVEN WONDERS OF THE WORLD.

The man who will work without being watched.

A sales manager who doesn't think he pays the old man's salary.

A salesman who thinks perhaps the quality of the material may have something to do with his making those contracts.

A stenographer who knows punctuation and will look in the dictionary when she is uncertain about the spelling.

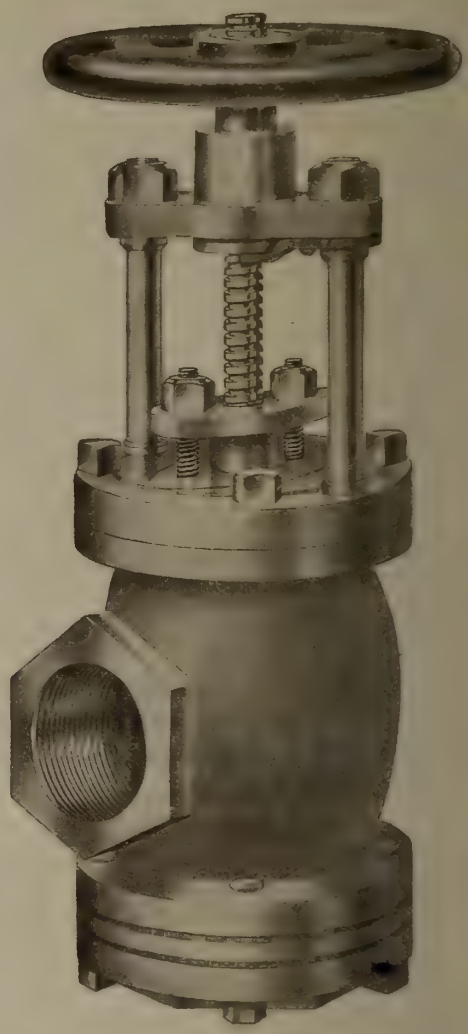
A purchasing agent who doesn't think he does you a favor when he asks to quote.

A new superintendent who will wait a week before installing a much better system than his predecessor's.

A boss who acts as if he wasn't.—O K'd Copy.

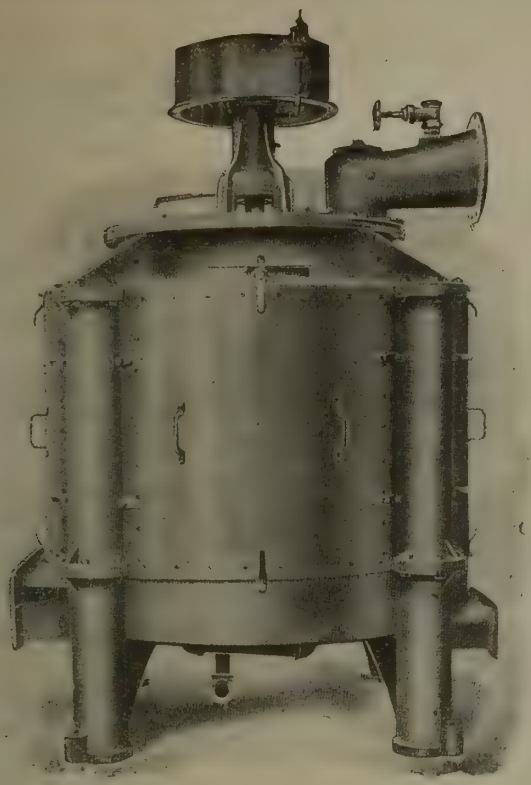
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CHEAPEST INSURANCE
against rust, corrosion or decay
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Acid Resisting Bronze
DIGESTER RELIEF VALVE



For Relieving the Gas from the Digester
With Lead Filled Main Valve Seat

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Hardware and Metal Merchants
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WESTBYE PULP SCREENS

Horizontal and Vertical Design
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Over sixty machines now in use in Canadian and American mills

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A Series of Plain Chains make an Excellent Conveyor By this Conveyor, sawed Logs are carried either direct to Stacker, or are diverted to Barkers through Openings in Side of Trough.



Cooked Straw Conveyor over Beaters in Paper and Board Mill.

Discriminate in Your Chain Buying

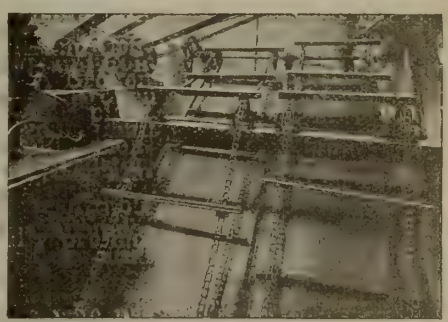
Chains are an all-important part of your Elevating and Conveying Equipment — A Broken Chain may tie up your plant causing great loss and inconvenience—your help and Machinery are only profitable when they are actually producing.

Pulp and Paper Mills who use **JEFFREY CHAINS** have found them dependable — They are **built** to **stand** the **hardest service** — and **they do it.**

Let us prove our claims to you —Write Dept. No. 5 for Bulletins and full particulars.

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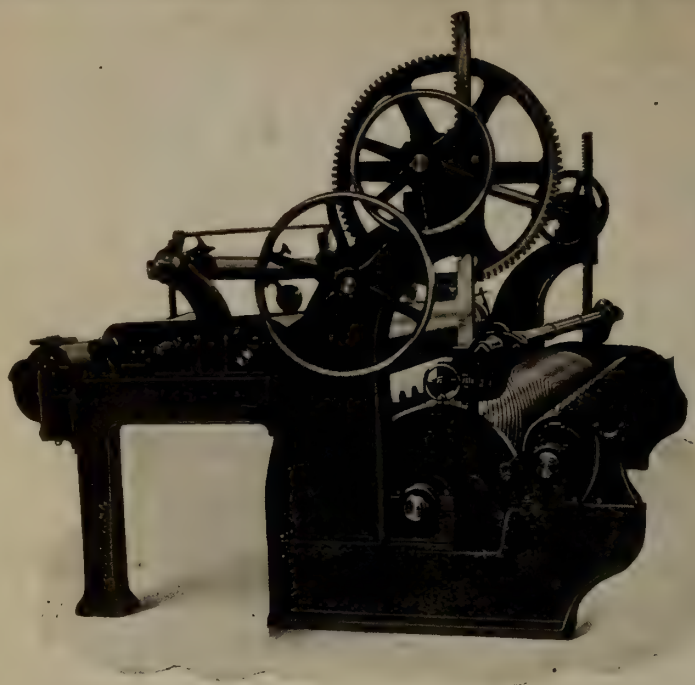
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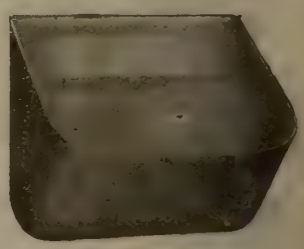
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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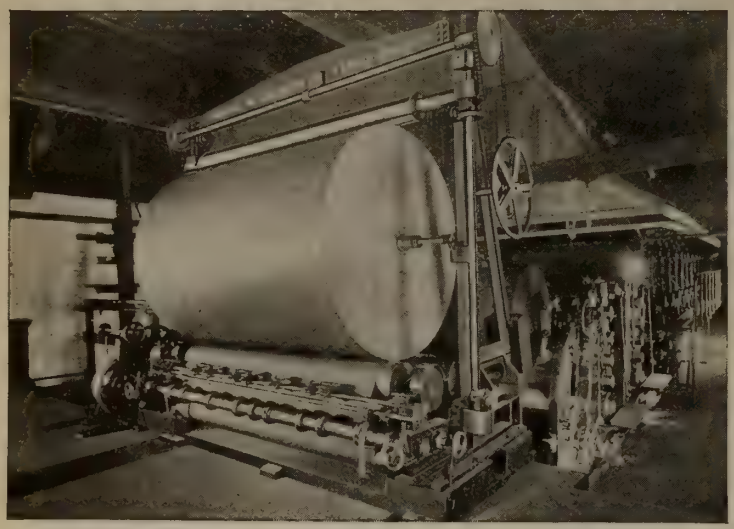
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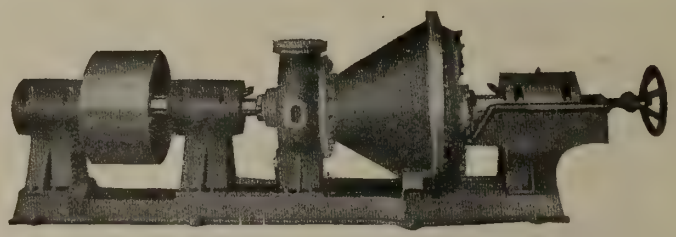
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

CUT, BROTHERS, CUT WITH CARE, BUT DO NOT CHOP YOUR HILLSIDE BARE.

As a part of the year book of the United States Department of Agriculture, Samuel T. Dana has written an interesting and instructive chapter on "Farms, Forests and Erosion." This carries a step further the campaign, which the Pulp and Paper Magazine has championed vigorously, namely the prevention of forest fires and unrestrained cutting of timber. The situation demands an educational effort to bring home to operators the fact that a sensible, scientific, farsighted plan of lumbering and cutting of pulpwood is a distinct advantage to themselves, and a duty to the community as well. Furthermore, it is the obvious duty of the community to see to it that a resource so intimately bound up with the welfare of the people is handled in a way that will not endanger their prosperity.

There are many instances where the thoughtless stripping of forest trees from hillsides and the burning over of wooded slopes, has resulted in masses of rocks washed bare of soil. The unchecked rush of water from them not only endangers the safety of roads and bridges, but gullies or buries with rocks the river bottoms below. At one time there was some doubt as to the part the forest plays in the matter of rainfall. There is now no question of this inmportant function of the forest in regulating run-off and preventing floods. The estimated damage in a single year to storage reservoirs, power plants, etc., in the southern Appalachian Mountain was $18,000,000. The annual loss in the United States, due to erosion is approximately $100,000,000, a large part of which falls on the farmer. The paper industry has been a heavy sufferer from floods and will suffer more heavily as time progresses if steps are not taken to control floods by every possible means.

This matter is of particular importance to settlers in the neighborhood of pulp mills. A bit of advice from the mill's forester, or the forest ranger as to the danger of clear cutting and fires on steep slopes would be an act of kindness. It is rather questionable assistance to a settler to buy from him a few hundred cords of pulpwood if in getting it he leaves a hill liable to being washed down upon his wheat fields, and leaves his meadows in danger of being gullied by freshets. The ill effect of this careless stripping of hillsides, especially of steep slopes, is two-fold. The run-off is more uncontrolled, causing erosion and flood, besides leaving the area in a condition that is often absolutely sterile.

Land damaged by erosion can be reclaimed to a large extent and happily it is possible to prevent to a very considerable degree the danger of erosion by proper methods of grazing, farming and lumbering. Let Canada be proud—and jealous—of her timbered mountains. They are infinitely of more benefit than bare and rocky Alps.

PAPER SAVED AND WASTED AT OTTAWA.

Owing to the great shortage and consequent high price of paper, the Department of Trade and Commerce for Canada is now distributing its Weekly Bulletin unwrapped. The saving thus effected will amount to more than $2,000 a year. This saving will help considerably to pay for the paper used in the Bulletin.

The paper that was used for mailing the Bulletin was a very good quality, heavy kraft, strong enough for shipping hardware. This is one instance of where a testing bureau would be of assistance in cutting out waste by establishing specifications so that purchased material will meet requirements. There is, of course, danger in running too close, but there is no sense in using materials that are unnecessarily expensive. No doubt the various departments of our Government should use high grade materials, but it is not right that style and custom should lead to extravagance and wastefulness.

In this connection we have in mind the stationery of the Conservation Commission. This body, which of all others should certainly be using Canadian made paper, carries on its correspondence on imported, hand made paper. In doing so, one feature has been neglected; the paper is not watermarked with the seal of the commission, but with the name of the maker. It is really beautiful paper and of excellent quality. Its use is certainly distinctive. But it sets a pace in conservation (?) that few Canadians will care to follow. We do not advocate **cheapness,** but we do protest **extravagance.**

CORN FOR FOOD, SAWDUST FOR ALCOHOL.

We have been asked what our attitude is on the liquor business. Our reply is that we are absolutely against it. As a business it has not a single logical reason for its existence, moral, social or economical. It contributes nothing to the welfare or progress of society. It is the greatest known block and hindrance to civic, industrial and social improvement. No serious minded person contends that it ever benefits anyone but the leeches who suck the blood money from the consumer.

Economically the liquor business is a burden instead of a support. It pays heavy taxes but creates a needless demand for their expenditure. The following is clipped from a statement made at the Montreal General Hospital:

"Some of the worst accidents which come up for treatment are directly due to drink. A few days ago a drunken cab-driver fell off his vehicle and was brought to the hospital badly injured in the head—insensible. He paid a heavy penalty, for the blow and drink combined cost him his reason, and, with a wife and eight children left to their own resources, he was consigned to an asylum."

"Frequently men are brought in at night, insensible with liquor and badly frozen, having chosen to sleep on the sidewalk with Jack Frost as a bedfellow. Fingers and toes are often lost through some such orgy. Generally such patients, after the excesses of "the night before," are in the worst possible condition to bear an ordeal of suffering on the morning following."

The evidence against the business has piled up to an enormous total, showing its destructive, degrading and disintegrating effects. No less marked and conclusive in the opposite direction are the distinctly beneficial results from the elimination of liquor from the community. When a man says conditions are worse in a prohibition district than one under license we know he lies. We have lived in both.

George Carruthers, President of the Interlake Tissue Mills says the Prohibition Law is unquestionably the best thing that has happened to Ontario paper makers. Others say the same thing. The recent financial report of that Province, shows that the money formerly spent in selfish indulgence by the head of the family is now enjoyed by his wife and children as well as himself in more uplifting pleasure. A condition that tends to keep a man with his family is fundamentally good. When liquor goes out, as a licensed and recognized institution, prosperity and happiness come in. With liquor eliminated labor is more reliable, efficient, productive and satisfied. And we venture to add that more than one boss has more time and inclination to consider the welfare of his men.

There is another phase of the situation that is not very frequently mentioned. That is the relation between the demands of booze and of food on the grain crop. When the writer lived in Indiana he was told that about one third of the corn crop went to the distillery for making whiskey and other forms of alcohol. The only by-product is the slop, which may be used for fattening cattle, producing a rather inferior beef, or dried and sold as distiller's grain. This is used as a cattle food with fairly good results. The starch has been converted to alcohol and is no longer fit for consumption.

What would have become of this corn if used for raw material in a different kind of plant? Consider the glucose or corn syrup industry. More men are employed per unit of corn than in a distillery. More industries contribute incidentally, as chemicals, coal and transportation. As much, or more, mechanical equipment is required. The products are every one useful. The starch of the grain, its principal constituent, becomes an adhesive or filler in the paper and textile industries, besides being put to other uses, or it may be converted to glucose in the form of sugar or syrup. The husk and germ become cattle food with practically the same value as the distiller's grain, though more concentrated in gluten. Some of the other by-products are several grades and varieties of oils, soap, rubber substitute, etc., numbering more than a score.

A less complicated process gives corn flakes, hominy, corn meal, etc., with a high grade cattle food as a usual by-product. Perhaps the simplest conversion process is to feed the corn to cow, hog or hen with results that we all appreciate. Adding 50 per cent to our available corn looks very good to us.

The complaint that we need alcohol is easily met, we do need alcohol and shall need more of it as gasoline becomes more expensive, but we do not have to cut into our food supply to get it. It is now being made commercially from two sources of material that are not only an absolute waste but a distinct nuisance—sawdust and waste sulphite liquor. Untold good would therefore result in the substitution of a waste product in place of a food product for the manufacture of a substance that has a useful place and a promising future in industry, but whose death knell as a fake food is fortunately being sounded.

THE HONOR ROLL.

In this issue we print the Honor Roll of the men who have joined the colors from the Pulp and Paper Industry of Canada. It contains more than fourteen hundred names, which is a large percentage of the men in the industry. No doubt it is incomplete. Some firms have not sent in any record of enlistments from their plants and but two have notified us of corrections to be made.

The Pulp and Paper Magazine is proud of the way the men in this industry have responded to the call and will be glad to print communications giving the most complete information in regard to our soldiers.

The Bache-Wiig Barking Drum

By S. A. MOULTON, Portland, Me.

At the annual meeting of the Technical Section of the Canadian Pulp and Paptr Association, after the address of Mr. Guettler on The American Barking Drum (printed in this Magazine for March 15), Mr. Thorne opened the discussion by introducing Mr. Moulton, as follows:

Gentlemen: When I heard Mr. Guettler would be kind enough to come up here and give us a paper, I wrote to another gentleman, who has done considerable work in the line of barking drums—Mr. Bache-Wiig—and invited him to this meeting.

Mr. Bache-Wiig has, however, been ill with the grippe and was unable to come himself, but he wrote me a letter with certain information as to drums and what his experience with drums has been, and I would like Mr. Moulton, president of the Moulton Engineering Corporation of Portland, Maine, who has come up here to-day, to see some of his Canadian friends, to read Mr. Bache-Wiig's paper and explain it.

Mr. Moulton was consulting engineer and made plans for a big lay-out for handling wood from a large saw-mill, and used Mr. Bache-Wiig's drum in this connection. He made the first really big installation of it.

When he came up here to-day I told him that I was going to read a paper about Mr. Bache-Wiig's drum, but had not had time to look it over and did not know as much about it as I should like. "Well," he said, "If I can help you out I will be very glad to." I did not let the opportunity pass—so Mr. Moulton is going to be kind enough to read us what Mr. Bache-Wiig has to say. It will be better because he knows more about it than I do. (Applause).

Mr. Moulton's Response.

As Mr. Thorne has previously stated, I came up here with no idea of participating in your proceedings, but as it was my good fortune to have been connected in the States with the development of barking drum plants for both the intermittent and the continuous barking drum systems, Mr. Thorne has persuaded me to say a few words in regard to my experience.

The barking plant with which I am the most familiar was constructed in connection with a sulphite pulp mill and a saw-mill. The refuse from the saw-mill, including the slabs and a portion of the edgings, was salvaged and prepared in the form of chips for use in the sulphite pulp mill.

The wood was received from the river at the same point for both the saw-mills and the pulpwood preparing plant. The best logs were selected and delivered to the saw-mill, and the balance of the logs were prepared for pulp by passing through band mill cut-up saws, and then delivered to a general conveyor which transferred the two-foot long bolts either to continuous barking drums or to the sorting table from which they were conveyed to intermittent barking drums of the Bache-Wiig type.

The intermittent barking drum plant, which was constructed entirely of reinforced concrete, consisted of a building designed very much on the principle of a digester house with storage bins at the top constructed of reinforced concrete and lined with steel plates. These bins contained the two-foot bolts from the cut-up mill which were to be barked, and also the slabs from the saw-mill which were to be passed through the barking drums.

The bolts were discharged from the storage bins into the intermittent or Bache-Wiig drums through specially constructed steel spouts which were of proper dimension to deliver the wood into the drums through a special trap door provided in the side, very similar to that which Mr. Guettler has shown you to-day. After a drum was filled with wood the trap door or cover was locked in place and the drum was about one-half filled with water. It was then rotated and a continuous supply of fresh water admitted at the trunnion bearing on one end, the excess water and removed bark being discharged through the hollow shafting or bearing at the opposite end. When the water discharged at the trunnion was comparatively free from bark, this was taken as an indication that the barking was completed. The rotating of the drum was then discontinued, the cover removed and the barked wood dumped on to a conveyor which passed beneath the drums. This conveyor delivered the wood to the sorting table previously mentioned, and all pieces which retained bark that could be removed by the barking drums were placed upon the conveyor which delivered the bolts to the storage hoppers over the drums to again be passed through the process.

As you are well aware, there are certain bark formations in the crevices of bolts, at the depressions aound knots and at inaccessible points of irregular lumber, where it is impossible for drums to remove the bark. Stocks of this character were diverted from the sorting table to a hand barking plant where men with axes, knives and knotting machines removed the bark that could not be loosened by tumbling in the drums.

As previously stated, the refuse from the saw-mills was also handled in the barking drum plant — I mean by this term "refuse" the slabs and not the edgings. When the first barking drum plant was constructed at the mill under consideration, attempts were made to bark the edgings in the drums, but I am informed that it was a failure, although with the slabs the drums operated successfully. The barking of edgings proved particularly difficult if the lumber was fresh from the river and had not been sufficiently seasoned to loosen the bark.

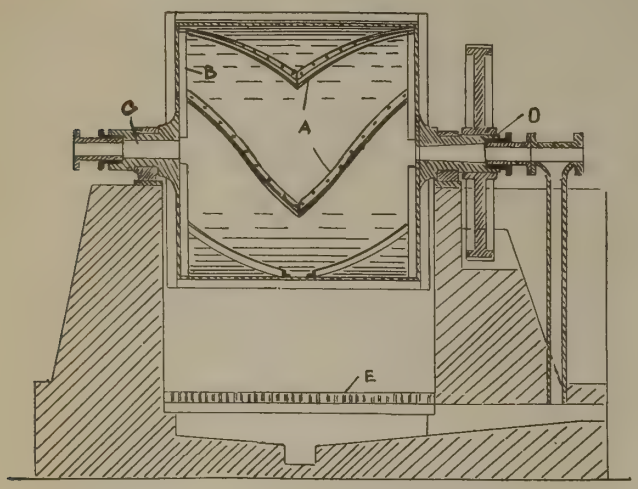
In reply to Mr. Holloway's questions I would state that the slabs were of various thickness, coming from six, seven and eight inch logs.

In justice to Mr. Bache-Wiig, it is fair to state that I believe he was the pioneer in the development of the barking drum, and I will read a letter written to Mr. Thorne by Mr. Bache-Wiig in which he outlines the situation as he sees it.

"In 1891 Mr. Einar Morterud and I experimented with barking drums and rotary brushes for cleaning wood of dirt and bark. After numerous tests had been made comparing the drums with the brushes we gave up the latter and put all our time and energy on the drums.

"For comparison, we had running side by side a closed drum and an open drum. After extended trials we chose the closed drum, because of its superior efficiency and lower cost as to wear and tear.

"The first patent was taken out December sixteenth, 1891. Later we took out several more. Our drums were sold to and introduced in many mills in Norway, Sweden and Finland by Mr. G. Hartmann, of Christiana.



Longitudinal Sections of Bache-Wiig Barking Drum, showing internally projecting angle irons "A," ribs "B" on the walls, hollow trunnion "C" for admission of fresh water, hollow journal "D" through which water and bark is removed, and grating "E" upon which the blocks are dumped after barking.

The letter goes on, "In 1898 we had to bring suit against a German firm by the name of Wertheim which had infringed on our German patent."

This is good evidence and very excellent proof that Mr. Bache-Wiig was exceedingly wide awake as to the merits of his patent claims.

The letter continues: "We were paid about thirty thousand marks, and they bought our German patent. We also had patents in France, Austria-Hungary and Great Britain."

"When I came to the United States in 1903 I improved the barking drum, and took out a patent on this in the United States and Canada in 1908. There are now over forty drums delivered in these two countries."

"As regards the cost and capacity I will cite as an example the erection of a plant of nine drums which have been in operation since 1911."

As a side remark I will say that I believe that Mr. Bache-Wiig refers in his letter to the installation which was first constructed by the client for whom we built the concrete drum house previously described. As our client had already constructed and operated three separate drum plants, we had the benefit of the troubles which were encountered in these first plants; and they were quite a few, I can assure you. The first difficulty which had to be overcome was the vibration and the consequent breaking of gears, with the inevitable shutting down of the plant. To ameliorate these vibration difficulties was one of the reasons for adopting reinforced concrete for the new plant, although the fire hazard was also an important factor. From a recent conference with the operating engineer we learn that no trouble has been experienced with the breaking of gears in the operation of the drums in the new plant. It is safe to state that where rigid foundations are provided the drums will operate satisfactorily. The old drums in the plant described in Mr. Bache-Wiig's letetr were supported on steel frame work; consequently, the foundations were not sufficiently rigid to entirely eliminate the injurious effect of vibration.

The letter continues as follows: "The drums were delivered by Baker & Shevlin, of Saratoga Springs, New York, and housed in a building of brick and steel construction. The entire cost, including installation cost, was about $60,000 and the saving in wood and labor for the first year alone amounted to over one hundred thousand dollars."

I do not think it is safe to accept this installation figure of $60,000. I think that for a modern plant $80,000 is nearer correct. I am basing my statement on the cost of the reinforced concrete plant. It was exactly the same size as the steel frame plant here described. The saving is approximately correct as admitted by the owners.

The letter goes on: "The price of the drum before the European War was $2,150 at Saratoga for the ordinary size (capacity 3 cords)"—that was the capacity of the drums of both plants which I have mentioned —"and $3,250 for the large size (capacity 6 cords per charge). The smaller drums barked from 24 to 40 cords per 24 hours, and the larger barked from 50 to 80 cords, depending upon the condition of the wood.

"As far as I know my barking drum is the only one that can successfully bark slabs and edgings. The same is true in regard to dry and frozen wood, because steam can be applied to hasten the action, thus preventing the wood from remaining too long in the drum and getting all bruised up at the ends."

Mr. Bache-Wiig further says: "I claim that my barking drum can clean wood better than any other drum I know of. Mills producing fine clean paper, as, for instance, the Hammermill Paper Company, are using my drums. This company had their representatives all over the country inspecting different drums before they decided."

I can say from personal experience that I do not think it successfully barks edgings. The edgings are separated in every case that I am acquainted with. I know the owners tried to bark edgings at the plant we are discussing, and gave it up in favor of special type of hand fed barker. The edgings retarded the whole barking drum capacity to such a degree that it did not appear profitable. In the experiments with which I am familiar edgings alone were never used.

The following is a description of the Bache-Wiig Barking Drum which accompanied the letter to Mr. Thorne.

"This machine is a comparatively new and valuable appliance for removing the bark from pulpwood preparatory to converting the same into pulp, and consists of a closed cylinder, revolving at the rate of eight to ten revolutions per minute. The peripheral surface is provided with iron ribs which (aided by the tumbling action of the wood one block against the other) remove the bark. The cylinder having hollow trunnions, water is introduced through one, and goes out through the other, carrying with it the bark as rapidly as same is separated from the block. Three cords of two foot wood are put in at each charge.

The advantages of the Bache-Wiig Barking Drum over the ordinary knife barker are apparent. Up to the present time, as far as is known, no effort has ever been made to utilize board edgings or small waste for any other purpose than as fuel, and large quantities are annually consumed in the refuse burners of the saw-mills all over the country, there being no other way to get rid of them. Many have seen this waste and lamented it, but it has remained for Mr. C. Bache-Wiig to perfect a machine whereby this material may be pressed into service, and by cleanly and economically removing the bark, convert it into pulp. That the Bache-Wiig Barking Drum will do this, and also bark wood as small as one and one and a half inches in diameter is an established fact; performing the operation with so little waste that the cubic shrinkage during treatment is only nine and four-tenths per cent. Nothing like this can ever be done on a knife barker. By the time a knife barker has gotten through with a stick of rough wood five inches in diameter, its own parent tree would not recognize it, and it is absolutely incapable of handling smaller sizes. Edgings are entirely out of the question.

On the other hand slabs have been and still are, barked on knife barkers, with a cubic shrinkage as low as forty-five per cent under favorable conditions; but compare with this the performances of the Bache-Wiig Barking Drums which under ordinary (not special) conditions, clean slabs with an average shrinkage of twenty-three to twenty-five per cent.

In cleaning round wood, the loss with ordinary knife barkers varies between 22 to 25 per cent, according to the size of the wood and the degree of care taken by the operator, whereas the Bache-Wiig Barking Drum will clean wood of squal size with a loss of from 8 to 10 per cent. Briefly stated, the comparative economy of wood barking by the two systems shows a balance of from 14 to 20 per cent in favor of the drum when used on slabs and round wood.

Under the present system of cutting timber, that portion of the log less than five inches in diameter, and all the branches of whatever size, are left in the woods to dry out the following summer, and breed forest fires. This practice is made necessary by the fact that heretofore it has not been practicable to utilize this waste for any purpose. Thousands of cords of this small sized timber are left in the woods every winter. This is now no longer necessary as the Bache-Wiig Barking Drum will reduce this waste material to pulpwood with a very small shrinkage, cleaning same of every vestige of bark.

The Congress of Governors instituted by President Roosevelt in 1908 to conserve the natural resources of the country, and the feverish activity in Governmental quarters to introduce new methods of forestry, both tend to show the direction of our movement toward exhaustion of our lumber supply. How providential, then, is the introduction of a machine that will do more to alleviate the strain on our forests by utilizing the saw mill and forest waste, than any amount of reforestation could do.

According to careful estimates the slab residue from the lumber cut of the country amounts to 14,000,000 cords, of which 6,000,000 are sold for fuel at an average value of $1.40 per cord. 3,500,000 cords are burned for fuel by the mills themselves, and the balance is wasted. Considering the fuel value of a cord of slabs as One Dollar the value of the slab cut per se is as follows:

6,000,000 at $1.40	$8,400,000
3,500,000 at $1.00	3,500,000
4,500,000 to refuse burners	.....
	$11,900,000

Converted into pulpwood by means of the Bache-Wiig Barking Drum, the values of this slab residue is as follows:

Slab residue	14,000,000
24 per cent shrinkage	3,360,000
Cords pulpwood	10,640,000
Representing at least $7 per cord	$74,480,000

It takes twenty years in the climate of Maine and New Hampshire to grow the coniferous trees to a commercial size. How many acres must be re-forested to produce at the end of twenty years 212,800,000 cords of pulpwood—the stupendous figure which would be saved in the country were the saw-mill waste utilized as suggested."

This gives us a general idea — without reading the detailed figures — of what could be expected in regard to the yield from the pulpwood growth if it could be saved. That this is a real problem is best illustrated from the fact that the saw-mills in the south are making a strenuous effort to reclaim their waste for pulp purposes. I have occasion to be in close touch with this situation, as I am proposing to take a trip during the coming month for the purpose of investigating the reclamation of waste in the larger mills of Texas.

"With knife barkers the cost of general repairs is not large, but the figure for labor and material consumed in changing and grinding knives is a very considerable item, to say nothing of the interruption to the operation of the machine while the work is being done. With the barking drum, however, the cost of maintenance is negligible. Practically the only expense involved is that for lubricants and belting, and as the speed of the drum itself is low, and as the drum is supported on the most approved type of roller bearings, but a small amount of oil is necessary. The belting expense is the same as on any drive of equal power.

"The horsepower consumed by the barking drum is practically the same per cord as that used by the ordinary knife barker, being about 8 horsepower per cord.

"This is correct, as we had an opportunity to test the power consumption with our electric driven equipment when the plant was put in service.

"There being no knives of any description in the machine, there is practically nothing to wear out, and the rate of depreciation is correspondingly low. With reasonable care a drum should last for many years. In knife barkers the high speed, and consequent vibration is extremely hard both on the machine itself, and on the surrounding buildings and shaftings, whereas the vibration of the supports of the barking drums owing to very slow rotation is nil."

We found, however, that it was very important to take care of vibrations particularly where we had a high narrow building, with large storage bins overhead.

"As two men can easily handle four barking drums, the labor cost is about half that of an ordinary knife barker. Taking the average output of a knife barker as twenty cords per day, and the rates of wages twenty-two and three-eighths cents the cost per cord is $.268, not figuring in the wages of the grinder men or the mechanics changing the knives. With the Bache-Wiig Barking Drum, using the guaranteed output of 24 cords, from each of four drums and employing

three shifts of two men each, the cost per cord is $0.112."

Mr. Bache-Wiig gives some detailed estimates of the installation cost, and without going through them I believe it is only necessary to say that the barking drum plant will cost complete $10,000 per drum capacity, in other words, a nine drum plant would cost about $90,000.

Mr. Bache-Wiig's detailed labor cost for running barking drums is very interesting. For one unit of two drums it is as follows:

2 men running drums, per shift 4 men per day, at $2.25 each	$ 9.00
One boy in loft conveyor per shift, 2 per day at $2.00	4.00
One man per shift sorting barked wood, 2 per day at $2.25.	4.50
Total	$17.50

Barking 120 cords in 24 hours equals 14 6-10 cents per cord.

Two units of 2 drums each:

2 men per shift running drums, 4 per day, at $2.25	$ 9.00
1 boy per shift in loft conveyors, 2 per day, at $2.00	4.00
2 men per shift sorting barked wood, 4 per day, $2.25	9.00
Total	$22.000

Barking—240 cords in 24 hours equals 9.2 cents per cord.

Three units of 2 drums each:

3 men per shift running drums, 6 per day at $2.25	$13.50
1 boy per shift in loft conveyors, 2 per shift, at $2.00	4.00
2 men per shift sorting barked wood, 4 per day, at $2.25	9.00
Total	$26.50

Barking 360 cords in 24 hours equals 7.4 cents per cord.

In passing I may say as regards the one unit of two drums that the wages quoted at $2.25 per day is not high enough under the present rates of wages.

At the request of the Mexican Company Mr. O. B. Brown, Treasurer of the Berlin Mills Company, Berlin, N.H., whose plant, if I remember rightly, now operates 15 drums of the intermittent type as well as three continuous drums writes as follows: "In answer to yours of the 8th will say that we have Bache-Wiig barking drums working in three of our mills. We find them very satisfactory for removing bark from wood without appreciable waste. We do not use steam except on frosty wood in winter. Warm water or steam will soften the bark and make it come off easier but it is not necessary. It takes about 25 horsepower to a drum. Since we have made the drum strong enough to stand the work there has been little trouble, and almost no repairs. The amount of wood that can be barked depends entirely on the condition of the wood and the cleanliness that is required. In some cases we dump them as often as once in half an hour and in other cases in three hours. The drums hold a little less than three cords."

Mr. Thorne supplemented Mr. Moulton's talk with the following remarks:

As regards the grades of pulp, I will say that it has been demonstrated by the Burgess Company that barking drums will clean the wood well enough to make a high grade of pulp as long as it is bleached. It is, however, necessary to do a fine barking after the drum barking. This fine barking is either done by disc barkers, axes or small rotary hand barkers. I have not seen the Burgess Mill for years, but no doubt they are still doing the fine barking before they send their wood to the chippers.

In Sweden I saw a very handy machine for doing that fine barking. It is a little, fast-running wheel with knives on it, driven by an electric motor which is on the same shaft as the barker wheels. It is very light, so that a man can operate it quite easily. It is very small and strong and one man can run it easily.

This barking wheel has a diameter of about 3 to 4-in. and the wheel can work itself into the log, thereby taking out a knot without wasting too much wood. It can also bark on the surface of the log. This Swedish Hand Barker is constructed something similar to the electric drills that we are using for drilling wood over here (Mr. Thorne passed around an illustration of this machine). I am sure that wood barked in a barking drum and afterwards with this small machine will be cleaned satisfactorily for bleached sulphite. So far, however, it has not been demonstrated that this kind of barking will be satisfactory for unbleached pulp.

For barking slabs and edgings the piano barker has been used, but this machine is not only wasteful of wood, but is also dangerous to the men who operate it.

One objection to the barking drums is that these machines brush up the ends of the wood. These ends no doubt carry considerable dirt—like sand, bark, etc.

Mr. Guettler, however, informs us that a 4-foot block will not brush up so much as a 2-foot one. According to this we should bark 4-foot wood. The American Bark Drum Company is experimenting with a new larger size drum, 14-feet in diameter, for 4-foot wood. The Riordon Company tried out a 10-foot drum with 4-foot wood.

I have seen the wood we get from our Haileybury plant barked with the Guettler system, and it looks very well—extremely well. The wood is very little bruised and very well barked—very little extra fine barking will have to be done on it afterwards.

Mr. Guettler no doubt is on the right track when he wants to bark logs 14 to 20-ft. long, anything that you can carry through your river, before they enter the sawmill. The logs should be barked when taken out of the water as the bark is then easily removed. It is just a question now of getting machines that will do the work, and I have no doubt that he will succeed in constructing a satisfactory machine. We will all be very glad to get the results of the experiments in Newfoundland.

After the log has been barked its whole length, it should be piled as lumber in the yard.

By removing the bark before piling the wood will have a chance to dry quicker.

The most modern way of piling wood is with a travelling crane running on a track placed on the ground. The distance between rails about 30 feet. The travelling crane is moved out to the river where it takes out of the water two bundles of logs—say 70 to 80 logs in each bundle—lifts them up and carries them to where the piles are. It leaves them there and returns to the river and takes another couple of bundles. The capa-

city of the crane is from 15 to 25 tons and it will pile the logs 20 to 25-ft. high.

I think this, or some similar method will be adopted over here in the future—reasons being that with this system:

1.—Logs are prevented from rotting.

2.—We save money in labour.

3.—One is always able to measure the amount of wood in the block pile.

4.—We will get more evenly dried wood for sulphite making.

5.—And, what we consider the main thing—it will be a safer way of handling logs than the way we are doing at present.

No doubt some of you, having mills in a cold country, will have gone through the same experience as I have—that the 2-foot blocks in a block pile freeze together and can only be removed by dynamite and then they come down in big lumps which are liable to cause accidents to the men working below.

This wood stacker will do away with this danger.

Mr. Taylor spoke of the barking drum plant of the Eastern Manufacturing Co. at South Brewer, Maine. At this plant which is operated in connection with a sawmill, both sawmill waste and peeled spruce logs are used. The waste is barked in a drum. The previous wastage of steam from their heating plant, instead of allowing it to continue to waste is piped it into a series of pits, holding nearly a cord each. The slabs and edgings are dropped into the pits and take about twenty minutes in going through this pond before they are sorted and handled in the ordinary manner. Unbarked, knotty or otherwise poor sticks are sorted out for side barking on the way to the chippers. All the sawmill waste went right through the drums. It is an inclined drum in several sections, built of angle and channel irons. It was barking slabs at that time, and I think from what I understand, that it is still in effective operation. I have not been there since, to see how this was working, but it seemed to me to be a very good idea, and one that might be tried to advantage where the opportunity warrants.

GOVERNMENT REGULATION OF PAPER PRICES.

From the April, 1917, review of the National City Bank of New York "Paper," takes the following well reasoned and logical presentation of the paper situation. All the trade papers of the paper industry have argued along the lines here presented. We are glad to have the opinion of the financier on this question.

"The efforts of the Federal Trade Commission to ameliorate conditions in the paper trade present an interesting study. In the first year of the war the paper trade was depressed, but as prosperity came to other branches of business they all began to use more paper of all kinds. Advertising increased in the newspapers, requiring more pages, their circulation increased, and the demand for paper finally exceeded the capacity of the mills. There not being paper enough to go around the consumers unprotected by contracts had to go into the open market and bid against each other, not an agreeable proceeding but the common method of apportioning an insufficient supply of anything. Even high-priced lawyers, artists and singers apportion their services upon the same general principle, putting their prices high enough to limit the applicants to a number they can serve.

"A general rise of prices in such an article as paper has the double effect of enforcing economy in its use, thus accommodating a greater number of applicants, and of stimulating production. An unusual price will attract new capital into the business, whereas a moderate increase, although sufficient to yield the old producers what might be judicially pronounced a fair profit, may not induce investment at a time when construction costs are high, or exert any influence for economical use.

"The fact is usually lost sight of that in time of scarcity and advancing prices the producer ceases to be the controlling factor in price-making. If he should sell at the normal margin, the market price would go up just the same, as we know it does in the case of such staples as wheat and pig iron. When producers are sold up the dealers and consumers make the market. There is no good reason based on the public interest why a producer, with due regard for the amenities of trade, should not have the benefit of a naturally advancing market, when free from contracts. He is obliged to accept the unfavorable developments, and as a rule he needs all the favorable ones to bring him out with a fair average of success.

"The paper business was demoralized for several years before the war by unprofitable conditions, and whether a trade agreement had anything to do with the recent rise of prices or not it is quite certain that the state of supply and demand was the fundamental reason. The Trade Commission has undertaken to fix the price of print paper at 2½ cents per pound by securing an agreement on the part of the manufacturers to sell at that price, but has also undertaken to get an agreement on the part of all consumers to reduce consumption to the extent of 5 per cent. in order that there will be enough to go around. This is asking all consumers to sacrifice the same percentage, regardless of the different degrees of sacrifice which this curtailment may involve. The agreement would be very welcome to the publisher who is unprotected by contract, and it may be quite unwelcome to a rival who is well covered as to his wants, or who is more interested in increasing his circulation than in the saving on paper.

"It will be seen that the commission has grasped the fundamental fact that in dealing with a scarcity it is necessary to reduce consumption. Many people appear to think that the only objectionable thing about a scarcity is that it enables certain reprehensible persons to put up prices. Even the commission refers to the fact that prices have advanced more than costs as though this in itself was prima facie evidence of wrong-doing. But, as we have seen, the higher prices constitute the natural means of eliminating a portion of the demand, and if this influence is discarded some other method of elimination must be found. Who knows that the horizontal reduction adopted by the commission is more advantageous to the public? The wastage of print paper is large and there is no better way of curtailing it than by means of the natural price. Moreover, is it not a fair presumption that the curtailment which naturally occurs first under the influence of high prices will be of least concern to the public?

"Admitting that price-fixing powers may be exercised in great emergencies to the public advantage, particularly in dealing with necessities, the chances for error are too numerous to justify common attempts to supersede the law of supply and demand. Every one can make his own calculations upon the latter, but if the situation is complicated by arbitrary governmental regulation the confusion will be increased."

DETERMINING THE DRYNESS OF PULP.

A contributor to "Wochenblatt fur Papierfabrikation" says:—I have repeatedly noticed that in the determination of dryness gross errors are perpetrated in one direction or the other. Thus, for instance, in a cellulose mill, I saw the dried samples, taken from the drying apparatus, heated with the exhaust steam from a steam engine, in open mesh baskets, and a distance of 200 ft. acros the open yard, to the place where the samples were weighed. In rainy weather they were simply covered with a lap of pulp, wet pulp even being used for this purpose. According to the direction of the wind, the rain fell at the side, directly upon the cellulose. But even carrying across the yard in dry weather is objectionable, the more so when it is damp, because the absolute dry cellulose, which is fairly hygroscopic, according to my determinations, will sometimes take up, within 15 to 30 minutes, 6 to 12 per cent. of moisture at a relative air moisture of 65 per cent.

In another cellulose mill in which a dryness test was made from each bale or each roll, the responsible official took the samples of an entire shipment, placed in strips in large, flat, open boxes, say, 40 to 60 samples at a time, out of the apparatus, sometimes 4 to 6 or even a larger number of such boxes, which together often held the samples of a whole day's output, then weighed the strips from the different bales separately. Frequently more than an hour would elapse before the last strip was weighed. Of course, this resulted in much water being weighed as cellulose—and then surprise was expressed when, for a long time, complaints were continuously received in regard to moisture differences. At my suggestion, the scales was installed by the side of the drying apparatus, the official took out at most six samples at a time and allowed them to cool about the temperature of the department. The strips therefore lay about 2 or 3 minutes exposed to the air. As I was subsequently informed complaints were afterwards very rare.

By way of contrast I saw the following in a paper mill. The drying apparatus was heated by the exhaust steam from the drying cylinder. The thermometer inserted into the interior of the apparatus often showed a temperature of 110 deg. to 120 deg. C. This condition alone indicates an error by no means unimportant in practice, because, at this temperature, the resin contained in the cellulose begins to decompose and becomes volatilised. The principal mistake was, however, made in weighing the dried product. The samples were removed from the drying apparatus and placed at once, while hot, on the near-by scales and weighed with the dried substance showing a temperature of 80 deg. to 100 deg. C. As, however, in the calculation no allowance was made for air contact, the percentage obtained was invariably too low. I could discover an error in consequence of as much as 7 per cent. When, in spite of this, the dry-weight recorded in the paper mill agreed fairly well on an average with the moisture percentage stated by the cellulose mill, this was probably due to the fact that the samples to be tested remained for about ¼ to ⅓ hour in a small closed space, before being weighed for drying. In this space there prevailed constantly a temperature of 25 deg. to 35 deg. C., the air moisture amounted only to 10 or at the most 20 per cent., so that consequently, the samples to be weighed rapidly parted with their moisture to the air, whereas the latter was previously dried. Incidentally, therefore, the two errors as a rule fairly counterbalanced one another.

If we desire to carry out the dryness test practically in an unobjectionable manner, we can proceed according to the manner fololwed at my suggestion by another important manufacturre with its dry samples of hygroscopic substances (cellulose, mechanical pulp, rag half stuff, etc.). The samples to be dried were weighed in a permanently tared high wide-mounted glass bottle or in tin boxes with good closing lids, weighed (with lids) and then placed open in the drying closet. The drying being completed, the receptacles are closed, while still in the drying closet, as tightly as possible (bottles with ground glass stoppers are unsuitable) and can then be transported to any distance. They can also be left without suffering injury, for ¼ to ½ hour, until weighed, or at least until the receptacle has cooled off to the temperature of the atmosphere with which it is surrounded. If bottles with cork stoppers have been employed, these should be removed immediately before weighing. The moisture that with a tight closure can be taken up during, say a half-hour's standing by the dried sample in the bottle is so small, that it may be ignored without consideration, also the quantity that will be taken up during the few seconds required for weighing. Accurate controlling tests showed that the error involved, in about fifty instances, only once exceeded a difference of 0.3 per cent.

If tin boxes have been used, the dried sample should be allowed to stand only at the most fifteen minutes before weighing, as the lids can never be made so tight closing as the stoppers of bottles—unless we use boxes that can be hermetically closed, such as are employed for the keeping of carbide of calcium, etc.

Regarding the manner and extent of sampling of bales, rolls, etc., much has already been written, but there is as yet no unanimity as to the most practical method.

EXTENSION OF FOREST PROTECTION.

The completeness and efficiency of forest protection work in Western Quebec is to be very greatly increased as a resutl of action decided upon at meetings of limit holders held in Ottawa, February 21 and 23. As a result of this decision, the territory of the Lower Ottawa Forest Protective Association is to be extended westward to cover the area between the Coulonge watershed and the western boundary of the province, extending north to approximately the National Transcontinental railway. The present territory of the Lower Ottawa Association covers the Lievre, Rouge, Gatineau and Coulonge watersheds a total of 13,269 square miles. With the increase territory now to be added the area will be approximately 29,000 square miles. An adequate staff of fire rangers and inspectors will be provided under the supervision of the present manager, Mr. Arthur H. Graham. It is anticipated that a co-operative arrangement will be made with the Provincial Government providing for the patrol of unlicensed Crown lands, in addition to the large area of valuable timber limits now held under license.—C.L.

Are Paper Prices Likely Again to Ascend?

By H. H. REYNOLDS.

[The following able discussion of the present situation is taken from an address given before the Connecticut Typothetae by H. H. Reynolds, of the B. D. Rising Paper Company. What Mr. Reynolds said should interest printers and other users, as well as manufacturers, of paper in the United States and Canada.]

As we confront the new crisis in the war, we naturally ask ourselves how an unrestricted submarine campaign is likely to affect the interests of the printing and publishing industry of the United States, and our own pocketbooks in that connection. To see matters clearly, we should first note the causes that in the last year have raised prices from forty to one hundred per cent. or more. These are fundamentally the war and the tariff.

The war has raised the cost of materials, first, by shutting off imports of materials from Europe, and second, by throwing on our mills a demand for papers formerly supplied by Germany and Austria.

The tariff on paper, lowered under President Taft, and reduced further under President Wilson, made paper manufacturing unprofitable, and for several years stopped the construction of mills. When the war began we had not enough mills to produce our domestic requirements. When foreign materials and papers were cut off by the war the natural result here was scarcity and advances.

The submarine blockade of Europe means an intensification of the forces already at work. There will henceforth be less material coming to us, less paper exported from Europe, and greater consequent demands from other countries on our mills. It means higher cost of materials and increased demand on mills already unable to fill it. Sooner or later there can be but one result.

Under the Taft administration the tariff on Canadian paper and pulp less than two cents per pound, was removed, and a movement started that put many mills out of business and started the rest on the way to a receivership. Under the Wilson administration, in order to "sharpen American manufacturers by means of foreign competition," the tariff was taken off all papers below five cents per pound. Imports of paper and pulp, which under the original tariff had ranged around one thousand tons a day, at the beginning of the war had grown to the great total of six thousand tons a day. It was bad enough that the American mills were losing money and furnishing yearly a lessening proportion of our supplies. A worse thing was that we were becoming dependent. Nobody, except the manufacturers, thought much about this, however; for while foreign mills were conquering more and more of our market, prices were naturally low. A good example was the Austrian boards made on a labor cost of a quarter of ours, brought four thousand miles, and sold below us in our own markets. In the United States consumption of paper normally increases ten per cent. a year. So far from keeping up with the growth of the demand, many mills actually went out of business. Capital is never anxious to back losing ventures.

While primarily affecting the mills making cheaper grades, foreign competition injured the mills making high grades. The lower grade mills, being short of orders, began to try to make higher grades.

At the outset of the war the capacity of the American mills was thousands of tons per day below our consumption; the Government had legislated a prosperous industry almost into insolvency and delivered the consumer to the tender mercies of manufacturers thousands of miles away. They had no ties of race or kin with us, and by the exigencies of war couldn't take care of us if they wished. A few more years of "sharpening American manufacturers by foreign competition" would have left us without mills and in just the position of the South at the time of the Civil War.

During the first year of the war the accumulated stocks of paper in Europe and America, together with the production of the American mills, was sufficient to take care of the demand. There were some advances soon after the declaration of the war and a flurry caused by sudden demand. Of course, at the outset of the war, manufacturers in Germany and Austria made haste to export all their available surplus stocks, and thousands upon thousands of cases of paper came to us through Belgium and Italy. After a few weeks the demand died down and for more than a year the was very dull, but all the while consumption was eating into the stocks of paper on hand.

Shortage of Materials.

By January, 1916, the surplus stock was largely used up, and a shortage in materials began to make itself felt. Rags and new cuttings from ermany had stopped soon after the war, as did those from Belgium. For a while English and Stotch rags came over in gradually diminishing quqantities. German bleach, being a bulky product, ceased entirely soon after the beginning of the war, and as England went forward in the struggle, the shortage of tonnage due to the employment of ships to carry food and war supplies led to an almost entire discontinuance of shipment of bulky commodities. By the winter of 1916 bleach, which ordinarily sells for $1.25 per hundred pounds, had reached the enormous figure of $17.00, and in some cases as much as $21.00 per hundred.

The color situation gradually became worse as stocks which the German exporters maintained in this country ran down. All colors went up, some to twenty times the original cost. A particular case in point was a color bought originally by the mills at 80 cents per pound which went to $16.

The pulp situation also became worse. At first pulp was not affected, and shipments came in from Canada and Scandinavia in almost undiminished quantities. Later, however, the Swedish pulp was curtailed by difficulties in securing the wood from Russia—partly on account of international political conditions, and partly on account of labor shortage in Russia. The Swedish people were hampered by impairment of the sources of their bleach, sulphurous acid, wood and other materials. Number 1 bleached sulphite pulp, originally selling around $2.75 per hundred pounds, climbed up as high as 10 cents per pound. At the present time the contract price is

around 8 cents, or nearly three times the normal price, and spot deliveries still around.

The same thing has been true of rags. Thirds and blues, a standard rag of the cheaper class, ordinarily obtainable at $1.75 to $1.85 per hundred before the war, went as high as $6.00 or more per hundred. The better grades of new cuttings doubled in price. New linens went to the unheard of figure of 16 cents per pound.

So much for materials. Increases in these have been from one hundred to nearly one thousand per cent.

Increased Labor Cost.

The cost of labor did not go up as fast as the cost of materials. However, the old system of two shifts in twenty-four hours was changed by most of the mills to three shifts, and pay maintained at the same rate per day of eight hours as it had formerly been of twelve hours. Also increased cost of living made necessary general increases throughout for help, so that the mills are doubtless paying on an average of thirty-five to forty per cent more wages.

Now, in addition to this increased cost of materials and labor, the situation is complicated by the fact that large territories of the world are practically without paper mills, particularly such countries as Australia, New Zealand, Cape Town, South America, Central America, West Indies and even China and India. They rely wholly or chiefly on Europe and America for their supply. During the first year of the war German and Austrian papers were cut out, and the stocks on hand were pretty well consumed. This threw on the United States and the Entente Allies the burden of supplying these countries. As the war stiffened, the trenches demanded that best part of the help in England, France, Italy and Canada, so that manufacturing was left to women, old men and boys. British mills have been reported as working at fifty per cent product. This situation checks up with reliable private reports of an enormous export business done on American papers, exporters being reported as ahving increased their business in 1916 to eight or ten times the previous figures.

Bulk of World's Demands.

Now the bulk of the world's demands falls on the United States at a time when the mills of the United States are scarcely adequate to take care of the more consumption. There is the greatly increased cost of materials running from one hundred to one thousand per cent or more, and the increased cost of labor. Rags are not liable to go down with cotton above 16 cents At this price the new cuttings are taken for "shoddying" purposes. Labor is not liable to go down with $2.00 wheat and $1.50 potatoes. Paper, while it has increased in cents per pound, has scarcely kept up with cotton around 20 cents per pound, steel around $64.00 a ton, as compared with $28.00 before the war, and wheat around $2.00 per bushel. In other words, the cost of paper has increased in cents per pound, but, as measured in other commodities has not gone up, nor has it gone up as fast as the materials have advanced.

With these fundamental conditions, manufacturers of the better grades find themselves doing business on less than a normal profit.

Nineteen hundred and sixteen was a profitable year, not because of large profits of this year's products, but because of profits made on materials bought and paper made on the old basis of cost.

The German submarine campaign will further cut down the exports of the Allies, including paper. In addition, the mobilization of the best labor in the country is cutting down their manufacture still further. This applies both to England and Canada. The very same factors that caused the rises in price to the present level are at work more potently than ever. With the additional demand from foreign markets, with the suppy of pulp from Canada and Scandinavia growing less and less, it is difficult to see how the public can escape an advance.

If the market was restricted, even with the present cost of materials, prices might not advance; but outside of the warring nations the market is practically the whole world. With reduced margins and greater pressure for product, manufacturers will be obliged to stiffen prices. When this happens it will start a buying campaign with rises comparable to those a year ago.

Certain straws point in this direction. On the Government requirements, among one thousand mills and several hundred jobbers in this country only twenty-nine bidders were secured. Under the present conditions of the market for raw materials manufacturers are afraid to make flat prices. The general cost of living, which increased twenty-seven per cent since 1915, and fifty-two per cent since 1914, indicates that labor will not receive less than at the present time. The outlook being for advance, those printers who have a supply of paper will find it will be worth more than it is today.

"What will happen at the close of the war?" This is entering the realms of probability; and one man's guess may be as good as another's. Certain features, however, stand out. Postponed maintenance of railroads, building and the replacement of railroads and industries, and other equipment abroad, will keep the United States busy, generally speaking, for several years after the war closes. This means consumption of paper. Add to this the fact that several millions of men of working age have been removed by death, wounds and disease from European industry, including the manufacture of paper, and we have automatically a condition of higher wages, and therefore lessened competition with American paper manufacturers.

No doubt some time we shall have a lower general level of prices and lower prices for paper. Also there will be such variations as are caused by our own particular domestic conditions. But history does not suggest a lower general level of business and prices for several years. In our own Civil War experience stocks rose and business boomed starting in '61 and striking a high level in '64. Then there was some recession, but in a general way business was good and prices high, until the panic of '73. The cause now at work are more far-reaching than those of the Civil War. A much larger part of the world is affected. It may well be that we will be longer in striking the top of business prosperity and prices and slower in receding.—The American Printer, April, 1917.

REMOVAL OF DUTY ON PAPER.

Simultaneously with the cable announcement from Ottawa that Canadian exports of paper will not be reduced, the Argentine Chamber of Deputies approved the Bill for the removal of the duty on printing paper.

HONOUR ROLL

Members of the Canadian Pulp and Paper Industry, Serving with the Colors, 1914--1916.

ABITIBI POWER & PAPER CO., IROQUOIS FALLS, ONT.

Allen, A.
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Ansen, J. H.
Beatty, Ross
Beloid, E.
Beaulieu, J.
Beggs, Jas.
Blais, G.
Bond, Jos., Sr.
Bond, Jos., Jr.
Brosseau, Alderic
Brown, Geo. Albert
Carrier, A.
Clarke, R.
Clement, Octave
Coleman, Len.
Contratuck, Tony
Couillard, W.
Cramp, F. A.
* Dawson, Christopher H. (Charlie)
Dedyrkenzo, Pit
Dinsmore, W.
Donell, J.
Donohue, Wm.
Duffy, A.
Dumont, J.
Dupont, Oscar
Edwards, Thos.
Finner, V.
Fisher, John.
Flaherty, Dominick
Foy, Irvine (Sergt.)
Frauken, Tony.
Hayward, Paul D.
Hankins, H.
Hennessy, Graham (Lieut.)
* Horne, Ben.
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Kailbitk, Alex.
Kelty, Edward
Koida, A.
Kolamack, Gavril
Labrie, Armingle
Laliberte, J. E.
Langevin, R.
Larlviere, Alfred
Latendresse, Clement
Lavergne, Henry Jos.
Leonard, Jack
Lucashevich, Elia
Lachapelle, O.
Langlois, Frank
MacDonald, J.
McEachern, A.
McKee, Louis
Mainville, H.
Miner, Geo.
Morris, E. C. (Lieut.)
Morrow, R. J.
O'Flaherty, Wm.
Pelly, Harry
Perry, C. V.
Phillips, Geo.
Pointer, Roy R.
Rheault, Joseph
Ritchley, Hugh
Ryan, Pat.
Smith, J. P.
Smith, Wm.
Starknick, Frynk
Taylor, A.
Tripp, N.
Warcupp, Robt.
White, Willis
Wilson, Earl J. (Corp.)
Young, W. H. (Capt.)

BATHURST LUMBER COMPANY, LTD., BATHURST. N.B.

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Arseneau, Charlie
† Arseneau, J.
Auger, Geo.
Baldwin, Alb.
Beaver, J. E.
Blanchard, Wm.
Brown, C. L.
Buckley, Angus
Campbell, Wilfrid
* Canty, Edelard
Canty, Napol
Coburn, C.
Collins, James
Comeau, Henry
† Conroy, J.
† Cormier, Victor
Craft, Don
Cunningham, Shorty
Doneti, P.
† Doucett, J. L.
Dungalee, C.
Dungalee, G.
Doucett, Geo.
Doucette, Robt.
Flitt, Conlin
* Glazier, Wm.
* Good, Ernest
† Good, Herman
* Graham, Robt.
Haines, D.
Harris, Frank
Hurley, L.
Juneau, P.
Kenny, Emanuel
Kenny, Tom
Knight, R.
Lavigne, Jas.
Lozier, Raymond
McLaurin, C. L.
McManus, Ed.
McCuaig, D.
McNaulty, G.
Martin, W.
† McMin, W.
Mean, Bert.
Mean, Fred.
Melanson, Adelard
Melanson, L.
Melanson, M.
Pentland, Wm.
* Perley, W.
* Pitre, T.
Poulant, J.
Rix, Maurice
Robertson, A.
Robertson, L.
Robertson, Wm.
Robichaud, Alphonse
† Robinson, Clarence
Schryer, Otto.
Smith, J.
† Sweeny, H.
Thomson, J.
† Veniot, Chap.
White, Clay
Williams, Dave
Williams, Normand
† Young, Alec.
Young, Robt.

THE BEAVER WOOD FIBRE CO., LIMITED, THOROLD, ONT.

Barblero, Pasquale
Brusamarells, Matte
Butsquarre, J.
Charvis, Charlie
Dominini, Nic.
Dragon, Joe.
Dutsquairy, J.
Ganz, Frederico
Haynes, Sam
Hutty, Wm.
Jarvis, Charlie
Manarin, Frenck
Nora, Ernesto
Olivier, Bortolo
Robinson, Hugh
Sartor, Giacomo
Sibor, Jos.
St. John, G.
Straga, Cesare
Straga, Gessue
Zandomenego, Arcaneelo
Zandomenego, Eugenio
Zandomenego, Vittore

THE BELGO-CANADIAN PULP & PAPER CO., LIMITED, SHAWINIGAN FALLS, QUE.

Bates, J. A.
Callant, Auguste
Coldthrop, J.
Comte, R.
Curtet, Edouard
Daemen, F.
Dehauffe, A.
Deschaine, Ad.
Devenyns, Leonard
Gardner, A.
Greenway, Sam.
Landmesser, Jos.
Lerbruc, C.
Lessard, Wilf.
Meerbergen, Gab.
Montambeau, E.
Spriet, A.
* Systermans, Andre
Van Borren, Leo.

J. R. BOOTH, OTTAWA, ONT.

Aust, H.
Beaudin, Arthur
Bonner, Robt.
Brusseau, Joe.
Cameron, Geo.
Cameron, Geo.
Cassidy, Chas.
Chadwick, J.
Charette, Edmo.
Clouthier, Joe.
Chipman, Clif. C.
Clarke, H. J.
Coleman, J.
Cote, George
Chess, Jos.
Currier, S.
Darraugh, Alex.
Darraugh, Sam.
Delaney, T.
Dennison, E.
Denis, Gordon
Denis, Sam.
Doorley, Thos.
Dougherty, Jas.
Downey, Geo.
Ducett, Lawrence
Ducett, Walter
Fortin, John
Gardham, Sam.
Gravelle, Napoleon
Goudreau, Alfred
Goodreau, Josephat
Kealey, George
Kerr, David
Laframboise, Gilbert
Lafleur, Joe.
Lanouette, Ludger
La France, Alfred
La France, Joseph
La France, Max.
La France, Noel
Legarre, Emile
Latimer, D'arcy (Sergt.)
McIntosh, Donald
McLarty, John
Martin, F.
Marricette, Baptiste, Jr.
Myers, R.
Nelligan, Michael
Parizeau, Arthur
Parizeau, Nicholas
Parizeau, Adelor
Petersent, Geo.
Phillion, Lorenzo
Proulx, Dave
Purdy, Jerry
Renaud, Wm.
Renaud, Jas.
Savard, Omer
Seamen, Emerson
Sheridan, J. Pat.
Sieman, E.
Skipworth, Albert
Soubliere, Albert
Strachan, Stewart
Sullivan, Harry
Thibideau, Eugene
Valiquette, Jno.
Warren, Jas.
Welsford, Jas.
Wilson, Dave

BIRD & SON, HAMILTON, ONT.

* Berry, Jack
Booth, James
Caskie, Arch.
Eccles, John
Hendy, George
Jones, Thos.
Kerrish, W. E.
Lawlor, D. E. (Lieut.)
Llewellyn, John
Maul, Jack
Mitchell, Sam
Nunn, Wm.
Ramege, James
Scott, Jack
Scott, John
Smylie, Wm. (Sergt.)
Stevens, Wm.

THE BRITISH COLUMBIA SULPHITE FIBRE CO., LIMITED, VANCOUVER, B.C.

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Barnes, W.
Barnett, A.
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* Boyd, W.
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Coulter, J.
Crook, J.
Francis, H. A.
Harford, Frank
Hardy, R.
Lowe, George
Morrison, S.

Muyleart, B.
Neath, T.
O'Beale, H.
Patton, R.
Ramsden, S.
Robertson, W.
* Taylor, E.
Whalen, R. F.
White, E. J.

BROMPTON PULP & PAPER CO., LIMITED, EAST ANGUS, QUE.

* Austin, Frank
Bell, Douglas
Beaulle, Tom
Biddick, Reginald
Biladeau, Cyrille
Blais, Geo., Jr.
Brocho, T.
Cammezize, B.
Campbell, Robt.
Carbonne, Dominico
Copethwaite, Tom
Cork, Bert.
Davis, L. L.
Dearden, E. L.
Desmarais, J.
Dockerel, Henry
Drew, Howard
† Duncan, Wm.
Edwards, Geo.
Egrin, Charles
Elliott, W. H.
Gascoine, Clement
Holt, Horace
Jolin, Alcide
Jones, Ernest
Johnny, D.
Kahurux, T.
Kelly, Arthur
Kerr, H.
McDermott, Patrick
Moore, Thos.
* Muir, Andrew, Jr.
†. Murray, Robert
Naprice, Toni
Nischi, Nicola
Norris, J.
Nugent, J. H.
Oustriusky, T.
Padner, Fred.
Peppard, F. M.
o Perrault, Emile
Perrault, Jos.
Quitodamo, Nick
Rowley, George
Stirtuik, Kosmo
Sutton, Wm.
Tymokolien, H.
† Warren, Wm.
Webb, Ernest
Welgo, Oscar
Wilson, James
White, Jos.

THE BRONSON COMPANY, OTTAWA, ONT.

Dempsey, Allan
Denis, A.
Denis, Wm.
Johnston, J. P. (Corp.)
† Reiffenstein, H. A. (Brevet-Capt.)

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Bailey, Harry
* Bertrand, Fred.
Britton, H. T.
Davis, Ed.
Fairbairn, J.
Fairbairn, R. A.
* Ford, J. O.
Horton, Bert.
Houldsworth, Leslie
*'Laviqueur, N.
Lettington, Arthur
Morrison, Robt.
Pangborne, W.
Stevens, Ashley
Walsh, Michael
* Wooding, T.
* Wykes, Fred.

CAMPBELL LUMBER COMPANY, WEYMOUTH, N.S.

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Barr, John
Burke, Andrew
Campbell, Albert M.
Campbell, Thos. B. R.
Campbell, Colin, G. P. (Lieut.) (MC)
Campbell, J. Duncan
Campbell, Glidden (Lieut.)
* Campbell, Kenneth A (Lieut.)

THE CANADA BOXBOARD CO., LIMITED, MONTREAL, QUE.

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Chard, Geo.
Ford, Albert
* Herman, Ross R.
Hill, Chas.
Kvinlang, S.
Laws, Albert
Lockman, Jos.
Montmorency, P.
O'Dell, R.
Peat, John
Smith, John
Tayloy, John
Thomas, G. S.
Turner, H.

CANADA PAPER CO., LIMITED, WINDSOR MILLS, QUE.

Annandale, F. W. (Lieut.)
Beattie, Albert
Brocklehurst, Sam.
Cascadden, Howard
Doughty, Arthur
Gardner, Thomas
† Gould, Chas.
Lepper, Al. J.
Mcleod, G.
McMaster, Jas.
Migneault, Louis
Miller, Raymond
Money, Alfred
† Paquin, Abraham
* Paquin, George
† Robb, Chas.
† Robb, George S.
Robb, Harry
Tear, Joseph
* Tryon, F. C. H. (Major)
‡ Willment, F. R.

CANADIAN LEATHERBOARD CO., LIMITED, CHAMBLY, QUE.

Hale, William
Hartley, James

EDWIN CRABTREE & SONS, LIMITED, CRABTREE MILLS, QUE.

Crabtree, W. H. A.
Stafford, Walter R.

DOMINION PAPER COMPANY, KINGSEY FALLS.

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Craig, Royal
Currie, Wm. Rollo
Grevatt, Gerinald S.
Raymond, John
Raymond, Pierre
Webster, Raymond

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Beeke, Jonas
Beeke, Joe.
† Berglund, Exel
Bremner, Herb.
Buckley, Wm.
Cassady, Wm.
Clark, Elmer
Clarke, Harold
x Cady, Alfred
† Crowe, John
Cunningham, Wm.
Doyle, Howard
Duplessie, Wm.
England, Stewart
Freigher, Wm.
Goddard, Jas.
Grant, Geo.
† Irving, John
† Jack, Wm.
Johnson, Joe.
Johnson, Percy
* Keoughan, Pat.
Keoughan, Lawrence
Keoughan, Wm.
Lackhart, Geo.
Lascobia, James
† Lyons, Finn
† McArthur, Ed.
† McAusland, Wm.
McDonald, Dave
McLean, Freeman
McMillian, John
McMurray, Andrew
† May, Ed.
† Mathers, Sam. (MM)
Miller, James
Miller, Louis
Miller, Stan.
Mitchell, Alfred
Moore, Alex.
Moore, Henry
† Oldfield, Horace
Palman, Rene
Philips, Chas.
Reed, John
Riley, Frank
Rix, Arthur
Sargent, Leonard
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Thibideau, Barney
Thibideau, Lazare
Turnbull, Braith
Tillier, Pete
Ward, Bert

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Hope, S.
Hyde, Harry
Raynor, Joe.
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Colotshok, V.
Delisle, John
Diatstok, F.
Emond, Emelien
MacKee, John
Masley, Sara
Michaud, August
Polivoy, Fedor
Sanfray, Kerilo
Sokowick, Sam.
Thompson, Chas.
Volinets, N.

THE DRYDEN TIMBER AND POWER COMPANY, LIMITED, DRYDEN, ONT.

Angloe, John
Antonio, S.
Armitage, E.
Bartlett, Sydney
Bawn, John
Bawn, Wm.
Belluz, A.
Berry, John
Bishop, Lielie V.
Butignol, G.
Candido, A.
Candido, L.
Cooper, Frank
Currie, Richard
Dearden, E.
Delcol, A.
Duncan, Albert
Duncan, J.
Ellis, W.
Fracca, V.
Findlay, Leslie
Findlay, Wm.
Gilbanks, R. (Sergt.)
Good, C. F.
Gue, James
Guiseppe, M.
* Gray, Geo.
Hardy, J.
Harris, J
Harris, John
Henderson, H. C.
Hodgkinson, Geo.
Hodgkinson, Geo.
Holm, Chas.
Horsley, Phil
Hunter, Geo.
* Johnson, J. (Sergt.)
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† King, Thos.
Lappage, Fred.
Learmonth, Lester L.
† Lock, A. J.
‡ Loutett, J.
Loutett, Wm.
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Luchese, M.
Luigi, M.
McLachlan, C.
McNab, G.
Marco, M.
Membry, W.
Mezzaroba, A.
Milanese, E.
Milne, A.
†oMoffatt, A. A.
Moffatt, Robt.
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Morettin, P.
Moro, A.
Morton, Fred.
Paullett, J.
Pearce, Fred.
† Philbrook, A.
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Poole, Joe.
Rehill, W.
* Riddell, J. B.
Romans, S.
Roman, Sylvester
Santin, A.
Santin, G.
Sellan, G.
* Sherwood, Chas.
† Sherwood, Fred.
Spence, Jas.
Steffan, W.
Story, Bert.
Stival, G.
Strange, Fred.
Supernaut, H.
Tesolin, G.
Toyne, E. H.
Tozzoli, C.
Vecchies, A.
† Wiles, F.
† Wilson, Bert.
Wood, A. R.
Wynne, P.
Zaliani, L.
Zanette, P.
Zentil, L.

THE E. B. EDDY COMPANY, LIMITED, HULL, QUE.

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† Branchard, Adelard
Brousseau, Joseph
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Collins, Ed.
Covell, Chas.
Craig, Wm.
Derrah, Orlie
Desjardins, Jean
† Desormeaux, Jos.
Emery, Albert
Emery, J. B.
Ford, Herb.
Fournier, Alp.
† Fournier, Ovila
Francis, Hy.
Fraser, J. E.
Goodere, W. S.
Godreau, Isodore
Gregory, John
Herbst, Roy
† Hubbell, E. S.
Irwin, Chas.
Jenner, Henry
* Kelly, T. A.
Kirk, Ernie
Kirk, W.
Legault, Denis
Legault, Denis
* Longpre, Ed.
Love, Hy.
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McElroy, Hewitt
† McWilliams, Alf.
May, William
Moore, John
Morrison, John
Navin, Harry
Nicholson, Dominie
Norris, Jos.
Olmstead, Harry
Ouellette, Thos.
Owen, J. C. F.
Pratt, Millen, (Lieut.) (MC).

THE FOLEY-RIEGER PULP AND PAPER COMPANY, LIMITED, THOROLD, ONT.

Barry, Robert E.
Bessey, Charles
Capone, James
Cooper, Joseph
Cooper, Robert
† Henry, John Thomas
Panzino, Giacomo

J. FORD & CO., PORTNEUF STATION, QUE.

Ford, Eric A.
Ford, Thos. B.
* Ford, Wm. D.
Henshall, Harry
Lamplough, Sydney

FORT FRANCES PULP & PAPER COMPANY, LIMITED, FORT FRANCES, ONT.

Bartley, C.
Bartley, E.
Berenger, A.
DePiero, J.
DePiero, O.
Gibson, John
Haley, John
Herron, M.
Herron, T.
Isherwood, W.
Jarmo, Tony
Lee, R.
Madison, John
Onghero, C.
Rogers, G. H.
Salter, J.
Sandilands, J. G.
Spraklin, P.
Stavner, Gus.
Winnebeck, E.

GARDEN CITY PAPER MILLS COMPANY, LIMITED, ST. CATHARINE ONT.

Cosby, Irvine
Downes, William
Hagar, Francis Leroy
Whitten, Fred.

GEORGETOWN COATED PAPER MILLS, LIMITED, GEORGETOWN, ONT.

Alger, T.
Armstrong, F.
† Best, Wm.
Dobbie, Thos.
Eason, T.
Foster, Harry
* Godfrey, Stanley
King, Fred.
Lewis, Harry
McGill, Roy
Page, Wm., Sr.
Page, Wm., Jr.
* Phillips, Wm.
Scott, Wm.
† Shepperd, Henry
Varey, F.

GUMMED PAPERS, LIMITED. BRAMPTON, ONT.

Barber, R. R. (Major).
Harris, Edwin
Harris, George
Neal, John

THE HINDE & DAUCH PAPER CO., LIMITED, TORONTO, ONT.

* Adams, Alfred
Adams, Fred.
Cebolina, Ulick
Clancey, Bert.
* Collins, Ned.
Collins, Tom
Eggleston, Victor
† Flanagan, Lawrence
Giddy, S.
Hamblett, Jack
Harmer, Charles
Hatton, George
Humphries, Harold
Hunter, Jack
Judd, Arthur
† Middleton, Arthur
Nicholson, Alfred
Roope, Arthur
Rousby, Harry
Shelton, William
Smith, Jack
Stoakes, Elgin
St. Denis, Moses
Wade, Sidney
Weeks, Sylvester

INTERLAKE TISSUE MILLS, LIMITED, MERRITTON, ONT.

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Byron, J.
Commerford, O.
† Downe, J.
Eroria, T.
Hopkins, M.
McCann, R.
Miers, S. D.
Pasquala, F.
† Startup, A.

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..Ashford, Ben.
† Barnes, B.
Bermuk, H.
Boes, James
Brisco, Jack
Davies, A.
Fenton, Wm.
Flint, Geo.
Gillies, Joe.
Graham, Geoffrey
Hansberger, Milson
Hipwell, A.
Lees, Frank
McDonald, J.
McLaren, Robt.
McLaughlin, Robt.
O'Neil Cyril
Ornchuk, Kinell
Parsons, W.
† Patterson, C. Stewart Capt.)
Plunt, Joe.
Robbie, Jas.
Thompson, Joe.

LAURENTIDE COMPANY, LIMITED, GRAND'MERE, QUE.

Acer, J. H. A. (Capt.)
Allistone, T.
Amy, H. E.
† Anderson, A.
Arhan, M. Jean
Aubin, Hector
Baribeault, P.
† Belanger, Alf.
Blunson, C.
Boisjoli, J. A.
Boyd, T.
Bracken, H. C.
Brooker, A.
Brown, Chas.
Brown, Harry
Brown, Robt.
Buys, C. F.
Campbell, L. L.
* Capstick, Geo.
Carle, Adene
Carson, Wm.
Catto, Norman
Charlton, Chas.
Church, T. A.
† Cope, Geo. (DCM
Cote, A.
Darchen, M. Francois
Darchene, Guillaume
* Dickson, C. B.
Dore, Frank
‡ Dore, G.
Duval, R.
† Eaton, R.
Ennor, W.
Farie, G.
Fellows, L.
† Flynn, Jas.
Gagne, L.
Gammell, A. M.
Gardiner, L.
Gauthier, H.
Gill, J.
Gingras, Fred.
Gingras, Olivier
o De Gramont, F. X.
o De Gramont, Theo.
Greer, John
Heli, G.
† Higgins, Jos.
† Hodges, F.
Howlitt, A.
Howlitt, W.
† Hubbard, M. P.
‡ Irons, Sam.
Keeling, C.
Keeling, F.
Keeling, G.
Kennedy, G.
Lamothe, A.
Lane, F.
Lane, O. B.
Lendrum, W.
* MacDonald, Malcolm
McCandlish, Wm.
McDonald, L.
McLaughlin, W. J.
McSkimming, T. W.
Marsh, H.
Mireault, P.
Moon, Al.
Moreland, A.
Morin, Alb.
† Mould, Leonard
Moore, Bert.
Ockenden, E. P.
O'Sullivan, J. J.
‡ Pearce, C. R.
* Pender, Jack
Pichette, A.
Pullem, Jack
Purdy, S.
Quigley, J.
Rathbone, H.
Rathbone, J.
Richardson, T. V.
Roberts, A.
Roberts, Earle
Roberts, Ernest
Rosarie, Prince
† Scott, J. S. (MC)
Spence, Cecil L. (Sergt.)
* Stamen, Geo.
Sunderland, J.
Thibodeau, J. F.
Waite, A.
Waite, R.
Webb, Jos.
Wilson, Robt.
Wilson, E. Jr.

ALEX. McARTHUR & CO., LIMITED, JOLIETTE, QUE.

Copping, T. A.
Prew, Harry
Rowlands, Harry A.

MACLEOD PULP CO., LIMITED, LIVERPOOL, N.S.

† Acker, Tony
Bennett, Wm.
Bent, Jas.
Braine, Fred.
Brown, R. D. (Sergt.)
Coombs, Fred.
† Dagley, Fred.
Downer, S. (Lieut.)
Frances, John
Frances, Peter
Freeman, Chas.
Freeman, Edw.
Harlo, Jack
Hartlen, Horace
Hatt, Ernest
Hatt, Kenneth
Joudrey, Archibald
Keans, Wm.
Legge, Frank
Legge, Jas.
Lohnes, Ralph
McKenna, Claude
McKenna, Ingram
McKenna, Jas.
McKenna, Lester
McKenna, Mike
McRea, Farquhar
Manthorn, Edward
Manthorn, Samuel
Oickle, Clarence
Oickle, Geo.
* Seamon, Frank
Wambolt, Eloyd
† Woodworth, Ralph

THE MILLER BROS. CO., LIMITED, GLEN MILLER, ONT.

Adrian, Donald
Bartlett, W. A.
Coulter, Clarence
Coulter, Manson
† Miller, A. P. (Major) (MC)
Michaud, Clovis
Smith, J.
Smith, J., Jr.

MONTREAL PAPER COMPANY, PORTNEUF, QUE.

x Bishop, A. L.
Bishop, L. P.

NASHWAAK PULP & PAPER CO., ST. JOHN, N.B.

Anderson, Sydney
Kimball, Geo.
‡ Linton, Frank
* Magee, Henry
Stacey, Joseph

NATIONAL PAPER CO., LIMITED, VALLEYFIELD, QUE.

Agnew, Arthur
Neil, John, Sr.
† Neil, John, Jr.
Reynolds, Jos.
† Robertson, Wm.

THE NEWS PULP & PAPER CO., LIMITED, ST. RAYMOND, QUE.

* Barron, J. S.
Barette, Xavier
x Clark, R.
Duplain, Arthur
Duplain, Joe.
Findlay, Frank
Goudreau, Jos.
† Martson, Stewart
* Palmer, W.
Plamondon, B.
† Rockette, J.
* Wilkinson, C. (Sergt.)

THE NORTHUMBERLAND PULP COMPANY, LIMITED, CAMPBELLFORD, ONT.

Andrews, V.
‡ Callaghan, Jack
Casselman, C.
Casselman, R.
Clarke, Geo.
Cole, W.
Collard, Will.
* Coulter, E.
Cowin, A. H.
Cross, Geo.
Hanna, Alex.
Hutchings, Alf.
Hutchings, Ed.
James, Alban
James, J. L.
Lloyd, Arthur
Lowe, Percy
Mills, Fred. (Corp.)
Page, Donald
Pryke, Herb.
Ray, Jack
Reynolds, G.
Rose, Fred.
* Savill, Chas.
Scott, Walter
Simpson, Roy
Smith, Herb.
Sweet, Everett
Williams, H. G.
* Williams, H. J.

THE ONTARIO PAPER COMPANY, LIMITED, THOROLD, ONT.

Alexander, Sandy
Barnes, B.
Bier, Albert
Calatti, Mike
Caldwell, Jack
Clark, Alonzo
Edgar, John
* Ellis, Jack
Farnsworth, W.
Gate, H. H.
Goodwill, John
Hill, R.
Kennedy, M.
Leitch, James
* Letch, Jack
McKie, E.
May, H. G.
Nicol, Jas.
* Perrin, A. E.
Powers, Wm.
* Pullar, F.
Purdem, F.
Rogerson, Jas.
Sawriga, Justyn
Shanley, Len.
Thomas, W.
Ward, W.
Wadsworth, R.
White, Wm.
Young, Cyril

POWELL RIVER COMPANY, LIMITED, POWELL RIVER, B.C.

Allen, R. H.
Alicoff, M.
Allsworth, T.
Baddeley, J. W.
Baghum, Ed.
Barr, J. W.
Banham, Jack
Baxter, G.
Bazzani, L.
Bazieff, Pete
Bennett, J.
Bestol, Mike
Billings, Bert.
Black, Alex.
Bryanton, R.
Cadiff, J.
Cameron, J. K.
Caroff, B.
Caroff, J.
Caroff, Mike
Caroff, Mir.
Carter, H. A.
Catieff, A.
Carver, Joe.
Chet, Jas.
Clark, J.
Clapp, Jas.
Coccola, A.
* Coles, Gordon
Cole, J.
Constable, Philip
Coroff, J.
Court, Gus.
Deafe, Jas.
Decker, A.
Detweiller, Jas.
Dignroff, A.
Doeff, Alec.
Doeff, M.
Doeff, S.
Dovenoff, A.
Doyle, W. D.
Dyeboff, R.
Edwards, J.
Edwards, W. C.
Elloff, Ali.
Falconer, J.
Farnan, J.
Fidar, A.
Fidaroff, Max.
Fraser, Thos.
Fray, Mike
Gagnon, J.
Gaudet, Carl
Gillingham, A. V.
Giloff, Alec.
Godiff, M.
Goodenoff, J.
Gosoff, A.
Gubieff, G.
Guy, J. W.
Hameroff, Mike.
Jubuloff, Jim.
Kameroff, Albert
Kameroff, G.
Kanoff, M.
Kapalf, J.
Kapauf, M.
Kardiff, Jim.
Karoff, A.
Karoff, Geo.
Keith, Len.
Kilpatrick, J. W.
Kindlan, J.
Knobloof, C.
Knotenzo, Alec.
Kozoff, W.
Kubaloff, A.
Kugoff, Alec.
* Lant, Thos
Lasser, O.
Lasser, R.
La Quire, B.
Leadbeater, R.
Leask, W.
Lister, F. H.
Lombard, R. W.
Lusk, T. J.
McAuley, Rod
McBryer, A. F.
McGowan, Jas.
McGuire, Wm.
McKenzie, J. W.
MacDonald, J.
Maliff, M.
Metcalf, H. B.
Mike, C.
Morontev, Lewis
* Moody, Chas.
Munn, M.
Murmeroff, A.
Nadzaragoff, A.
Nelno, Chas.
Nodoff, B.
Nodoff, Mir.
Nodoff, M.
Nudaloff, I.
Numsuroff, N.
Paron, A.
Paron, F.
Peacock, E.
Person, O.
Price, R.
Price, Leslie
Roberts, Dick
Roberts, W. H.
Rushant, Chas.
Santo, B.
Salagoff, A.
Sercoff, B.
Slossa, August
Soloff, Alec
Slossa, Lewis
Spencer, Walter
Stanley, Wm.
Stewart, S.
Stokes, D.
Street, Geo.
Sutherland, D.
Tagoff, M.
Tagoff, S.
Tarief, M.
Taylor, J.
Thompson, H.
Torchinoff, N.
Torching, M.
Urtaeff, Boris
Vadiff, B.
Vadiff, M.
Vadiff, Tom.
Vanoff, A.
* Washington, Geo.
Welch, Richard
Whitaker, A.
William, Stanley
Willis, F.
Wilshire, Dave
Yilshire, Sidney
Wilson, Jack
Woodward, F.
Zocoff, Gus.
Zokoff, R.
Zorath, A.
Zukoff, Mike
Zutz, Mike

PRICE BROTHERS & COMPANY, LIMITED, QUEBEC, QUE.

Allen, Benjamin
* Amy, R. A. J.
Amy, H. E.
Asselin, G.
Barker, Raymond I. P.
Bergeron, Rosario
† Bernier, A.
Bruce, Charles P.
Bruce, R. B.
Cade, Donald
Cade, Stanley
Campbell, Jas.
Carpenter, R.
Carpenter Wm.
Claridge, Wm.
Conley, C.
Connolly, Chas.
Corey, Irving B.
‡ Culling, E. C.
Cranston, Robert
Dale, Wm.
Delisle, Jos.
† Doucet, Romeo
† Drury, G. C.
Eagles, J. C.
Ewing, Robert
Falkenburg, G. D.
* Flood, Jos.
Flynn, Edw.
Creig, Robert
Garlinsky, Alex.
* Hartley, S.
Hick, H. C.
Hood, J.
Johnstone, Alex.
Johnstone, H. V.
Keatch, Hy.
Kelly, Corn
Kerr, S. A. W.
Lane, G.
Lapierre, S.
† Ledger, Edw.
Ledger, E.
McDonald, Thos.
† McKenzie, R. G.
McNab, Peter
Moat, H. A.
Miles, H.
Milliken, H. E.
Moore, E.
Nixon, J.
Oswald, J. D.
* Palmer, Wm.
Pounder, Ernest
‡ Powell, H. D.
Price, Sir William
Rennie, D.
† Robertson, Jas.
* Sheldon, Chas.
Sheldon, Geo.
Tansley, W.
Thompson, L.
Thompson, W.
Torrens, C. W.
Turner, C. M.
†o Wishart, Geo.
* Wright, W.

PROVINCIAL PAPER MILLS, LIMITED, TORONTO, ONT.

Abbott, Lawrence
Allen, Alf.
Allen, Thos., Sr.
Allen, Thos, Jr.
Antoine, Charlie
Bailey, Peter
Bedford, Ernest
Bedford, Sandy
Beerman, Ed.
Beerman, Harold
Bishop, S.
Blair, Jas.
Brownell, Ernest
Carcione, T.
Cortelleja, Mike
Demerest, Edward
Demerest, Joe.
Dewhurst, Saul
Dimond, G.
East, Vincent
Foley, Bernard
Francis, Henry W.
Garven, Gordon
Gaspore, Chas.
Hallaam, H.
Herbert, A. B. C.
Hickey, Harry
Hurley, J.
Jordan, J.
Kennedy, Elmer
Lawn, P.
Laws, Fred.
Letch, J.
Locey, Hamilton
McCartney, Fred.
McMaster, Robt.
McQuigen, Arthur
Manson, Gerald
Manson, Wm.
Maynard, Chas.
Miller, Thos.
Moore, C.
Moore, H.
Neale, G.
Nelle, Thos. Theo.
Nelle, Heman
Nicholson, G.
North, F.
Page, Thos.
Peace, John
Piner, E.
Robertson, D.
Saunders, W.
Sleightholme, A.
Sleightholme, Geo.
Smith, B.
Stewart, Robt.
Tapp, W.
Trowbridge, F.
Tuck, Nelson
Varey, Floyd
Vidler, E.
Wagstaff, Fred.
Wheeler, Hudson
Woods, Pete

RITCHIE & RAMSAY, LIMITED, TORONTO, ONT.

Anderson, John
Barclay, Samuel
Campbell, Fred.
Cochrane, Jas., Jr.
Cooper, Albert
Court, Charles

RIORDON PULP & PAPER CO., LIMITED, HAWKESBURY AND MERRITTON.

Allard, A.
† Bates, Harold
Belmore, R.
Boydell, John
Boydell, W. H.
Buchanan, J.
Cadieux, A.
Chown, A. Scott (Q.M.S.)
Coley, J.
Deslaurier, J.
Etchells, R.
Fenton, Alexander, (Capt.)
Fleve, J.
Figure, R.
Ford, Wm. F.
Garlieg, Ben.
Grace, Robt. L. (Lieut.)
Gwynne, Grant
Handyside, L. R.
Hanley, J.
Harkens, John
Hilliker, Robt. (Sergt.)
Hock, Steve.
Howe, John, A.
Hughes, Walter
Jacco, D.
Jeanotte, P. E.
Jewett, H. Dana
Kennedy, Patrick
Labelle, Charlie
Lamb, T.
Lampron, Andree
Lariviere, Thos.
* McGillis, J.
McGlinchy, Frank
McMeekin, Walter
Pratt, F.
Ranger, Adelard
Ranger, Joe.
Read, Charles E. (Capt.)
* Robilliard,
† Rochon, Wilfred, (Corp.)
Sapeleink, Gabriel
Seviyuik, E.
† Smith, Clarence E. C.
Taylor, Milton J. (Sergt.)
Timbers, Arthur
Turnbull, John
Webster, R.
Weldon, H. L. (Q.M.S.)
White, Harry H.
White, J. B. (Lt.-Col.)
Whittey, Walter
Williamson, W. A. (Lt.)
Wilman, Samuel L. (Lt.)
Willis, Jos. (Q.M.S.)
Willis, Rolland
Yenor, J.
Yuhimuik, Pavel

THE ROLLAND PAPER CO., LIMITED, ST. JEROME, QUE.

† Brisebois, Janvier
Cuierrier, Raoul
† Hamel, Jean
Lauzon, Joseph
Leclair, Edmour
Maher, Alphonse
† Ouimet, Raoul
Paret, Henri
Rheaume, Donald

ST. CROIX LUMBER COMPANY, ELLERHOUSE, N.S.

Bates, Howard
Bouchy, Fred.
Burgwin, Herbert
Crowell, John
Dill, Tim
† McMullen, Bert.
McMullen, Norman
* Rafaelll, Alfonso
Smelter, David
† Taylor, Ernest
Wheadon, Clarence
Wile, Perley
Williams, James

ST. MAURICE PAPER CO., LIMITED, CAP MADELEINE, QUE.

Boucher, Nelson
* Ethier, Damase
* Hall, Albert.
Tyhurst, Robert (Capt.).

ST. GEORGE PULP & PAPER CO., ST. GEORGE, N.B.

Buckley, Albert
Bullock, Myrl
Crowe, Arthur
Goodeil, Roy
Hatt, Arthur
Hewitt, Harry
Little, John
McCarten, James
McDermond, Al.
McGrattan, Hugh

Phillips, Harry
Smith, Frank
Turner, John
x Wilcox, Harry
Winthrope, Wm.

HOWARD SMITH PAPER MILLS, LIMITED. BEAUHARNOIS, QUE.

Bindoff, Bert.
Hall, R. B.
Hubley, T. M.
Kelly, Jas. J. (Sergt.) DCM
Smith, E. Howard (Lt.)

THE SPANISH RIVER PULP & PAPER MILLS, LIMITED, SAULT STE. MARIE, ONT.

Abeico, R.
Alberto, U.
Amadori, F.
Anderson, C.
Anderson, John
Atkinson, R. V. (Capt. and Paymaster)
Beaton, J. R. H. (Lieut.)
Benton, R.
Bradley, A.
Bradley, A. F.
Brown, H.
Carey, Edward
Cesare, S.
Charoni, D.
Chestle, Geo.
Clarey, D.
Clearey, D.
Collins, F.
Costa, Rocky
Cotgrave, C.
† Cotgrave, M. L. (Lieut.)
Crawford, Richard
Dairymple, Chas. (Lt.)
Desaulnier, Jos.
Deschene, P.
Denman, Oliver (Lieut.) (DCM,) (MM)
Dominico, D.
Dube, A.
Embley, A.
Ferguson, W. G.
o Finch, L.
Flanigan, G.
† Foot, W. P. L.
Fortunato, B.
Francisco, F.
Fuller, J.
Gallipoe, E.
Garrison, Fred.
Gregory, Wm.
Hanrahan, T. P.
Hotte, H.
Janalo, P.
Jones, C. H. L. (Lt.-Col.)
Kinchesly, C.
Lacuyer, H.
Lansdowne, R. A.
Lang, F. W.
† Larballister, Nelson
Lartie, Fred.
Laroque, H.
Lockwood, Harold
Lord, Wm.
Lazora, M.
Louise, M.
Luigi, C.
Luisi, M.
McKie, B.
McLeod, Thos.
McWilliams, J. A.
Magyicel, M.
Mallo, C.
Marriott, F.
Martin, C.
Mephon, Fred.
Merchant, D. S.
Morin, D.
Moroconi, A.
Moroconi, P.
Needham, Wm.
Obey, Geo.
O'Neill, J.
Perfette, A.
Pilkington, Leonard
Raffali, M.
Raiffaile, M.
Rando, D.
Rando, J.
Read, W.
Reid, Ben.
Reid, Howard, N.
Rodgers, P.
Rogers, W.
Rogers, H.
Rogers, V.
Roy, A.
Ruskin, P.
Salvatore, F.
Stack, Hugh
Stouglo, M.
Veneruci, G.
† Venn, P.
Warren, C. P. R.
Wickenden, Geo.
Yuill, J.

THE STRATHCONA PAPER CO., STRATHCONA, ONT.

Hawley, Manley
† Mowers, Timothy

TORONTO PAPER MFG. CO., LIMITED, CORNWALL, ONT.

Benoit, Robt.
Colborne, Geo.
* Colborne, Mike
Cross, Alex.
Doublas, Herb.
Forbes, Allen
Girard, John
‡ Hale, Geo.
† Hancock, Walter
Higgins, Wm.
Hobson, Arthur
Houston, Thos.
Kinghorn, Wm. Arthur
Locey, John
† Roberts, Fred.
Sauve, Jas. F.
Stacey, Ben.
Stacey, Frank
Stuart, Robt.
Wattie, Geo.

WAYAGAMACK PULP & PAPER COMPANY, LIMITED, THREE RIVERS, QUE.

* Adams, Jack B.
Barlbeau, Armand
Biron, Antonio
Boberg, Harmen
Boisclair, Johnny
Brosseau, Antonio
Cameron, W. H.
Champagne, Donat
Christie, James
Crete, Georges
Deseliiers, Alphonse
Douther, A.
* Fotheringham, Jas.
Gillis, R. A.
Girard, Jeffrey
Gregoire, Fred.
Hamilton, Richard J.
Hardy, Archie
Houle, Willie
Houle, Wm.
Johnson, Geo.
Larose, N.
Lebrun, A.
McQuade, M.
McGuigan, S.
Miller, Fred.
Monkerud, John
Piche, Emile
Precious, Henry
Pykett, Fred.
Rebindaine, E. S.
Robitaille, Geo.
Scott, Richard
Settestrom, E.
Simard, Phillipe
Smith, F. Batron
Tremblay, Emile
Walker, E.
Walker, J. A.
Watson, Arnold
Wilson, E. L.
Zellan, Nils Af.

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* Killed.
† Wounded.
‡ Missing.
x Died.
o Prisoner.
MM Military Medal
MC Military Cross.
DCM Distinguished Conduct Medal.
DSO Distinguished Service Order.

THE INDUSTRIAL SITE AND THE TRANSPORTATION PROBLEM.

By F. W. COWIE, B.A.Sc., M.Inst.C.E.

Industrial coporations have achieved success beyond expectations in Canada during the past several years. "System" resulted in general managers who are now presidents. "Organization" combined system with concentration, resulting in lower overhead charges, less direct competition and less duplication. This was the foundation keynote of the success of some of our largest and most successful corporations, whose presidents are now millionaires.

Why is not the real, vital, economic question of transportation taken into first consideration, as, after all, next to good and ready labor, it is the key to success.

Where will the shipments come from? How will they come? What will be the cost? How about the despatch? How about terminal charges?

How can delivery freights be reduced to a minimum by locating at a centre where a large proportion of the output will be consumed or taken delivery of locally? Where can cars always be obtained? How much will be the terminal charges for roads not connecting with plant sidings? How can plant sidings be simplified and shunting reduced to a minimum?

We hear of one firm located most advantageously on a canal site, but business is disorganized in winter, when navigation is closed.

Another is given splendid terms by a railway company, but it is difficult, often impossible, to get cars. This successful company has urgent business at good profits, but despatch being impossible, it is lost. An enterprise has the last call in some up-to-date production, but as it is located on a local railway, it costs 4 cents per 100 lbs. over the local or city rate for terminal charges and switching. A twenty-million-dollar enterprise is located where not one ton of its tremendous tonnage output will ever be consumed locally, and has to compete with a firm supplying half its output to the local firms at practically no delivery costs.

It is most refreshing to hear that in many large centres of population and industrial activity the question of terminals and radial or marginal railways is at last becoming a governing factor of success or failure. The more congested the district the more it will cost, and cost what it may, it must be incurred or the community will be left behind.

Ten cars per day in and ten out is an ordinary industrial turnover. At 2c per 100 lbs., for one extra switching rate, and the average is generally more, there is a fixed charge against the business of $200 per day, or $60,000 per annum.

Despatch in delivery and the question of cars is of almost equal economic importance.

Capatilists would do well to see that this important matter is carefully considered before they subscribe financially to new industrial undertakings.—Contract Record.

An Analysis of the Pulp and Paper Business in America

In the past year the attention of the investing public has been drawn to the pulp and paper industry, which, for a number of years had attracted little notice, but suddenly jumped into prominence through an unprecedented shortage in the material and a remarkable increase in the profits of companies engaged in the business.

As far as known, no statistics with reference to this industry have been generally circulated. In an effort to determine whether the shortage of material and the sharp rise in the security market was due entirely to the war, or in part to the normal growth of the business, we prepared a graphic analysis of the industry, part of which is here published.

The latest available Government figures covering the production of pulp and paper in this country are contained in advance sheets of the census of manufactures for 1914, showing a production in that year of over $332,000,000 or over $1,000,000 per working day. As these figures were compiled before the war and before the existing abnormal conditions in the business, they may be taken as a reliable index of the normal growth of the industry.

The official figures are as follows:

Census of 1914.

Number of establishments*	718
Persons engaged in manufacture	95,516
Proprietors and firm members	221
Salaried employees	6,838
Wage earners (average number)	88,457
Primary horsepower	1,613,916
Capital	$534,625,000
Services	66,164,000
Salaries	12,918,000
Wages	53,246,000
Materials	213,181,000
Value of products	332,147,000
Value added by manufacture (value of products less cost of materials)	118,966,000

*In addition, in 1914, nine establishments engaged primarily i nthe manufacture of paper boxes and roofing materials and in other industries produced paper and pulp to the value of $2,767,407, and in 1909 fifteen establishments of this character manufactured $2,567,267 worth of paper and pulp.

In Diagram Number I is shown the growth from 1859 to 1914, by successive stages. The increase from $21,216,800 in 1859 to $332,147,000 in 1914 is remarkable not only for the large percentage of growth in each period, but for its regularity. It will be noted that from 1909 to 1914 the line representing the production of pulp and paper is virtually a straight one and would seem to indicate that the normal increase in the demand for paper in this country can be foretold in advance, and that under normal conditions and prices the output in 1916 would have exceeded $345,000,000, irrespective of the war, which has added not only to the quantity but to the total value of the output.

The growth of the industry in this country is the more remarkable when taken in connection with our increased imports of pulp and paper from Canada under the existing tariff, which admits pulp and paper of the cheaper grades free of duty.

The figures covering Canada's exports to us are available to March 31, 1916, and show the following:

Year ending March 31,	1906	1916	Increase
Wood Paper	$2,419,628	$9,372,769	287 3/10%
Paper	158,474	16,888,530	965 7/10%

Diagram Number II shows the value of pulp and paper exported from Canada to the United States in each of the past ten years. The fiscal year of Canada ends March 31, as above stated, and the last figures shown are estimated, based on the months already reported. It is felt that this estimate is too conservative. This diagram taken in connection with Diagram Number I, shows that despite the very large increase in our own manufacture of pulp and paper, we have had to call upon Canada for a large annual increase in the value of pulp and paper shipped to us. Diagram Number III shows the relation of our newsprint consumption to the amount supplied by Canada has changed from 1910 to 1916.

It is frequently stated as a reason for the scarcity of paper and pulp and the corresponding high prices, that imports from abroad have been shut off due to the war.

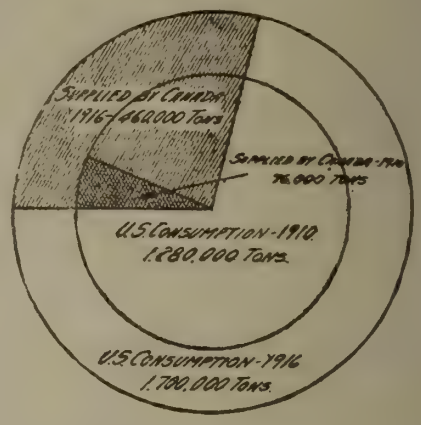


DIAGRAM NO. III.

As a matter of fact, our imports from foreign countries, other than from Canada, were relatively small even in the year ending June 30, 1914, when our imports of pulp reached the total of 274,319 tons or slightly more than our imports of pulp from Canada in that year. Our imports of paper from Europe are negligible, amounting to only two or three thousand tons. As our production of pulp in this country in 1914 was 2,893,150 tons it will be seen that our imports from abroad are less than 9% of our requirements, and on the basis of our normal increase in consumption in this country, the amount imported from Europe is less than three years' increase in our demand for the product.

It would therefore seem that a resumption of shipment of pulp from abroad would reduce the price somewhat but not overstock the market.

Diagram Number IV shows the tons of Wood Pulp imported into the United States and the principal countries from which imported in the year ended June 30, 1914, before the war and in the two years of the war. It also shows corresponding figures for our imports of newspaper. From these figures it is apparent that we are looking more and more to our neigbors for our supplies of this sort, which, in view of Canada's

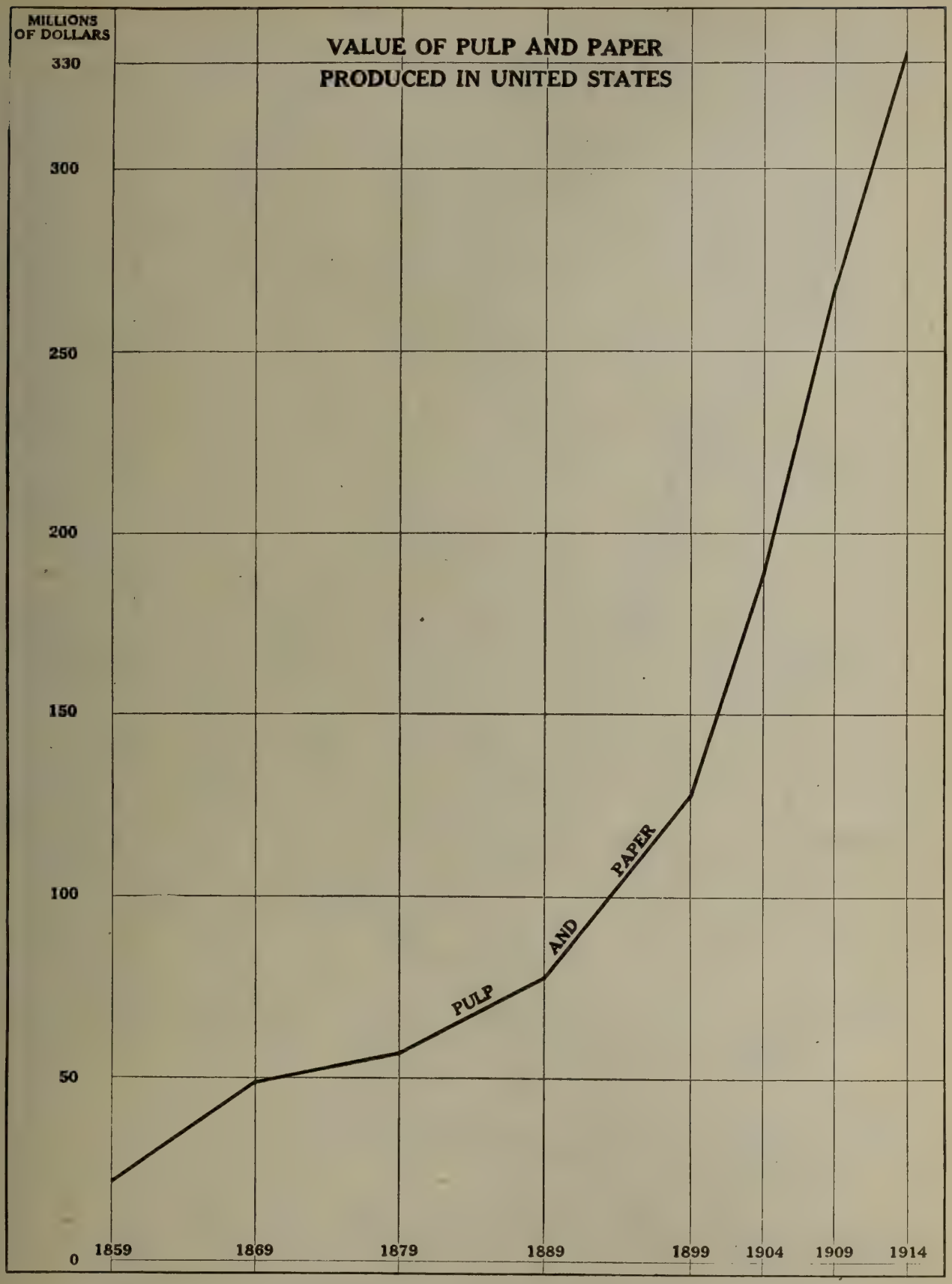


Diagram Number I, showing the value of pulp and paper produced in the United States, as shown by the official United States Census of Manufacturers, from 1859 to 1914, which is remarkable for the regularity of the increase in the value of the product.

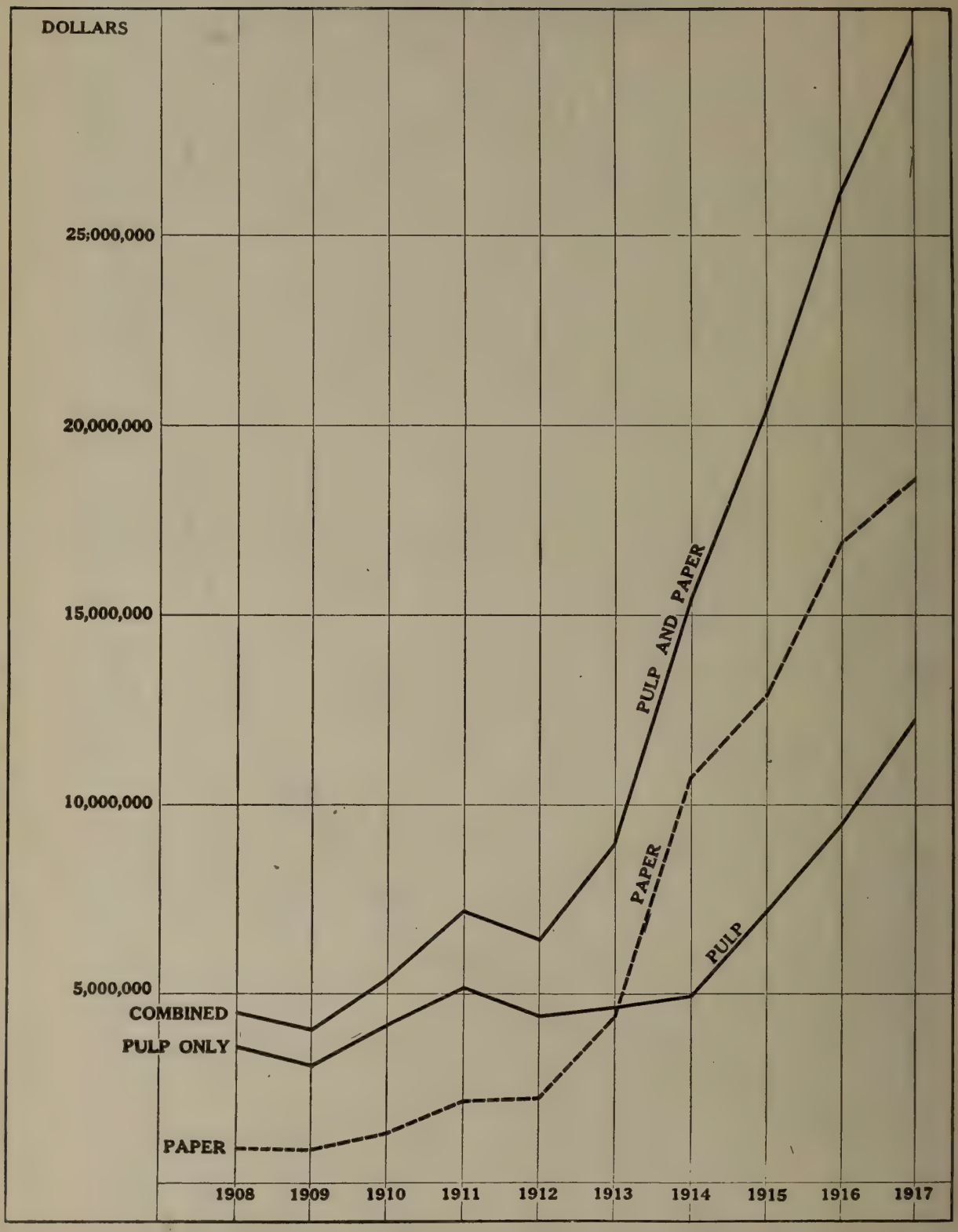


Diagram Number II, showing the value of pulp and paper combined, and of paper and pulp exported by Canada to the United States, for the year ending March 1908 to 1917, inclusive, the last few months of the present fiscal year being estimated.

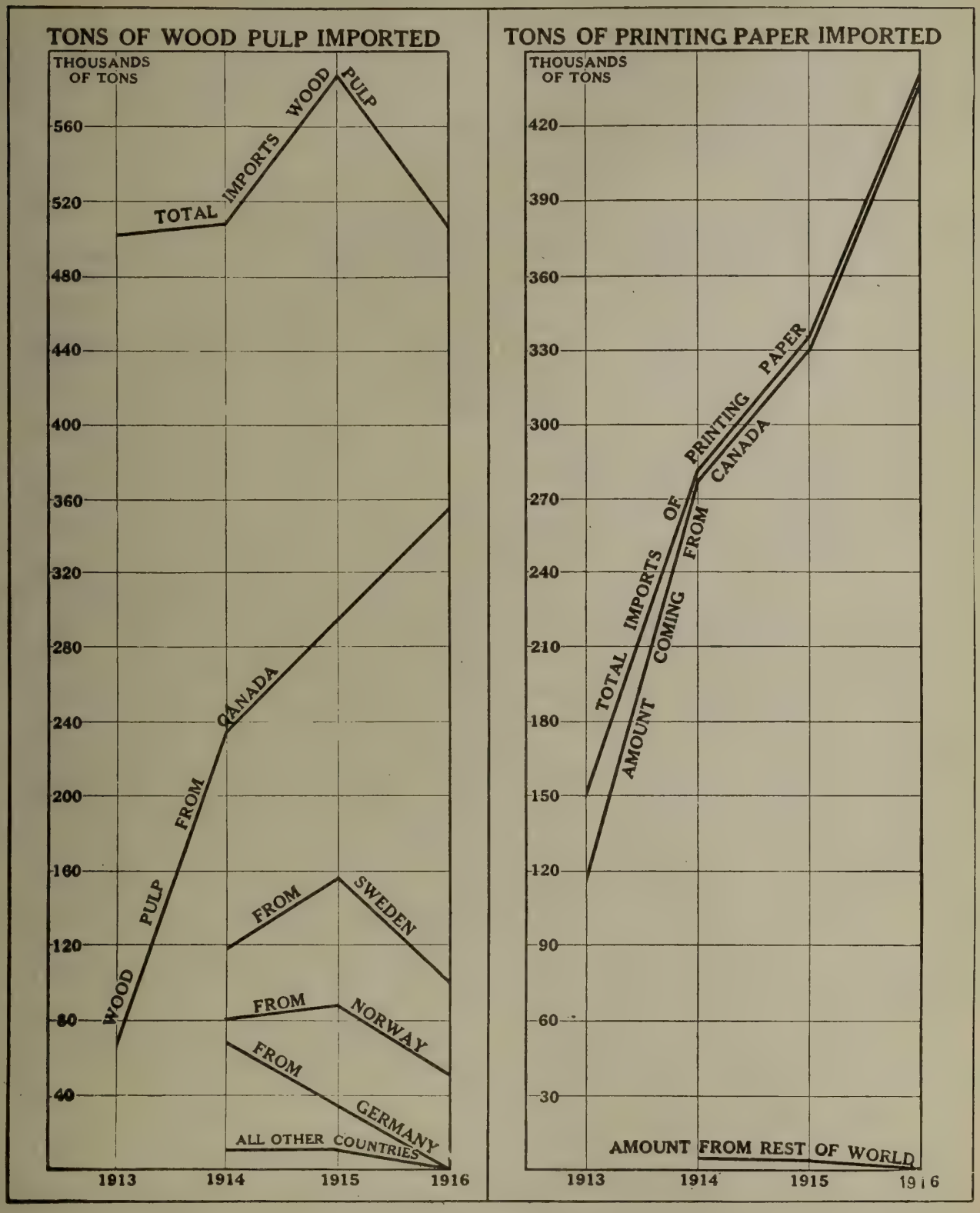


Diagram Number IV, showing the tons of wood pulp and the tons of printing paper imported into the United States in the years ending June 30, 1913 and 1914, prior to the war and in the two fiscal years of the war. The wood pulp imported from Canada in 1914 was nearly equal to the total imports from the rest of the world. Under war conditions, our imports from Canada greatly exceed thsoe from the rest of the world. The diagram also shows that practically our entire imports of printing paper come from Canada, the amount from the rest of the world, even before the war, being practically negligible.

large purchases from us in other lines, is highly desirable from a business standpoint.

One of the facts brought out by our study of the figures is the rapid growth of the pulp and paper industry as compared with the growth of population.

From 1869 to 1914 the population of the United States increased 155.9% as compared with an increase of 579.9% in the value of pulp and paper produced. Corresponding figures for the increase in the output of Steel Works and Rolling Mills show an increase of 567.7%, or slightly less than the increase in the value of pulp and paper produced.

While the total figures are much greater in the case of the iron or steel industry, pulp and paper, employing over 95,000 persons, and more than $534,000,000 of capital, deserves to rank as one of our great industries.

The unusual impetus given to the industry has already placed many weak paper companies on a tsrong financial basis and the industry as a whole is not only in a strong position to-day, but should continue permanently in a strong position among our great industries.

In view of the present shortage and the large annual increase in our requirements, it seems likely that even with Europe shipping pulp to us freely, American and Canadian mills must work to capacity to fill the growing requirements of this country.—De F. H. in "The Financier".

SLOW BURNING AND MILL CONSTRUCTION.

By A. R. DENISON.

The slow buring system is a most desirable type for the erection of factories, warehouses, etc. The following reasons may be advanced in favor of this form of construction:

1. Economy in cost, in time required for erection, in space occupied by walls, posts, piers, etc.
2. Durability, strength and simplicity of construction.
3. The inexpensive and ready manner with which beams, posts and ceilings allow of the erection of hangers, pulleys, shafting, bracketing, piping and electric wiring.

The beams, posts, and joists all being of large size and exposed to view, and the floors being of thick, solid body, permit efficient fire protection as the sprinklers are placed so as to allow the water to come in direct contact with the entire surface. There are no ducts or enclosed spaces in floors or walls, thus preventing fire from climbing unseen throughout the building.

Cheaper Than Concrete.

The cost of this system of construction as compared with reinforced concrete is as 3 to 4. The time required for erection is as 3 to 5 in favor of slow-burning construction, the strength in each case being equal.

Should alterations be required in a reinforced concrete building, the cost is very large and a great length of time is required to perform the work. On the other hand, the slow-burning system is inexpensive and a very short time is required for the completion of alterations.

If the slow-burning system is used and proper attention is given to the matter of enclosing elevators, staircases, etc., with brick or other non-combustible walls with metal-covered fire doors for all openings into these compartments, and provided the building is properly sprinkled throughout, then the cost of insurance as compared with a reinforced concrete building is 8c per hundred for a slow-burning building and 10c per hundred for reinforced concrete building.

As between the slow-burning system and mill construction, I strongly advise the slow-burning system, as the floors are more rigid and steady under machinery.

Mill Construction.

This system of construction is similar to slow-burning, with the following exceptions:—

1. There are no joists or hangers.
2. The floors run from girder to girder and are formed by spiking 2 x 4 in. material together and finished with 7/8-in. maple surface.
3. As there are no joists the walls would require to be anchored to floors, and the floors strapped across the girders. There would be a saving of timbers, but a quarter extra quantity of flooring and extra labor would be required in laying the floor.

Not So Steady with Machinery.

This form of construction is very popular and is equal to slow-burning in the support of floor loads, but no so rigid and steady where machinery is used.

In all cases where large timber is used for columns or posts a 1-in. diameter hole should be bored through the entire length with 1/2-inch cross holes top and bottom to allow drainage and to provide ventilation. There also should be holes in bases and caps to allow drainage. I strongly advise the use of water paint in preference to oil paint, as this will allow evaporation.

Kind and Quality of Timber Important.

The most important item to be considered in these systems of construction is the kind and quality of timber, and in my opinion British Columbia fir meets these requirements to the letter. My firm have planned and have charge of the erection of thirty of these buildings, and in all but three cases British Columbia fir was used with entire satisfaction. In the other three cases Georgia pine was used, and I am sorry to say much of the timber had to be removed through dry-rot setting in.

Some years ago writer forwarded several sticks of timber of exact size and length to the School of Practical Science so that a test might be made. The tests were made under similar conditions, and the Georgia pine broke at 43,000 lbs., while the British Columbia fir did not show signs of failure till 57,000 lbs. was reached.

DEMAND FOR PAPER IN JAPAN.

A communication recently received by the Department of Trade and Commerce from a publisher in Japan includes the following inquiry:—

"I shall be glad if you can put me in communication with Canadian paper exporters who would like to open trade with Japan. If they could send me samples and prices with freight rates of printing and writing paper, I might be able to send some good orders. Paper of all kinds is rather scarce here and high too. I am much interested in paper, especially that used for typewriting and stationery, which is difficult to get in suitable quality."—(Trade Inquiry No. 659.)

Review of Recent Articles of Interest to the Pulp an d Paper Industry

Making Milk Bottles of Paper.—Scientific American, March 17, 1917.—An illustrated article descriptive of a machine for turning out 216 bottles in 150 seconds. One ton of mechanical pulp will produce 60,000 containers. Poorly written but interesting pictures. — A. D. C.

New Brunswick Spruce Production Costs. — Can. Lumb., Vol. 37, No. 7, p. 22, April 1, 1917.—An analysis of the operating and selling expenses of spruce lumber production in New Brunswick, based on actual mill reports.—H. N. L.

Spring Clean-Up Prevents Lumber Fires. — Can. Lumb., Vol. 37, No. 7, p. 23, April 1, 1917.—Important measures for removing dangerous conditions in lumber yards and plants, as given by the Canadian Lumberman's Insurance Exchange.—H. N. L.

Canada's Work in Forest Research.—W. B. Campbell, Can. For. J., Vol. XIII, No. 3, pp. 1021-2, March, 1917.—A review of the work being carried on at the Forest Products Laboratories, Montreal.—H.N.L.

Slow Burning and Mill Construction.—C. E. Denison, Contract Record, pp. 219-20, March 14, 1917.—Slow burning construction is the best type for factories, warehouses, etc., for the following reasons: (1) economy in cost, in time required for erection, in space occupied by walls, posts, piers, etc; (2) durability, strength and simplicity of construction; (3) the inexpensive and ready manner with which beams, posts and ceilings allow of the erection of hangers, pulleys, shafting, bracketing, piping and electric wiring. In practice Douglas fir has proved to be the best wood to use. Details of construction are given. When properly protected may be insured at low rate. Also in Pulp and Paper Mag. Vol. XV. (1917), p. 374.—N. H. L.

The Motor Car in Timber Guarding.—G. P. Melrose, Can. For. J. Vol. XIII, No. 3, pp. 995-7, March, 1917.—Trial in Vernon district, B.C., shows 100% gain over horse travel.—H. N. L.

Slash Disposal as a Commercial Proposition.—B. W. Lakin, Can. For. J., Vol. XIII, No. 3, pp. 1003-4. — Method of handling slash on the limits of the Crookston Lumber Co., Minnesota, as the result of 10 years practice, also in Pulp and Paper Mag. Vol. XV. (1917) p. 339.—H.N.L.

The Cost of Aerial Patrol.—W. T. Cox, Can. For. J., Vol. XIII, No. 3, pp. 1015-6, March, 1917.—Use of the flying machine in protecting forests from fire.—H.N.L.

Forestry the Keystone of Wood Industries.—Ellwood Wilson, Can. For. J. Vol. XIII, No. 3, pp. 1017-20, March, 1917.—Canadian forests must be properly protected from fire and must be handled by trained foresters if they are to be of permanent value to the Dominion, both as a source of timber and as regulators of water-power supplies.—H. N. L.

Starches-Properties Useful to Mills.—By I. M. MacNider, Paper Vol. 20, No. 1, Mar. 14, 1917, pp 16-18 and Vol. 20, No. 2, Mar 21, 1917, pp. 16-17.—Discusses the source, purification and chief characteristics of starches produced to meet widely varying demands. Illustrated.—E.K.M.

Means of Purifying Boiler Water.—By K. Hv. Knudeen, Paper Vol. 20, No. 2, Mar. 21, 1917, pp. 13-15.—Deals with the formation of scale, methods of preventing it and analytical methods for the determination of hardness—E. K. M.

Notes on the Requirements of Certain Classes of Paper.—By Henry Aldous Bromley, Paper Maker and Brit. Paper Trade J. Annual Number 1915-16, Vol. 52, p. 59. **Absorbent Papers. Blottings**—The best blottings are made from well matured cotton rags. Many papermakers sour their rags after boiling to decompose lime salts left. Soda pulp is found in the cheaper varieties. Hairiness on the surfaces tends to cause a smudging of the ink. Coloring tends to lessen the powers of capillarity of the fibre. **Filter papers**: May consist of all cotton or this fibre mixed with a proportion of wool. The best are treated with hydrochloric and hydrofluoric acids to remove the small proportion of mineral matter present. **Duplicatings**: They should be sufficiently absorbent to allow copies to be taken which can be laid on top of one another without the ink smudging. An 80 per cent furnish of soft bleached, soda pulp and 20 per cent rag will give these properties. **Wrapping Papers. Browns**: Good browns are composed of a furnish of a good quality of hemp rope waste and are "air" dried as opposed to "cylinder" drying. Air drying allows of the retention of the natural flexibility of the fibre. **Cutlery Browns** should be free from chemical residues (sulphur compounds) which would tarnish metal goods. **Parchment Papers, etc.**: Real parchment paper consists of unsized rag paper which has been passed through a bath of sulphuric acid. The tensile strength is increased three or four times. Imitations may consist of sulphite only or sulphite (60 per cent) and straw prepared by long beating. "Pergamyu" grease proof imitation parchment is prepared by treating sulphite pulp with glycerine and a larger amount of size. **Miscellaneous Special Paper. Music and programme Papers**: Should have a close finish, a good surface, and free from rattle. A furnish of well bleached and beaten sulphite fills these requirements. **Insulation Papers**: Strong manilla fibre is the best material, beaten long to give strength, well sized with rosin, and free from chemical salts and residues. **Cigarette Papers**: Should be evenly made, all rag (linen or bleached hemp) and as free from mineral residue as possible. The paper should be tasteless and free from smell when burning. **Art and chroms Papers**: A good paper should have a furnish of 50 per cent esparto and 50 per cent soft chemical wood pulp as these papers require a high degree of flexibility. Blanc fixe is the best material for dull finished arts and chroms.—E.K.M.

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UNITED STATES NOTES

(Special Correspondence).

It is understood that 25,000 tons of wood pulp is stored in Baltimore. The amount is four or five times in excess of that held there during normal times. The pulp was shipped from Norway, the congestion being due, it is claimed, to freight congestion. It is practically all supposed to have been bought by mills.

The Miami Paper Company of West Carrollton, Ohio has installed a electrolytic bleaching plant and also a modern power plant. The power plant is one of the best equipped and most modern in the country. The buildings are substantial, and in every way the improvements are of such character as this famous mill town may well be proud.

Alterations in the offices of the American Pulp & Paper Association 18 East 41st Street, New York City are under way. The large meeting rooms are to be used as private offices and partitions separating the various divisions of the association have been erected. The floor space will be used to better advantage under the new arrangement and the Pulp Manufacturers' Association will have larger quarters.

The Eastern Manufacturing Company is planning to build a 30,000 ton coal discharging plant at its Lincoln, Me. pulp mill. The plant will be capable of discharging 200 tons of coal an hour. The equipment will include a track hopper built directly under the railroad track, into which the coal will be dumped. It will be taken from this hopper by a bucket elevator up to an elevated storage bin, and the coal from the bin will fall into narrow gauge cars, which will run around on trestle work about 25 feet high immediately over the storage pile. These cars will be driven around on the trestle by a continuous cable.

Advices from Ocean Falls, B.C. state that the new mill of the Crown-Willamette Paper Co. with a capacity of 100 tons daily will be ready for operation about April 15. Provision has been made in the construction of the plant for a second unit of 125 tons daily capacity. The new mill will make both news print and kraft for shipment to Pacific Coast points and Australia.

The maximum capacity of the 42 mills reporting to the News Print Manufacturing Association for the month of February was 134,184 tons, or at the rate of 5,591 tons daily. The actual production was 90.3 per cent. of maximum, or 121,189 tons, or at the rate of 5,050 tons daily. Shipments amounted to 116,330 tons, 4,859 tons less than was manufactured, the percent. of maximum of shipments being 86.6. The stocks on hand at the end of February amounted to 48,488 tons, compared with 86,135 one year ago, a decrease of 37,647 tons. The percentage of maximum of the American mills, for the month was 87.3 while the Canadian percentage was 97.9, the Canadian mills being, apparently 10.6 per cent. more efficient than the American.

John J. Sulivan, who for eight years, has been superintendent of the Eastern Manufacturing Company's pulp and paper plant at South Brewer, Me. has resigned to engage in business on his own account as a consulting engineer. He is succeeded by Henry J. Gould.

Reforestation is practiced by the Pejepscot Paper Co., of Lisbon Falls, Me. During the past five years Julius Shutt, the head of the forestry department of the company, has planted 750,000 trees, 500,000 of which have been transplanted in lands owned by the company. The company has a number of nurseries, and the trees they are planting or transplanting at the present time never will be cut by the men who have the matter in charge. They are intended for future generations. Some of them, such as Norway pine, will not be ready for timber for seventy-five years.

The San Bernardino Wholesale Paper Brockage Company of San Bernardino, Cal., opened for business on March 26. A new warehouse 50 x 64 feet has been equipped with modern machinery, including a new self-registering set of scales. The company will carry on a general waste paper business under the management of G. G. Williams.

The Nashua Gummed and Coated Paper Company at Nashua, N.H. has established a sick benefit fund among its employees. The company will also devote the upper floors of a house next to its factory for reading, rest and smoking rooms for employees.

A public paper mill is advocated by David F. Houston, Secretary of Agriculture, in a report in which he deprecates the necessity for American publishers to be dependent on Canada for their supply. The privately owned paper plants for the West, he says, might be supplemented by the erection of plants on Government forest reserves. A mill with a capacity of 100 tons a day can be constructed in Alaska for $2,500,000 and even such a plant would pay for itself in a short time, he declares.

AMERICAN TECHNICAL ASSOCIATION MEETS AT NEENAH, WIS., IN MAY.

Members of the Technical Association of the Pulp and Paper Industry have received the following preliminary notice from Secretary T. J. Keenan in regard to the annual spring meeting. "As the time is short I am taking this means of notifying you of the place and date of the Second Annual Spring Meeting of the Technical Association of the Pulp and Paper Industry. The meeting will be held at Neenah, Wis., on Thursday and Friday, May 24 and 25, 1917. Headquarters will be at the Valley Inn, Neenah, and arrangements are in charge of Ernst Mahler, of the Kimberly-Clark Company, Neenah. Full particulars of the program will be sent later, but meantime, don't forget the name or date. Be at Neenah, Wis. on May 24 and 25, 1917, sure. You are needed there."

Members of the Technical Section of the Canadian Pulp and Paper Association will be welcome.

PAN-AMERICAN EXHIBITION.

A movement is on foot and studies are being made with the object if possible of holding a Pan-American exhibition at Vina del Mar, the popular residential suburb of Valparaiso, in the early part of 1918.

BOSTON ASSOCIATION'S BANQUET.

Officers Elected and Interesting Addresses Made at Thirty-first Anniversary Banquet of Boston Paper Trade Association March 21.

An unusually interesting and entertaining evening was spent by the members and guests of the Boston Paper Trade Association on the occasion of the thirty-first anniversary banquet of the rganization March 21. There was a large attendance, a great number of paper men from other than the New England district being present.

A feature of the elections was the election of officers, the following being named for the ensuing year: President, C. L. Biard; first vice-president, M. H. Warren; second vice-president, H. W. Mason; treasurer, T. H. Casey; secretary, John A. Andrew. Executive committee: C. S. Proctor, W. B. Stevenson, F. B. Cummings. Membership committee: T. N. Cook, chairman; W. W. Jenks, P. V. Von Olker, E. W. Teele, E. H. Stone. Arbitration committee: W. Murray Crane, chairman; George W. Wheelwright, A. W. Esleeck, Willard F. Smith, Waldo E. Pratt. Delegates to American Forestry; J. E. A. Hussey, A. L. Hobson, F. W. Ayer; auditor, Arthur M. Burr. These gentlemen were all unanimously elected to office.

The pulp and paper business in Scandinavia has been growing steadily worse, and is now almost paralyzed, says G. F. Steele. New building is at a standstill, and many of the largest mills have completely ceased operation.

Federal Paper Board Co., Bogota, N. J., is making equipment additions which will increase the mill's capacity. This includes thirty Beloit dryers, two Horne beaters and a large calender.

The Kingston Paper Company, of Little Falls, N. Y., has been incorporated with a capitalization of $30,000, to manufacture felt papers. The incorporators are: P. Kowalsky, H. Horwitz and P. Kingston.

Perry Kingston is at present in the paper felt manufacturing business at Little Falls, under the firm name of William Kingston's Son.

A news report from Ashland, Wis., states that the Ashland Paper Company is considering the proposition of erecting another tissue mill on the bay front at that place.

The new sulphite plan of the Island Paper Company, at Carthage, N. Y., will, it is expected, be completed and ready for operation by May 1. The plant will cost $125,000 and will not only be one of the largest, but one of the most modernly equipped in that section of the State. Construction was started last September.

Extension plans announced by the Newton Falls Paper Company, of Watertown, N. Y., include the building of a new power house and the installation of watersheds to develop about 1,000-horse-power, this to be transmitted electrically about three-quarters of a mile to the paper mill at Newton Falls. There will also be an addition made to the paper mill about 60 x 70 feet in which to install some grinders and other equipment. The company manufactures kraft, bag and sack papers, high-grade dry finish fibres and sulphite specialties.

A wholesale paper house has been opened at Billings, Montana, by the Western Newspaper Union, of Omaha. Charles E. Verity is local manager.

Construction work on the new mill of the Northwest Paper Company, Brainerd, Minn., is progressing splendidly, according to Mr. McNair, who says that the recent trouble with the breaking of the sluiceway has been overcome, all past draw-backs surmounted and that now the contractors are proceeding uninterruptedly with the great undertaking.

The second annual spring meeting of the Technical Asscіation of the Pulp & Paper Industry will be held at Neenah, Wis., on May 24 and 25. Headquarters wlil be at the Valley Inn, Neenah, and arrangements are in charge of Ernest Mahler, of the Kimberly-Clark Company.

HIGHER COURT UPHOLDS BYRON WESTON CO.

The following statement has been received from the Byron Weston Company of Dalton, Mass.:

"About three and a half years ago, the Berkshire Hills Paper Company sued us, claiming that our process of making hinged ledger leaves infringed on their process. The case came up for trial before Judge Dodge of the United States Circuit Court in Boston last June, and the decision was handed down in our favor. The Berkshire Hills Paper Company appealed the case, and the case was tried again in Boston in January. The judges have just handed down a decision that we in no way infringe."—Paper Trade Journal.

FOREST FIRES IN U.S. IN 1915.

In most of the forest regions the weather conditions in 1915 were favorable for the prevention and suppression of forest fires, the Lake States being especially favored. There were no protracted droughts, though a few States experienced short periods of intense dryness and of high winds in the spring months. For in- about 6,000,000 acres, or 1.1 per cent of the 544,000,- and Connecticut occurred in March and April, and 67 per cent of the 1,101 fires in Pennsylvania in April.

The returns from the States having forest-fire protective systems show that most of the fires were controlled before gaining much headway, and that extensive and destructive fires were few in number, as compared with those in the States not so organized These facts argue strongly for appropriations for the establishment of adequate systems of protection by all States. The suppression by a forest officer of a single fire in its incipiency may avoid a loss much greater than the annual appropriation for forest fire protection.

It is estimated that some 40,000 fires burned over about 6,000,000 acres, or 1.1 per cent of the 544,400,000 acres of forest area in the United States. Of course, not all the timber on the land burned over was destroyed or damaged; in many fires the damage to standing timber is relatively small. Nevertheless, the money loss in timber and improvements alone was not less than $7,000,000 which does not include the loss in young tree-growth on large areas outside of the National Forests, and the very great damage from soil deterioration and floods.

Seventy-four per cent of the fires were of known origin, and of these lightning—the only nonpreventable cause — started approximately one-seventh. Therefore the remaining six-sevenths were started by carelessness in some form or another, which is preventable. Of these the largest number was caused by brush burning and railroads. The proportion of fires due to these two largely preventable cases indicates strikingly the need for greater care on the part of both farmers and railroads. In the west the principal preventable cause was camp fires. Six out of every seven forest fires which occur can be prevented.—U. S. Dept. Agriculture Circular 69.

PULP AND PAPER NEWS

A charter has been granted to the Presbyterian Church Association Publishing Co., Limited, with a capital stock of one hundred thousand dollars, divided into four thousand shares of twenty-five dollars each. The headquarters are in Toronto. The incorporators include ministers and prominent members of the church from all parts of Canada who are opposed to church union and the company is empowered to carry on the business of publishers, printers and lithographers.

A federal charter has been granted to Brennens, Limited, with headquarters in Hamilton, and a capital stock of six hundred thousand dollars. Among other things the company is empowered to manufacture and deal in paper and pulp and to carry on the business of lumbering in all its branches.

The Toronto Board of Education has awarded the contract to the J. L. Nichols Co. for work books, pasting books, note pads, letter pads and memo pads; the Canada Paper Co. for drawing paper, practice paper, wrapping paper, manual training paper, blotting paper, pasting, blank and embroidery cards and sheets, cardboard and manila paper, 24 x 36, the Ratcliff Paper Co., book covers, manila paper, 15 x 20, and 13 x 15, twine and toilet tissue; W. J. Gage and Co., work books, envelopes, foolscap and blotting paper, while the Copp, Clark Co. will supply business forms, writing books and drawing paper sheets for manual training.

The Peterborough Review Co., Limited, Peterborough, Ont., which was recently incorporated, has elected A. H. Stratton as president and general manager; James Kendry, ex-M.P., vice-president, and E. A. Peck, ex-M.L.A., T. F. Matthews and James Lynch as directors.

The Toronto Board of Education proposes to save its waste paper and has awarded a number of contracts for waste paper presses. The Canadian Red Cross Society's total receipts to date from waste material, which has been collected and sold, is nearly sixteen thousand dollars.

W. R. Henderson, president of Davis and Henderson, Limited, manufacturing stationers, Toronto, died very suddenly last week. He was seventy-two years of age and for the last forty years had been engaged in the stationery business in Toronto. Mr. Henderson was a membtr of the Board of Trade, and the Canadian Manufacturers Association, and leaves a wife, two sons and two daughters.

Word comes from British Columbia that there is every indication of a big pulp development in that province and that a plant will be erected at Port Mellon to cost in the neighborhood of two million dollars while there is a proposition on foot to erect another at or near Alert Bay, in which eastern capitalists are said to be interested. If the latter project goes through it will cost four million dollars and be the largest groundwood undertaking in the Dominion.

The third Fourdrinier machine, which was built by Pusey and Jones Co., and is 162 inches wide, will be in operation in the plant of the Ontario Paper Co., Thorold, Ont., next week. This will bring the newsprint production of the mill up to about one hundred and sixty tons a day. The new machine room is 100 feet wide by 273 feet long. The Ontario Paper Co., of which Warren Curtis, Jr., is manager, report that their 104 inch cylinder wrapping machine, built by J. H. Horne and Sons Co., is being put in shape, but it will be about the middle of May before the same is running. A fourth news machine was ordered some months ago. It will be some time next fall before this will be in operation when the news output at Thorold will be over two hundred tons daily. The new sulphite department of the company, which was put in running order in January last, is producing fifty tons a day. There are two digesters, each 15 x 49 feet.

Hon. G. Howard Ferguson, Minister of Lands, Forests and Mines for Ontario, has not been in good health for the past few weeks and left recently for the southern states where he will spend a month. Mr. Ferguson has been at his office steadily for the past two years and feels the need of a rest.

Mr. F. Perry, of the Imperial Munitions Board, was a visitor in Dryden on Saturday last on business connected with the Dryden Timber and Power Co. Mr. Perry was on his way on Montreal from Vancouver and other western points was accompanied from Winnipeg by Messrs. D. L. Mather and J. B. Beveridge. It is understood that the plans for reorganization are now well under way and it is expected that the details will be announced shortly.

Mr. Woodruff President of the Lincoln Paper Mills, returned to Merritton last week after an extended tour through Georgia.

Mr. T. L. Crossley, Chairman of the Educational Board of the Pulp and Paper Association was in Thorold during the week visiting the Montrose plant.

The new addition to the finishing room at the Kinleith Paper Co., St. Catharines, is almost completed, and they expect to make use of it in a week or so. This will greatly improve the shipping facilities of that plant as space is very limited at present due to the large amount of business which is being turned out.

The 176th Battalion which contains a goodly number of paper-makers, are on their last leave and were around the mills saying farewell to their former workmates.

The pinch of labor scarcity is already being felt in the Niagara-St. Catharines district, two mills have already experienced model strikes and Chinamen are the latest advent in another.

The Montrose Division of the Provincial Paper Mills has been undergoing its annual spring cleaning, and surely represents a model factory. All credit due the responsible parties.

J. J. Herb, superintendent of the Interlake Tissue Mills is following the lead, and has bought a new car, Mr. Herb did not say what seating capacity or power it possessed. He managed to get in the whole family, however.

The 1916-17 fiscal year which closed recently has been the greatest in the history of the country. Exact figures will not be available for a few days, but, it may safely be stated that when they are published they will show the revenue of the Dominion during 1916-17 to have been the largest in history and will also show the trade of Canada to be nearly twice that of 1914-15.

The ordinary revenue of the Dominion it is stated in the twelve months ending Saturday amounted to $230,000,000 or $100,000,000 more than that of 1914-15. The revenue of the past year will be sufficient to meet all the ordinary and capital expenditures of the country and in addition pay fifty or sixty million dollars of the expenditures for war purposes.

The total trade of the Dominion will be found to have reached about two billion dollars, or a billion dollars more than that of the fiscal year in which the war began.

Canada's customs revenue during the fiscal year of 1916-17 established a record total having amounted to $145,949,107, which exceeded the preceding fiscal year by $43,339,486 and constituted by a record for the Dominion.

The collections for the month of March were the largest of any month in the history of the country having reached $15,209,118 as compared with $10,663,234 in March, 1916.

Samples of the first Canadian made lead pencils were recently received in New Zealand.

Mr. W. A. Beddoe Canadian Trade Commissioner to New Zealand in a report to the Trade and Commerce Department here says that the sample pencils reaching New Zealand have been most satisfactory, and that much business will result if the goods ordered are up to sample.

Substantial orders for pencils have already been sent to Canada.

THOROLD'S RAILWAY FACILITIES.

A commission representing the Board of Trade and the manufacturers of the town, met on Monday last to discuss the question of an interswitch into Thorold, to be placed before the Dominion railway board. Those present were: T. A. Weldon, D. Daverin, Jas. Battle, E. P. Foley, J. J. Herb, J. McMahon, Mayor Battle, J. H. Neville, D. Walker, D. B. Crombie, J. H. Thompson, and the town solicitor.

What the commission desires is an interswitch from the Grand Trunk to the Canadian Northern local lines above Thorold in place of the present slow system of making this switch at St. Catharines, and thereby save the time which is lost in hauling freight through Thorold to St. Catharines for switching which is again hauled to Thorold for delivery.

The commission went minutely into the details and picked up every possible objection they might have to meet, and fully instructed the solicitor.

The solicitor will give notice at once in order if possible to have the case in order for the board on the 12th.

NEW CHIEF FIRE RANGER.

Mr. Bliss, superintendent of Fire Rangers, was in Kenora last week on business connected with his department. The appointment and office is a new one recently made by the Provincial Government to meet the needs in New Ontario. The superintendent's headquarters will be at Port Arthur, J. A. Legris has been appointed Chief Fire Ranger for this District. Messers. Bliss and Legris left on Tuesday evening for Winnipeg and will make a trip to points along the Grand Trunk Pacific Railway.

RIORDON PULP AND PAPER CO.

At the annual meeting of shareholders of the Riordon Pulp and Paper Co., Limited, held here recently, the president, Mr. Charles Riordon, congratulated the shareholders on the excellent results of the business in 1916. He also drew the attention of the meeting to the company's water powers, totalling about 30,000 horsepower and located near the mills in Merriton and Hawkesbury, and suggested that further development of these be started so soon as the cost of construction approached reasonable figures, as the demand for electric power in the company's own business, as well as in Canada at large, was becoming more insistent month by month.

The president informed the shareholders that the profits for the first quarter of this year were excellent, being in excess of any three months in the history of the company. The showing of the Ticonderoga Pulp and Paper Co., a subsidiary of Riordon, was stated to be equally satisfactory.

The retiring board of directors was re-elected, and subsequently Mr. Chas. Riordon was re-elected president and Mr. Carl Riordon, vice-president. One change was made in the officers, Mr. C. E. Read, of Ottawa, who has been secretary of the company, retires from that post and the treasurer, Mr. F. B. Whittet, becomes secretary-treasurer.

WILL BE GREATEST INDUSTRY IN BRITISH COLUMBIA.

The Pacific Mills Company, Ltd., who have almost completed their paper plant, at Ocean Falls, have commenced the addition of a second and larger unit, to be erected directly across Link River from the new buildings. The second unit is to be about 10 per cent. larger than the first, and will have a capacity of 225 tons per day. When completed the mill will be one of the largest in the world. It is estimated that between 600 and 700 men will be employed when the two units are complete. Most of the output will be kraft paper. Within fifty or sixty miles of the townsite the Crown-Willamett Paper Company, the parent company of the Pacific Mills Company, Ltd., own between 4,000,000,000 and 6,000,000,000 feet of timber, mostly spruce and hemlock. A. B. Martin, managing director, Vancouver, who returned recently from a two weeks' stay at the plant, reports that construction is being rushed in all departments and satisfactory progress is being made, despite the very unfavorable weather conditions still prevailing.

The resources of Canada's forests are to be tapped anew and their latest finished product is to be the lead pencil.

The Markets

CANADIAN MARKETS.

The wood situation is no better, as has previously been reported. In fact reports from lumbering operations tend to confirm the opinion that the supply for 1917 is discouragingly small. Mills having their own supply well in hand are of course having little difficulty at present and are turning out their normal output of pulp and paper.

The power situation is improving with higher river levels. Many of the Canadian streams are still covered with ice and anchor ice has as yet given no indication of trouble, although reports from American mills show the feeling that they are likely to be bothered from this cause in the near future.

The coal situation is much improved although many mills have not the surplus on hand that they would like to see in their piles. Freight cars are available in larger numbers and paper is moving a little more freely. There is still the difficulty of getting cars for exporting, as Canadian lines are obliged to keep their rolling stock this side of border. The American roads are doing their best to supply the Canadian mills with the necessary cars for shipment across the line. It is unfortunate that the empty coal cars cannot be loaded on their return trips. Every closed car however, is used as these can be cleaned and lined.

The only change in prices to be noted is in wrapping papers where an increase of 15c per 100 lbs. is announced for paper sold in reams. It is not an unusual development owing to the fact that there is considerable more trouble and expense in cutting, packing and shipping paper in bundles than in rolls.

In regard to paper making material including rags and waste papers there seems to be a waiting market which is a little weaker. Dealers look for higher prices. Stocks on hand are comparatively small and the indications are that collections this spring will also be small. Most of the uncertainty of the market is due to the recent declaration of war by the United States and the inability to predict what effect this will have on the industry. Mills are buying close. In fact there seems to be a decided inclination of all parties to get along with the smallest possible reserve stock.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.50 to $9.00
Book papers (carload), No. 2	$9.00 to $9.75
Book papers (ton lots), No. 2	$10.00 to $10.50
Book papers (carload), No. 1	$9.50 to $10.25
Book papers (ton lots), No. 1	$10.50 to $11.50
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B.	$5.25 to $6.75
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(†)—Wrappings in reams are 15c par 100 lbs. higher.

NEW YORK MARKETS.

New York, April 7.

The news that both of the Houses of Congress had declared for war with Germany and that the President was expected to make the official declaration whereby the United States would align itself in every way on the side of the Allies, in the fight to destroy the power of the Kaiser, was received as a matter, of course, with the trade. Nothing else could have been expected, under the conditions, for this action has been pending for some time and was actually considered eventual. Naturally, the realization gives the situation a more serious aspect than was true before. Perhaps the chief factor in this direction is the announcement that a plan is under way for the coralling of an army numbering around 1,500,000 men. Already the militiamen of the States have been mustered into Federal Service —with the result that the working forces of both mills and jobbers, throughout the nation, have been materially affected. The general work of enlistment has begun in good faith and the enthusiastic responses, while very encouraging and to be heartily commended, does not bode anything good for the paper industry—or any other industry for that matter. It is undoubtedly this question of labor, which is destined to become more and more problematical as time goes on, that is the foundation of the unusual firmness in the paper market.

As we have already stated and emphasized in these columns ground wood has been decidedly affected by the conditions just named. Particularly in the shortage of wood has the labor question been felt. Some grinders report that they have been compelled to pay exhorbitant prices in order to get sufficient wood to keep

their plants operating continuously. It is apparent that there is today a greater shortage of wood for pulp than has ever been known to the trade. This situation is being felt considerably at the present time and is manifesting itself in the cost of ground wood. That it will grow worse in the immediate future, seems without question.

There seems to be no doubt among the producers of ground wood that this commodity will find still higher levels before the summer—and that it may reach the point where it will be unobtainable at any price. For that matter, it is said to be difficult to get any large stock of ground wood at the present time. While the grinders' machines are going to the best of their ability and as well as conditions in general will allow them, they are not in a position to take care of the demand. As a result there is very little ground wood available at the present time. Added to this, the season for the dreaded "anchor ice" is now at hand. When this ice starts to float, it gets into the water wheels, thus obstructing the operation of the machines. It is known that this "affliction" can always be relied on to keep production down a bit. Those who are regarded as having the best foresight claim that they can see no possibilities that the demand for ground wood will in any material way be decreased for some time to come.

No added activity has been reported in chemical pulps, for it seems that the consumers are holding off, showing comparatively little interest in the market. This fact has however influenced the situation in no manner whatsoever for prices are as firm if not firmer than ever. As we have explained all hope of sufficient imports to "help out" are gone. It is true that a shipment of pulp from Scandinavia arrived in an American port during the week but this has been enroute for some time being held up by the English authorities and finally making its way to the point of destination in the United States. The foreign pulp producers are showing no inclination to send stock to this country. It is apparent that they believe that the risk of running through the U-boats of the Germans is too great to warrant the attempt. It is surmised that there is considerable pulp on docks in Sweden now that the season when the Baltic Sea will be open for nagivation is almost at hand. Some of the local trade have ventured the opinion that efforts would be made within the next few months to renew shipping between Sweden and the United States. But this does not seem reasonable in view of the fact that war has actually been declared on Germany by this country—and it is now certain that the U-boat warfare will be carried on in more vigorous fashion than ever. Talk is still heard regarding the fact that so many new pulp mills are nearing completion in the United States and Canada. Some consumers are spreading the feeling that, for this reason, the market will not be able to hold up much longer. However, it is said that there is little to hope from the new mills, for it will still be some time before they are in a position to become a factor in the market. Then again, how about the wood and the other materials which are so essential and which are being obtained only with the greatest of difficulty by the other mills? How about it? Well, say the pulp manufacturers, the wood question alone will settle the matter. For, with wood scarce and becoming more valuable all of the time, it is questionable what the new mills would do. At any rate, the date when they will be in a position to start manufacture is somewhat distant—which puts them out of calculation for the present and for a few months to come, at least. The situation in krafts has been rather serious from the very start. Even today it is hard to get any considerable stock of krafts, regardless of the price. We have not been able to get what we wanted from Canada—and our own producers have been consuming the greater part of the output, to the disadvantage of those buyers who are dependent entirely upon the market for their supplies. Added tonnage is expected shortly in this particular market. But it will not be sufficient to make any material difference in the prices that are being quoted. At least, that is the contention of some of the dealers. In the first place, they say that as soon as the added tonnage is available, it will be taken up at once. Then again, the future of the wood situation alone is regarded as being sufficient to dash any hopes that the market can weaken. Certainly, there may be a movement to bear conditions, on the basis of greater supplies, but it is not expected that any such action will be effective.

The rag market continues to be a disappointment to the various local dealers. They report a marked absence of interest on the part of the mills, maintaining that buying is as poor as it has ever been. One dealer compared the present situation with that which existed during the period of the first six months of 1915. And there seems to be considerable truth to this statement. The paper manufacturers claim to be pretty well stocked and because of the fact that the demand for rag papers has decreased somewhat, believe that they will not have any occasion to need rags urgently for some time to come. With such prospects, rag dealers have no reason to be very happy, especially when it is known that there is no shortage of stock at the present time. On the contrary, it is said that large quantities of rags are being held in store in various parts of the country. However, confidence is noted in some circles. Here, the people in question look ahead a few months — after the war has been in session a short time and the shortage of labor, as well as the increasing demands for help by the ammunition factories has driven away any prospects for a continued collection of rags — then, they say, the present surplus will have dwindled to a point where it will be nil. The high mark for new shirt cuttings is at about 9½c; old whites are rather uninteresting at 4¾c to 5¼c; house soiled whites still hover about 3¼c; street soiled whites top at 2¾c; thirds and blues are somewhat inactive at 2½c and a little higher; black stockings have been reported as high as 2½c, but are not being sought to any extent.

We predicted some time ago, that, come what may, the paper stock market would eventually reach levels that were very high and that it was inevitable that the demand for practically all grades should continue to increase. And to-day, despite the relapse that was suffered during the past month or so, conditions are adjusting themselves just as we predicted they would —prices are commencing to soar and the demand has been materially enhanced. The situation in chemical and ground woodpulp is responsible for this fact. For, with these commodities very high and practically unobtainable, the only resort has been to get waste papers for reclaiming purposes. It is this state of affairs that has been responsible for the heavy demand for all kinds of newspapers and others of the lower grades.

Never have these low grade papers been so firm as they are at the present time — and the indications are that they will continue so for several months, to say the least. At all events, as long as ground wood is prohibitive, efforts will be made to reclaim the pulp from waste papers to as practical an extent as possible. Fears are now being expressed that the supplies of waste papers are not sufficient to take care of the demand that is expected within the next few weeks. Hard white shavings have come into good advantage and are now going well at as high as 5¾c; soft white shavings can be reclaimed for the chemical pulp that is in them, which accounts for an improvement, keeping the quotations at about 5c and a little higher. Magazine stock is beginning to feel the general spirit, and continues at around 2c; ledger stock is in good demand at over 3c; old manila cuttings have received quite a boom because of the ground wood situation and are going well, with 1½c the high mark. There is a scarcity of old krafts, which are being sought at as high as 4c. Over issue newspapers are held at as high as 1½c and going well at that; strictly folded is bringing as high as 1¼c; old mixed papers are still at about 80c to 90c per hundred pounds.

No material change has been reported in the paper market. Jobbers have not resumed buying, but are still able to hold off, hoping that the effect of this bear movement will bring prices down. But their efforts appear futile, for prices are still as firm as ever and manufacturers announce their determination to "stick to what they think is right." The paper manufacturers look ahead and claim that it is only a matter of time before buying must be resumed and then, they say, it must be resumed on a somewhat heavy scale—which means blocking traffic, slow delivery and a good many other troubles with which the jobber is familiar, but with which he never grows tired. The newsprint situation is still uncleared. It is feared that the opening of the war will hurt the plans of the big metropolitan newspapers to refrain from issuing special editions — and thus put to shame the talk of conservation of newsprint. Tissues are strong, with a little added interest reported. Fibre wrappings have not changed, but continue somewhat inactive. Manila and kraft wrappings are strong, with a good demand. Book papers continue high, with the greatest part of the market sold ahead.

(These prices are all nominal).

New York Quotations.

Ground Wood, f.o.b., mill..Up to $50 a ton and higher.
Foreign bleached sulphite, ex-dock, New York .....10c and higher
Foreign easy bleaching sulphite, ex-dock, New York ..... 6c and higher
Domestic bleached sulphite, f.o.b. pulp mill .....8¼c and higher
Foreign unbleached sulphite, ex-dock, New York .....5¾c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York ..... 5¼c to 5¾c
Domestic unbleached sulphite, f.o.b. pulp mill ..... 5¼c to 5½c
Easy bleaching, f.o.b. pulp mill .....6¼c and higher
Kraft pulp, f.o.b. pulp mill .....6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York .....6½c to 7c
Bleached soda pulp, f.o.b. pulp mill..5¾c and higher
Foreign unbleached soda pulp, ex-dock, New York .....6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. .....6½c to 7c
Bond papers, sulphite .....12c and way up
Best grade writings .....20c and higher
Regular superfine .....18c and higher
Ledgers papers .....13c and way up
News, contracts, f.o.b. mill $2.50
News, spot lots $2.75
Book, super.....9c and higher
Book, coated .....8c and higher
Tissues, good sulphite, bleached, per ream .....$1.30 and higher
Tissues, ground wood, manila, per ream .....$1.30 and higher
Kraft .....9c and higher
Manila ..... 7c and higher
News board, per ton, f.o.b. New York...$70.00 and up
Straw board, per ton, f.o.b. New York...$65.00 and up
Chip board, per ton, f.o.b. New York...$65.00 and up

ROWLAND W. JOLLY.

LAURENTIDE POWER CO.

Laurentide Power has issued its first annual report showing gross revenue of $375,381 in 1916.

The statement shows interest on bonds for the first half of the year was charged to construction, and that for the second half to operations. The company was not in shape to operate fully until the latter part of the year, but begins the year 1917 fully equipped as an operating concern, all construction work having been completed. The prospects for the sale of power during the present year are excellent. The Shawinigan Company is at present taking the entire available supply. Profit and loss account is as follows:

Gross revenue for year	$375,381
Operating expenses	25,443
Maintenance	1,885
General expenses	12,452
	39,760
	$335,622
Interest on bonds for year	$343,681
Less first half charged to constr.	162,500
	181,181
Credit balance	$154,441

From the credit balance, $100.000 was transferred to reserve, and the balance of $54.441 was credited to contingent account.

The profit and loss balance for the year was 1.47 per cent. on the common stock, in spite of the fact that it was a year of construction.

TRADE INQUIRIES.

680. **Canned goods and paper.**—A commission merchant in Paris who is in a position to place Canadian canned goods and paper throughout France, Algeria, Tunisia and Morocco, would like to get in communication with Canadian exporters of these articles.

694. **Cardboard for box-making.**—A Dundee firm desires to correspond with manufacturers. Sample of board can be seen at the Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa. Various thickness required.

Please quote the reference number when requesting addresses.

J. R. BOOTH ADDS ANOTHER YEAR.

A mammoth bouquet containing four score and ten American Beauty roses was the tribute of affection that employees of the Booth paper and lumber plants bestowed upon their aged employer John R. Booth, Canada's lumber king and founder of the World's largest lumber businesses, when he attained his ninetieth birthday in Ottawa on Thursday, April 5th.

Coincident with the ninetieth anniversary of his birth, John R. Booth made an unusual departure from his steadfast custom and "laid off" for a short time, but, he had a perfectly good reason for doing so. The occasion of the "lay off" was not occasioned by any desire for celebrating teh anniversary of his birth, but, was for the purpose of saying "good-bye" to his nephew—Major Gordon Fleck of "A" Company, 231st Vancouver battalion—who passed through Ottawa on his way to Berlin via the western front. Had it not been for the departure of his nephew, it is probable that the ninetieth anniversary of the "lumber king's" birth would have passed without undue significance, for in the words of one of his workmen, "He's a fine man, but, he works hard."

Before the date of the ninetieth anniversary was over it is said John R. Booth, Sr., was back at his plant busy in superintending the operations of workmen in the erection of a new sulphite mill. It was 6.30 p.m. Wednesday before Mr. Booth considered it a "day's work."

On the morning of the lumber king's anniversary the employees presented "J.R." as he is effectionately called with the mammoth bouquet of roses—one rose for every year of his life. Every male member of the office staff wore a rose in his buttonhole in honor of the occasion. A man of few words, Mr. Booth said little but his appreciation of the token was evident.

John R. Booth who first saw the light of day at Waterloo, Quebec, has truly been the architect of his own large fortune. He resided at his birthplace until he attained the age of twenty three years and then went to Sherbrooke and other places in the district, finally coming to Ottawa. For the first year in Ottawa he helped construct Lemay's sawmill and shortly after went into business for himself.

From running a sawmill in Hull which was burned about a year after he had operated it, John R. Booth has perserved until he has built up his sizeable plant and a collection of interests that now bear his name, and are known the world over.

Mr. Booth's activities in the industrial world have not alone been confined to the lumber trade or the manufacture of newsprint or paper, for he has built railways and has gained considerable note as a capitalist. As a railway builder his career began about 1881 when he turned his attention to securing an outlet by rail to the market of the New England States. Together with Mr. W. G. Perley of Ottawa and Governor Smith of Vermont he constructed the Canada Atlantic railway which was opened for traffic to Ottawa on September 18th, 1882.

It soon became necessary to connect the two sections of this road with an enduring structure and Mr. Booth secured a charter to bridge the St. Lawrence at Couteau and financed the undertaking himself at a cost of $1,254,000. Later Mr. Booth acquired the charter of the Ottawa, Arnprior, and Parry Sound railway and began its construction in 1891. This work was completed in 1896. A year later the Ottawa Board of



JOHN R. BOOTH.

Trade passed a resolution expressing the appreciation of their fellow countrymen for the energy and enterprise displayed in constructing and operating the system which now extends from New England and our eastern ports to the shores of the Georgian Bay.

Mr. Booth's many interests have not kept him apart from public affairs. In 1897 he was identified with the movement to have a nonsectarian hospital established in Ottawa which resulted in the building of St. Luke's hospital, of which institution he has been president of the board of directors since its inception.

On Thursday the lumber king was showered with congratulations that came from many parts of the Dominion.

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ALL KINDS OF WASTE PAPER
NEW AND OLD COTTON RAGS
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Tender for Timber Limits---Mill and Equipment

The following valuable property composing a going lumber manufacturing plant, is offered for sale in order that an Estate may be closed:

125 Square miles more or less, of timber limits under license from Ontario Government, conditions of which may be obtained from the Department of Lands, Forests and Mines, which permits cutting of all kinds of trees; composed of townships of Goschen, Carlyle, 67 and north half of Humbolt.

200 Acres of land at mouth of river on which are situated water-power saw mill and mill dam, box factory, yard with docks and tramways, store, boarding house, blacksmith shop, machine shop, storehouses, stables and about twenty houses for families. A steel tug eighty feet long, a steam launch and tow barge. Also camp equipment for two camps including sleighs, horses and all necessary rigging.

The territory is well watered and the river improved with dams, slides, etc. Blue prints may be obtained at the office of the undersigned.

Tenders for the purchase of the foregoing endorsed, "Tender for timber limits, etc.," addressed to the undersigned, will be received up to Thursday, 28th June, 1917.

Terms: Certified cheque payable to the undersigned, for 10% of the amount offered, must accompany the tender; 15% to be payable on the 1st of August, 1917; 25% on the 1st of November, 1917; 25% on the 1st of February, 1918, and 25% on the 1st of August, 1918.

Interest at 6% per annum from date of acceptance of offer to date each payment is made.

Cheques of unsuccessful tenderers will be promptly returned. The right is reserved to reject any or all proposals.

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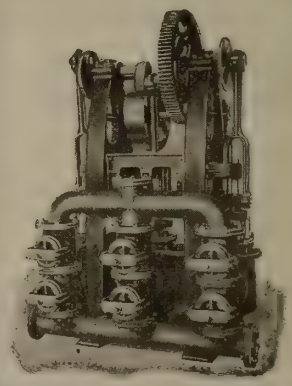


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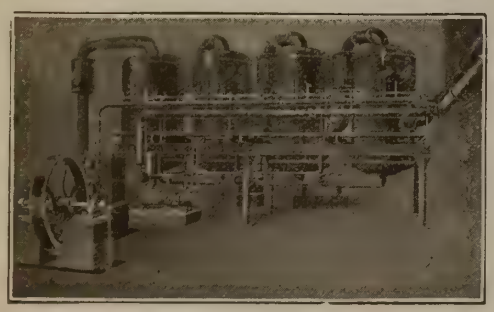


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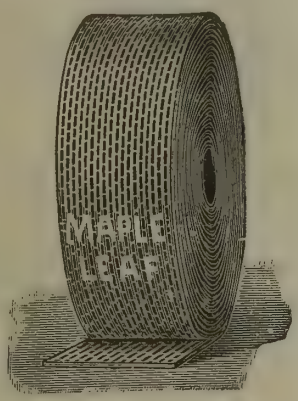
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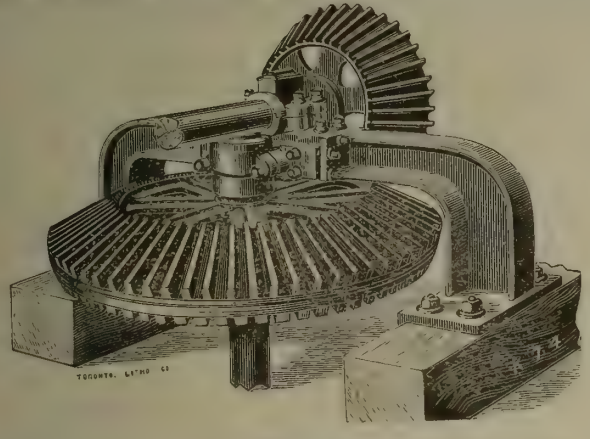


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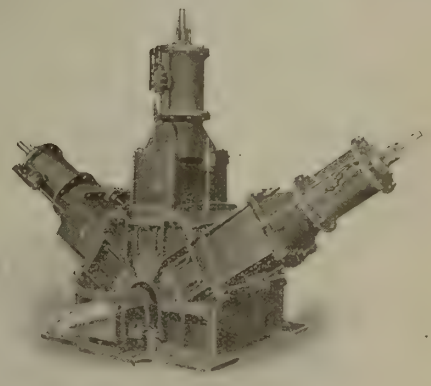
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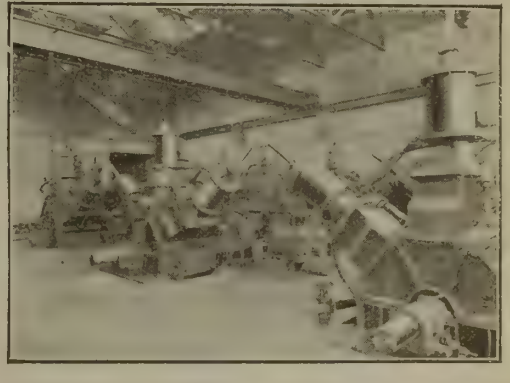
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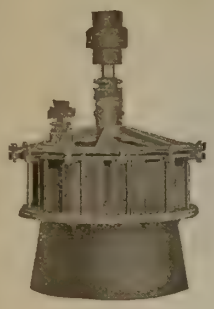
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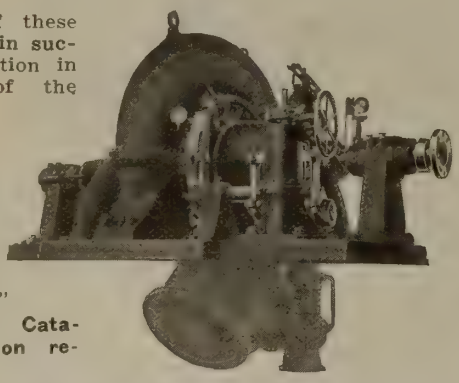
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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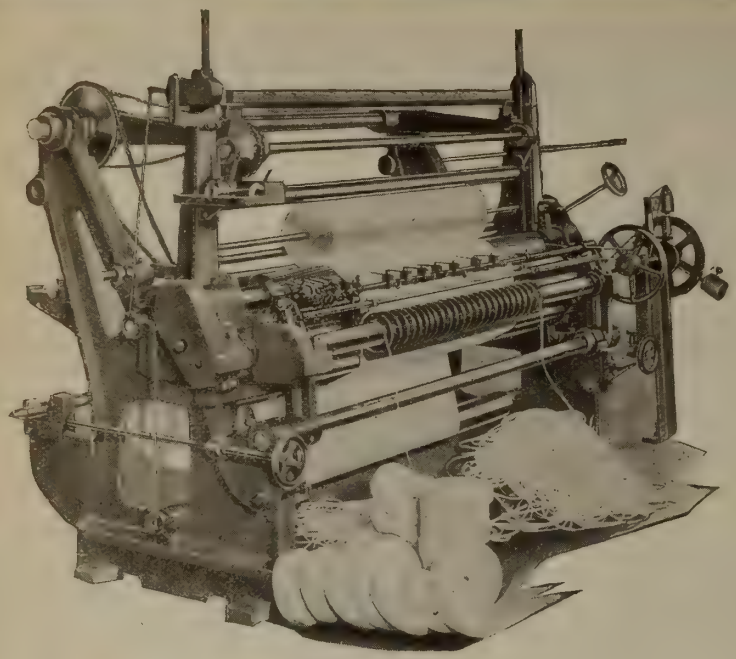
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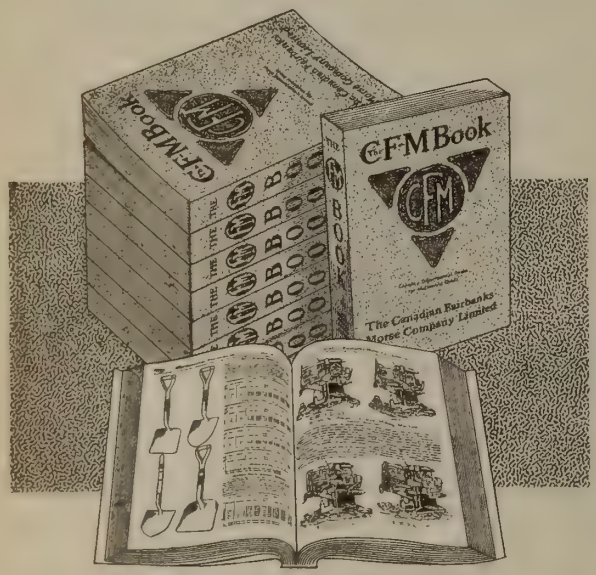
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EDITORIAL

FOREIGN TRADE.

It might be appropriate to call this issue of the Pulp and Paper Magazine a foreign trade issue. Those who heard Sir George Foster speak at the luncheon of the Canadian Pulp and Paper Association, or who read his speech, could hardly fail to be impressed with the importance of foreign commerce to the coming Canada. While Canada could maintain herself, physically, without trading abroad, such a condition is happily one that cannot be seriously entertained. There are many things that others are better conditioned and qualified to make than we are. There are other things in which we are gloriously rich. These facts make commerce possible and necessary.

The farms, forests, mines and water powers of Canada not only furnish some raw materials which some other countries want to use in their industries, but they also furnish Canadians with the supplies necessary for our own manufacturing enterprises. Our farms supply us with grain, enough and to spare. Nature will grind it for us if we will but harness the rivers. Even the wood for barrels may be had at hand.

Many valuable ores are mined in the Dominion, as well as coal, limestone and salt. These are the bases of important industries and will continue to produce increasing quantities of materials that the world demands. Minerals, metals and chemicals find their way, sometimes directly, sometimes in quite indirect ways, into the commerce of the nations. The forests play their part, too. Lumber from the giants on our hillsides will shelter the homeless of Belgium, rebuild the factories ruined in France, prop the seams in English mines, build houses in Africa and Australia, and even construct the ships that bear on the seas our contributions to the commerce of the world. And in some of these ships, the ones that sail the farthest and see the strangest lands will be the product of our industry, paper and pulp and boxes and many things that we have not yet discovered.

What industry has done more for the progress of the race? Where has civilization gone without paper, or its predecessor? Where has religion gone without a record of its faith? How could the word of God be read in 600 different tongues were it not for paper? Paper is the very epitome of service. Commerce today would be impossible without it. It acts as a sort of catalyser, an inspirer. Where paper goes, commerce follows and as commerce grows more paper is demanded. The degree of civilization or culture of a people is quite accurately indicated by the amount of paper they use.

We hear a good deal in these days of grabbing the trade that the people of Central Europe has lost. Much of this is said more in the spirit of hurt to the Teuton than of helpfulness to the customer. (Customer is the wrong word there, because a nation cannot sell without buying. Trader is nearer right). Such a spirit is unworthy of our industry. Our effort to establish a foreign trade should not be in the light of picking the German's pocket because he has been sandbagged, but in the light of a service to the people on the other end of the line **because we are best fitted** to make the things they want. It is as natural to make paper from our forests as it is to make flour from our wheat.

There are countries where paper making is not an indigenous industry. These countries have products that we can get nowhere else to such advantage—tea and silk from China and India, machinery from England, diamonds from Africa, wool from Australia, hides from Argentina, rubber from Brazil, cotton from Egypt, etc. Of course, the paper-maker does not take his pay for paper in coffee from the Brazilian nor camphor from the Jap. The very complexity that makes foreign commerce necessary makes it possible. No one nation can balance its account with another nation as a farmer might swap a peck of potatoes for a milk pail. It is more nearly similar to a case where the storekeeper owes the druggist and the farmer owes the storekeeper, so the account is balanced by the potatoes going to the druggist. (He is probably glad to get them now). Similarly Canada sells paper or pulp to India, India sells silks or tea to the United States and the Yankees balance the account by selling Canada a paper machine or two. In another case Canada sells paper and boxboard to Brazil. Some of the boxes may come back to the United States full of coffee. This squares Brazil's account if America and Canada can arrange a trade. Perhaps Canada doesn't want any machinery or gasoline so the balance is paid

in cash, which comes in very handy for paying back the war debt. And so it goes. England might just as well, perhaps more properly be taken as the intermediary in these trades. Sometimes they are direct exchanges.

One condition must be met in foreign trade; one country must make what the other wants, or the other must want what the one makes. To get and keep a market, one must, as George Ade humorously put it, "give the people what they think they want." This may mean putting the mould board on the left side of the plow for Spain, or painting the bands yellow on the bale of pulp for Brazil, or packing paper for transport by muleback in Ecuador in 50 lb. bundles. If the Chinese want a hard sized paper for their brush work it behooves the aspirant for Chinese trade to see that they get it. Another essential pillar in the foundation of foreign trade is a sympathetic understanding of the people. Most foreign peoples to whom we would sell our goods are past masters of "manners." Many of us unfortunately, are not. Their atmosphere of politeness must be absorbed by the successful salesman.

Some of this understanding of the customer can be met by education. The salesman can at least learn the language and know something of the customs of the people among whom he is to travel. Colleges can, and some are beginning to, meet this need. The University of Kansas, for instance, is giving instruction in Dutch (Hollandaise), Portuguese, Russian, Chinese, Japanese, Spanish, Italian, etc. Other colleges, as Dartmouth, Harvard, and New York University have organized faculties of trade and commerce, while the Massachusetts Institute of Technology has a department dealing with the business and administrtaive aspects of engineering work. If one cannot attend one of these schools, there is yet the correspondence course, such as is offered by the Alexander Hamilton Institute in Business Principles. A knowledge of business conditions and customs of foreign lands and their language is necessary to success abroad.

Our neighbors, whether they be in Australia or just south of us, "want what they want, when they want it." In other words, they don't want to be thought of and treated as "poor relations," for whom anything will do if nobody else wants it. A foreign market must be manufactured for. Old Country methods may well be studied, as to finding out what people want and then making it for them regularly. Dependability is an excellent quality, in people as well as in goods.

World commerce is a big business. Canada is in it. Let the pulp and paper industry play its part in the game by learning its rules and putting in the field a well trained team that can properly represent paper and allied products.

THE INDICTMENTS.

The following is the editorial comment of the "Paper Mill" on the indictment of seven newsprint manufacturers. Now that this boil has been brought to a head by their vigorous poulticing, the publishers now want to heal up the matter and let the patient go on making newsprint. What they want is cheap paper, not justice, and their statement that the case has "gone too far," that "the affair has been bungled" shows it.

"A Federal Grand Jury sitting in New York has indicted seven paper manufacturers for alleged violation of the trust laws of the United States.

"Conspiracy in restraint of trade is charged. The indictment aims to convict seven newsprint papermakers of trade restaint when instead seven hundred publishers, yea, seven thousand of them, have in the past year deliberately acted to harm the paper trade, and conspire against the welfare of the paper makers. These publishers ought to have had the stigma of a Federal indictment cast upon them. These publishers, who misused their power to create sentiment against the paper makers, can look back on their records unsullied by Federal indictments.

"On the other hand, seven paper manufacturers, guided by the natural laws of trade, aiming to improve conditions in their industry, acting with good will toward all mankind, are indicted for having the temerity to cross the path of the publishers. For having dared to seek a few shekels from the tills of the editors. For having dared to assert that such a thing as the law or supply and demand should cause higher prices on newsprint paper.

"The indictments are now a matter of record. Whether the paper manufacturers meet these indictments by filing a demurrer or asking for an immediate trial it is our belief that the evidence they will submit will swerve a decision to their favor. The Grand Jury heard the evidence as the district attorney fed it to them. At the trial in open court all of the evidence will be submitted and weighed in the balance.

"The question naturally arises as to how these indictments will affect the price fixing plan arranged by the Federal Trade Commission. Is it conceivable that these paper makers will allow this plan to be carried into practice now that they have been indicted? The publishers did not want these indictments. They wanted lower paper prices. Therefore when the commission settled on a price favorable to them the publishers asked that the indictment hunters be called off. But it was too late. The dogs of war had been unleashed.

"Perhaps these indictments may really prove beneficial to the paper industry. It is easy to obtain indictments, but hard to secure convictions. Indictments can be secured by request, but convictions solely by evidence. These indictments perhaps may give strength to the paper industry. To repel the loathsome charges the industry is called upon to prove its power."

The Paper Trade of the United Kingdom

By NORMAN D. JOHNSTON.

The following article, which is taken from the Canadian Department of Trade and Commerce Bulletin, presents in a concise fashion, the normal trade in paper and paper products with the Teutonic countries included in the trade and with them excluded. Figures for 1916 are not given, which is perhaps fortunate, inasmuch as British embargoes would render such figures misleading. More important even than this review to paper makers on this side of the water is the frank criticism of quality, carelessness or indifference in packing and awkwardness in quoting, shipping and billing of goods. These matters must receive careful and tactful attention, or there can not be a satisfactory export trade in paper. The establishment of agreeable relations on the basis of satisfactory service, and not on the basis of the immediate and unusual straits of the foreign customer must be the rock on which we are to build a successful business.)

The amount of paper used in the United Kingdom is very great, and large quantities of paper and articles of paper are imported annually. The total imports in the year 1915 amounted to 11,726,029 cwts., with a value of £6,647,268, which is a decrease as compared with the years 1912, 1913 and 1914. The following figures will show the quantity and value of paper and articles of paper imported into the United Kingdom from the year 1911 to 1915:—

Paper and Articles of Paper Imports.

	Quantity. Cwt.	Value. £
1911	11,072,394	6,574,550
1912	12,217,807	7,234,437
1913	12,881,747	7,674,419
1914	11,817,417	6,791,191
1915	11,726,029	6,647,268

Of these quantities the following were the amounts obtained from British possessions in comparison with those from foreign countries. It will be seen that although the trade secured by Canada and the other British possessions has gradually increased each year, the percentage is still very small:—

(The following article, which is taken from the Cana-

Value of Imports.	1911.	1912.
From foreign countries	£6,166,282	£6,698,813
" British possessions	408,268	535,624
Total	£6,574,550	£7,234437

Value of Imports.	1913.	1914.	1915.
From for. coun.	£7,104,849	£6,153,594	£5,971,056
" Brit. pos.	569,570	637,597	676,212
Total	£7,674,419	£6,791,191	£6,647.268

Imports of Printing and Writing Paper.

The following tables will indicate the imports of paper for printing or writing purposes, printed paper hangings, and other printed or coated papers during the years 1913, 1914, and 1915, showing countries of origin:—

Paper for Printing or Writing—on Reels.

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Russia	79,326	32,533	.....
Sweden	447,212	286,743	240,078
Norway	883,102	854,688	647,585
Germany	172,806	107,096	.....
Netherlands	30,640	87,796	88,175
Belgium	5,797	4,220	8,804
France	2,480	881	2,173
Austria-Hungary	36,812	19,383	.....
United States	41,418	142,039	98,822
Other foreign countries	11,367	5,596	1,815
Newfoundland and Labrador	860,123	1,034,256	955,792
Other British possessions	57,686	65,702	90,715
Total	2,628,869	2,640,933	2,133,959

The total imports show a decrease in 1915 as compared with 1914 of 506,974 cwts., and with 1913 of 494,910 cwts. Previous to the war the largest suppliers were Norway, Sweden, Newfoundland, the coast of Labrador, and Germany. The United States, the Netherlands, and the British possessions also sent good quantities. In 1915, however, Newfoundland, the coast of Labrador, Norway and Sweden sent the greatest quantities to the United Kingdom, while supplies were entirely stopped from Russia, Germany and Austria-Hungary. The imports from the British possessions, not including Newfoundland and the coast of Labrador, increased in 1915 by 25,013 cwts. over 1914, and by 33,029 cwts. over 1913.

Paper for Printing or Writing—Not on Reels.

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Russia	9,676	4,762	.....
Sweden	141,615	118,406	171,258
Norway	348,558	342,975	287,435
Germany	301,744	182,564	13
Netherlands	28,941	56,357	83,374
Belgium	96,918	64,735	33,789
France	10,648	8,473	23,872
Italy	2,959	1,643	4,358
Austria-Hungary	9,159	1,567	.....
Japan (including Formosa and Japanese leased territories in China)	3,688	2,377	2,856
United States	45,015	42,221	31,579
Other foreign countries	2,506	2,512	2,856
Canada	766	1,573	8,858
Other British possessions	.....	2	.....
Total	1,002,193	830,169	649,029

Canada's share of this trade increased greatly in 1915 over previous years, the imports in 1915 from Canada being more than five times those in 1914, and

over eleven times those in 1913. Her share, however, is very small in comparison with the quantities received from Norway and Sweden, which are the greatest suppliers. Large amounts of these classes of paper were also obtained from Germany before the war, but supplies from that source practically ceased in 1915.

Printed Paper Hangings.

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Germany	38,210	24,720	44
Netherlands	365	284	36
Belgium	14,853	9,024	.....
France	1,784	1,806	557
Switzerland	263	200	118
United States	961	926	1,593
Other foreign countries	866	936	1,052
British possessions	2	.....	.....
Total	57,304	37,896	3,400

This trade was practically in the hands of Germany before the war, although Belgium obtained a fair share. With the commencement of hostilities imports from these sources practically stopped, with the result that the quantities entering the United Kingdom ports from outside countries decreased from 57,304 cwts. in 1913 and 37,896 cwts. in 1914, to 3,400 cwts. in 1915.

Other Printed or Coated Papers (except Sensitized Photographic Paper.)

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Germany	53,440	30,134	.....
Netherlands	1,971	1,900	2,490
Belgium	34,568	19,708	31,102
France	3,662	3,096	5,315
United States	8,232	4,133	6,816
Other foreign countries	916	902	432
British possessions	159	182	195
Total	102,948	60,055	46,350

These papers were also largely supplied by Germany and Belgium. The imports from the former ceased in 1915, while the quantities received from the latter during 1915, although a little below 1913, increased considerably over 1914. The total imports, however, on account of the cessation of German supplies, decreased from 102,948 cwts. in 1913 to 60,055 cwts. in 1914, and 46,350 cwts. in 1915, or a decrease of 55,598 cwts. in the two years.

Trade in Greaseproof Paper.

The United States, Holland and Scandinavian countries have been exporting greaseproof papers to this country. The quotations received from Canada are considerably in excess of the prices for similar papers made in Scandinavia or the United States. The pre-war prices on Scandinavian and American greaseproof varied from three to four cents per pound f.o.b. steamer. The present prices, however, are from 6 to 7 cents.

If Canadian firms wish to do an export business with the United Kingdom it is no use quoting net cash against documents at the bank where the mill is located. Importers prefer prices based on placing goods f.o.b. steamer, and the terms should be based on the acceptance of sight draft attached to documents presented through a bank in the United Kingdom.

Several samples of Norwegian imitation greaseproof parchments, greaseproofs, bleached greaseproofs, and vegetable parchments, showing the approximate pre-war prices, have been forwarded to the Department of Trade and Commerce, Ottawa, where they may be inspected on application.

Imports of Packing and Wrapping Paper.

The imports of packing and wrapping paper into the United Kingdom and the countries supplying same during the years 1913, 1914 and 1915 may be seen in the following table:—

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Russia	262,799	181,028	16,451
Sweden	1,366,507	1,218,994	1,640,421
Norway	1,059,005	1,184,485	1,547,238
Germany	892,483	623,656	418
Netherlands	175,879	166,790	157,807
Belgium	280,782	197,708	60,802
France	21,269	22,198	18,859
Austria-Hungary	8,138	6,305	.....
United States	11,107	9,600	75,383
Other foreign countries	11,335	12,588	72,710
British possessions	992	1,945	19,612
Total	4,094,296	3,625,297	3,609,201

In this trade, which is one of the most important the supplies obtained from British possessions, which amounted in 1911 to only 257 cwts., rose in 1912 to 928 cwts.; in 1913 to 992 cwts.; in 1914 to 1,945 cwts.; and in 1915 to 19,612 cwts., or an increase of 17,669 cwts. in 1915 over 1914. Sweden and Norway were the principal sources of supply, while imports from Germany dwindled down from a high position to very small proportions. The supplies from the United States greatly increased in 1915, but those from Belgium declined to about one-third, while the quantities received from the Netherlands slightly decreased.

The Machine Glazed Sulphite Paper Trade.

The samples of M. G. sulphite papers which have been submitted from Canada are of a good quality. These papers should be 100 per cent. sulphite, but if any mechanical is used this fact ought to be stated when quoting. The pre-war prices for Scandinavian papers were about 3 cents per pound f.o.b., steamer, but the present prices are from 6 to 7 cents per pound. In quoting it must be remembered that freights are lower from the Scandinavian countries than from Canada. Quotations should be given on the basis of f.o.b. steamer, and cash against documents in the United Kingdom.

A book of samples has been forwarded to the Department of Trade and Commerce, Ottawa, containing Swedish machine-glazed strong striped green, heliotrope, checkered, and strong striped grey papers, which sold before the war at about £14 ($68.13) a ton c.i.f. Bristol.

Samples of Coloured Tissue Papers Forwarded.

A smal book of coloured tissue papers, which were supplied by Sweden before the war at about £19 ($92.47) a ton c.i.f. Bristol have been forwarded to Ottawa, where they may be seen on application to the Commercial Intelligence Branch of the Department of

Trade and Commerce. They are used by florists and others for wrapping purposes.

Trade in Kraft and Sealing Papers.

Kraft and sealing papers are coming into this market from Canada in large quantities, and are of a very good standard. Several of the Canadian mills manufacturing these grades have agents in the United Kingdom and are therefore more familiar with English terms, methods of packing, and other factors of importance. Some of the firms in Canada are supplying paper which is giving every satisfaction, but it is stated that the products coming through at the present time from certain other concerns are not equal in finish and appearance to the samples upon which the orders were placed. Other complaints have also been received, and it would be well if these manufacturers wuould give special attention to the particulars given in the latter part of this report if they wish to retain their Engish connection after the war, as the Scandinavian countries, Holland and the United States are large competitors in the United Kingdom market. Canadian prices are about the same as the Scandinavian quotations. It is stated that the Canadian papers are better than those received from the United States.

Samples of Scandinavian machine-glazed striped kraft paper, as well as similar paper supplied by Scandinavia or Finland, and imitation ribbed kraft paper made in England to match that made in Germany and Norway, with approximate pre-war prices, have been sent to the Department of Trade and Commerce, Ottawa.

Market for Cap Papers.

Large quantities of cap papers are used in the United Kingdom by drapers, toy shops, and dealers in small articles for wrapping purposes of which Norway and Sweden are the largest exporters to this market; some kinds are also made in England. A sample book of different kinds of cap papers, giving approximate pre-war prices (ranging from £9 ($43.80) to £16 ($77.87) a ton c.i.f. Bristol), have been sent to the Department of Trade and Commerce, Ottawa, where they may be seen on application to the Commercial Intelligence Branch.

Imports of Strawboard.

The following table will indicate the imports of strawboard into the United Kingdom during the years 1913, 1914 and 1915, with the countries whence consigned:—

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Germany	52,153	29,616	17
Netherlands	3,452,556	3,162,631	3,815,842
Belgium	17,343	11,850	.....
United States	771	3,487	2,717
Other foreign countries	2,398	804	722
British possessions	5,211	740	3,307
Total	3,530,432	3,209,128	3,822,605

The Strawboard Trade.

The trade in strawboard has been practically in the hands of the manufacturers in Holland, where they are very expert in the production of different kinds of strawboard and, as seen in the above table, supply most of the imports into the United Kingdom.

Strawboards are bought on a basis of from 6 ozs. to 20 ozs. 22 by 32, for which the pre-war price was £4 ($19.47) per ton c.i.f. Bristol, although the present price is around £12 (58.40). An extra charge of 15s. (3.65) was generally made for 20 ozs., and upwards. When the strawboards are lined the lining is calculated on the following scale:—

6 oz.	50s.	($12.16)	per ton.
8 oz.	35s.	($8.52)	"
10 oz.	30s.	($7.30)	"
16 oz.	25s.	($6.09)	"

The boards above 20 ozs. are pasted, for which purpose the manufacturers in Holland use water-glass. In order that undamaged shipments may be made from the continent to the United Kingdom the boards are tied up in bundles of half a hundred-weight with cord and a small piece of strawboard is used to prevent the cord cutting the boards.

The importers here are very desirous of dealing within the British Empire, and an important firm in Bristol recently stated, when speaking of obtaining strawboard manufactured in Canada, "we use very large quantities and would certainly prefer to buy these boards from Canada, rather than get them from the continent."

The following samples have been forwarded to the Department of Trade and Commerce, Ottawa:—

(1) Strawboard as supplied by Holland before the war at about £4 ($19.47) per ton, c.i.f. Bristol.

(2) Strawboard with lining (Holland) pre-war price same as (1), plus cost of lining.

(3) Strawboard, kraft lined to imitate board (Holland), pre-war price same as (1), plus cost of lining.

Millboard and Wood-Pulp Board Imports.

The quantities of millboard and wood-pulp board imported into the United Kingdom from outside countries during the years 1913, 1914 and 1915 may be seen in the following table:—

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Russia	412,598	492,346	141,656
Sweden	366,493	398,389	495,679
Norway	63,422	93,770	267,903
Germany	178,098	115,796	1,697
Netherlands	16,608	20,824	15,790
France	3,321	4,342	3,887
Austria-Hungary	18,056	6,032	.....
United States	28,136	32,270	67,206
Other foreign countries	6,131	3,891	6,636
Canada	225,615	169,802	211,722
Other Britsh possessions	600	1,200	806
Total	1,319,078	1,275,662	1,212,982

The imports from Russia, which was the largest supplier of these products before the war, fell off from 429,346 cwts. in 1914 to 141,656 cwts. in 1915, or a decline of 287,690 cwts. The quantities received from Sweden, on the other hand, show a gradual increase each year, and in 1915 she obtained much the largest share of the trade, having sent 495,679 cwts. to this country. Norway also shipped largely increased amounts, while the supplies from Germany greatly diminished. Canada and the United States both show an increase in 1915 over 1914, but although Canada's share of the trade in 1915 was greater than in 1914, yet a decrease is shown as compared with 1912 or 1913. The imports of millboard and wood-pulp board

from Canada from 1911 to 1915 were 186,159 cwts. in 1911, 213,982 cwts. in 1912, 225,615 cwts. in 1913, 169,802 cwts. in 1914, and 211,722 cwts. in 1915.

Market for White and Coloured Box-Boards.

As some Canadian mills are in a position to produce the body material it would seem possible to develop a trade in the completed white and coloured box-boards. The pre-war prices of Scandinavian duplex manillas were a little less than three cents per pound, free delivered to English warehouse; the pre-war prices for Scandinavian enamelled manillas were about 3¾ cents per pound, free delivered English warehouse, and coloured enamelled manillas were about one-half cent per pound extra. The prices at present ruling are more than double the pre-war prices.

It is stated that the Scandinavian boards have been found to be much more rigid than the United States product in equivalent substances. The question of the count of the boards per cwt. is a factor which enters very largely into the consideration of the price, and it is considered that in this connection the Scandinavian manufacturers have shown better value than the American mills. If Canadian manufacturers wish to compete in the United Kingdom market they would do well to examine the Scandinavian product closely, as well as their methods of packing.

Trade in Leather Board.

Finland produces a leather board which sells in large quantities in the United Kingdom. This board is made of wood-pulp in vats by hand, and sold before the war for about £9 10s. ($46.23) per ton, c.i.f. Bristol. In Sweden and Germany a waterproof leather board is made by machinery, which, previous to the commencement of hostilities, sold for about £10 10s. ((51.10) per ton, c.i.f. Bristol. Holland, on the other hand, produces an imitation leather board which is a mixture of straw and wood-uulp, and was quoted before the war at about £7 ($34.07) a ton, c. i. f. Bristol. Samples of all these products have been forwarded to the Department of Trade and Commerce, Ottawa, where they may be seen on application to the Commercial Intelligence Branch.

Imports of Boxes and Cartons of Paper or Cardboard.

The following table will indicate the imports of boxes and cartons of paper or cardboard into the United Kingdom during the years 1913, 1914 and 1915, showing the countries of origin:—

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Germany	5,941	2,220	.....
France	741	577	455
United States	1,283	1,017	3,927
Other foreign countries	1,424	2,276	423
British possesions	.....	50	70
Total	9,389	6,145	4,875

Previous to the year 1914, Germany did the largest export trade to the United Kingdom in these products, although the United States had quite a good share. In 1915, however, the imports from Germany ceased, and the United States obtained the bulk of the trade.

Unenumerated Paper Imports.

The imports of all the other classes of paper and articles which are not enumerated separately in the British trade returns are given in the following table, with the countries whence these products were consigned, during the years 1913, 1914 and 1915:—

	1913. Cwts.	1914. Cwts.	1915. Cwts.
Sweden	10,649	13,480	37,588
Germany	51,647	36,686	428
France	45,235	41,490	53,925
United States	20,248	26,428	125,364
Other foreign countries	12,937	14,014	17,927
British possessions	522	36	8,396
Total	141,238	132,134	243,628

Essentials to Increase the Paper Trade.

A great many Canadian paper and board manufacturers do not appear to give lose enough attention to the importers in the United Kingdom in respect to bills of lading, basis of quotations, specifications, packing, etc. Although these matters might appear to be unimportant they are very essential if Canadian producers wish to secure and maintain an increasing trade in these commodities. The Scandinavian houses cater very minutely to the customs of the English market and this fact has a very important bearing in the matter of securing future orders. Attention is, therefore, directed to the following points, which, if noted and acted upon, ought to materially assist Canadian paper and board manufacturers to obtain an increasing business in the United Kingdom.

The Fulfilling of Contracts.

Some Canadian mills are giving entire satisfaction with regard to their treatment of the English importers to whom they have sold their products, but serious criticism has been directed against the methods of other Canadian firms in dealing with contracts. The opinion is expressed here that contracts have probably been taken without regard to the actual capacity of the mill, and that certain mills doing business with the United Kingdom have largely over-sold their production, with the result that shipments have been delayed and details have been ignored. A contract having once been taken should be fulfilled as rapidly as possible, no matter how the market may change before delivery is completed. It has also been brought to the notice of this office that some Canadian firms were stating last year that all contracts not completed at the end of the year were automatically terminated. This fact was not mentioned, so it is stated, when the Canadian mills began to do business in Great Britain. If this custom is peristed in it will stop all possibilities of continuous business. It will be a very serious obstacle to trade if the idea becomes prevalent in the United Kingdom that Canadian mills will not fully honor all obligation. With regard to the fulfilling of contracts the following is an extract from a letter received from one of the largest paper firms in the United Kingdom:—

"As you know, we are far from pleased with the nearly every case inferior quality has been supplied, result of our efforts to buy paper from Canada. In and it happens that the last letter we have given out is dealing with another serious case of this kind. It is all very regrettable because in connection with such

unsatisfactory business, not only the Canadian suppliers, but our bona fides are called into question, and you will appreciate that we cannot afford to have our associated with unsatisfactory transactions.

"We think this point cannot be too strongly impressed upon Canadian suppliers. It makes us very shy of their products.

"Of course, there is an immense market in this country for the output of Canadian paper mills, but a share of this trade will only be held by straightforward dealing. Already we have lived to regret the purchases of

"As you know we are only too anxious to do every- Canadian paper we have made since the war.
thing possibe to foster trade between this country and Canada, and it is for this reason that we feel the more sore over the treatment that we are receiving from Canadian houses.

"There are great possibilities of business developments, but it is essential that in the first place a foundation of confidence between all partier concerned should be established."

Packing.

The method of packing paper for the Canadian domestic market is not suitable for export to the United Kingdom. All paper, with the exception of rolls, should be ream wrapped in every size, and then press packed in bales of about 5 cwt. The custom prevalent on the continent is to use boards at the top and bottom of the bales, and to surround them with iron bands. Importers in this country prefer quotations to include, not only the first cost of the paper, but the cost of packing, and all charges up to the time of putting the goods on board the ship.

Quotations.

Quotations have been and are being received from Canadian firms with prices "f.o.b. mills," "f.o.b. steamer," "f.o.b. wharf," and other concerns simply quote "f.o.b." without specifying their meaning of the term. All quotations should be based on "f.o.b. steamer terms, as the United Kingdom importer is accustomed to have the term "f.o.b." mean "free on board steamer," and all charges up to the time the goods are placed on board the steamer put to the seller's account. This custom is followed by the European mills doing business with this country, and Canadian paper producing concerns should do likewise in order to meet competition in the United Kingdom market.

Specifications and Weights.

Specifications giving gross and net weight of each roll or bale should be sent with all invoices. When the paper is below the nominal weight exporters should not charge the nominal weight, as English importers are accustomed to the European method of charging actual scale weight when the paper is below the nominal weight, and nominal weight only when the actual scale weight is above the nominal.

With regard to rolls, charges should not be based on the gross weight, including centres, cores, wrappers, etc., and treated as net weight. The European method is to charge net weight only, and the weight of the wrappers, cores, centres, etc., are deducted from the gross weight, the balance being the net chargeable weight. The buyers here are accustomed to this method, and Canadian mills should adopt this system if a continuity of trade is desired.

Out-turn Sheets.

The question of supplying out-turn sheets may appear to be a small matter, but from the point of view of the trade in the United Kingdom it is really an important factor. An out-turn sheet should be sent with the specification of every order which is ready for shipment. If this is not supplied the quality of the paper shipped cannot be tested until the bulk actually reaches the warehouse and the bales or rolls are opened. The custom of sending out-turn sheets is generally followed by continental mills.

Freight Charges on Bills of Lading.

The English custom in regard to charging freight is that only the actual amount paid to the shipping companies is charged to the customer, and the bills of lading show this amount. The continental mills observe this method. It is stated, however, that bills of lading connected with shipments of paper from Canadian mills frequently do not show the rate of freight per cubic foot or per ton dead weight, and some simply state "a tcontract rate", and sohw only the aggregate amount of freight for the shipment. It is thus impos sible for the English importer to check the amount of freight mentioned on the invoices. It would be well to remedy this custom if the trade is to be increased.

In conclusion let it be said that Canadian paper manufacturers should cater as much as possible to the foregoing requirements of the market if a continuity of trade is to be maintained betwen Canada and the United Kingdom.—Trade and Commerce Weekly Bulletin.

CHEMICAL FILTER PAPER.

In the course of an article in the recent issue of the "Analyst", Mr. E. J. Bevan and Mr. W. Bacon state that it is estimated that, prior to the war, 500,000 to 600,000 lb. of filter paper of all grades were imported into this country; at the present time only four English papermakers are producing filter paper, but excellent qualities of paper are now on the market. For most filtering purposes a paper should possess the character of "softness", and the technical term for this is "bulk", a term defining the relation of the volume of the paper to the volume of the fibre; generally, for a moderately rapid filter high paperthe bulk should be about 3'5 (fibre=1). Pinholes sometimes occur in papers of this class, and are due to faulty manipulation of the beaten stuff at the mill. Cotton cellulose is preferable to linen (flax) cellulose in the manufacture of high-grade papers owing to its low hydrating power and to the fact that it imparts more bulk to a paper. It is difficult to get new waste material for this manufacture, and the source of many of the chemical impurities in the finished paper may be traced back to the raw material. The lime present in filter paper is chiefly derived from the water used in the manufacture; chemical bleaching of the material also contributes to this impurity. Iron and copper are frequently present, and sometimes alumina and silica, due to loading of the material with kaolin. Starch and oil are the chief organic impurities in filter paper; both are derived from the raw material, and are for the greater part removed by the alkali treatment and washing.

Experiments by a British expert of reforesting some of the hills of China have led to the establishment of a comprehensive course in forestry in a university in that country.

Points to Remember in Export Trade

Canadian manufacturers embarking on foreign trade will be interested in the appended extract from the March Number of "The Nation's Business," disclosing trade pointers that should be followed in acquiring overseas customers:—

The man who is producing economically certain necessities of civilization has great possibilities ahead of him.

It is a matter of ascertaining conditions and meeting them, in Central and South America, as well as in Europe and the Far East. An American piano might warp in the dampness of Costa Rica, and the white ants might eat the wood, so a German firm will import wood from Costa Rica, which is ant-proof and damp-proof, and make their pianos for Costa Rican trade from that. The remedy for foreign ocmpetition is just the same as the remedy for any other kind of competition: Produce the best article for the money, and advertise and sell it by methods that will succeed in the country where they are used. Americans do this with certain products; they do not do it with other things because they do not apply common sense to the production of them. Pianos are not the only thing we cannot sell in Costa Rica. Trousers having metal buttons, for instance, will not sell there; the buttons rust. The obvious thing for American business men to do is to investigate conditions in countries where they want to sell. Europe has just one magic formula for this kind of thing: it is called Horse Sense.

Personal Representation Best.

Three months ago an American salesman was searching Paris for a certain kind of leather goods. He could have made a $20.000 sale if he could have found the material. Later, his firm wrote to him that their French agent had always told them that there was no market for that particular article. In other words, they had relied on information given them by a foreigner who knew nothing about the article to be sold or the effective way to handle it. Many of these foreign agents represent twenty or thirty firms, and they simply wait for the orders to come and knock on the door. The moral is, do it yourself, or let your own personal American representative do it, and "do it in French," or in whatever may be the language of the country.

An intimate understanding of the business of a prospective customer is as much a salesman's stock in trade in Europe as in America, and this takes a personal touch which is impossible without a knowledge of language. It is the more vital in Europe because the average retail business is jointly conducted by the merchant and his wife, and the acquaintance of both must be cultivated. Thus it becomes in part a problem in the social graces. In France a merchant takes the salesman home to dinner instead of to the club, as in the United States. Or the salesman may accompany the merchant and his wife to a café, where no business is allowed to intrdude till the social side of the occasion has crystallized. Without French that sort of thing cannot be done.

Cater to Your Customers.

One salesman makes it a point to discover the hobbies of his customers and rides them all when the opportunity offers. He has a record of birthdays that fills many pages in his notebook, particularly the birthdays of the children, and sends post cards and other small rememberances wherever he may be upon the important day.

Foreign firms send English-speaking representatives to this country. Sir Thomas Lipton has the largest tea trade in the world. He sends representatives to all countries. If he sends a man to South Africa, the man can talk Dutch, and knows the tea business and both ends of the line. Another characteristic of these master traders is that they apply elsewhere the business methods which they have found effective in their own countries, making only such modifications as are necessitated by the special business customs of the countries in which they sell.

Establishment of Credits.

Two modifications which have to be made on the Continent of Europe and in many parts of South America have to do with credit and with the collection of accounts. In Europe, for instance, 30 days is cash; and three months is the ordinary basis of payment followed by every business firm of standing. Credit is established through agencies similar to Dun or Bradstreet in this country. Accounts are collected through the banks, not by check system, which is generally mistrusted. A merchant deposits his drafts at his bank at the end of each month. He is credited by the bank on the spot with the amounts to be collected, and the bank does the collecting later. Of course this implies unimpeachable standing on the part of the merchant. A salesman who tried to overstep usages of this kind would lose many customers, because retailers will not adjust themselves to conditions imposed from without. They will simply buy elsewhere.

How To Advertise.

Ill-considered, headlong advertising is one of the rocks on which many an attempt at foreign trade has split. Advertising agencies in a country like France can place advertisements and are worth employing, because they get their commission from the paper, not from the advertiser. But they can give no reliable information as to which paper gives the best returns. The only course is to try the different papers with small amounts of advertising and test them by results before giving large contracts. In France the big papers reach every part of the country, just as do our big magazines here. It is therefore a special problem, not to be solved offhand. Another big fallacy in foreign trade is the translated advertisement. The success of an advertisement in America does not mean its success in countries whose people differ from us in their general psychology to a startling degree. Broad assertions that an article will do a certain thing for instance, do not go in Europe. The people want to be shown.

Moreover, their habits have to be considered. They know nothing, for instance, of our kind of biscuit, known in the South as "hot-bread", and a baking powder "ad" showing several appetizing biscuits on a napkin would miss fire in Europe. The picture of the luscious shortcake would meet with the same fate. And so it goes.

One American recently lost $100.000 advertising a reputable proprietary remedy in Europe because he did not know the European buyers demand that such a remedy be indorsed by well-known medical men. His translated indorsements from American physicians did no good. He did not know, and he did not take the trouble or the right means to find out.

Business Training Necessary.

There is just one foundation for American business to build on if it is to gain foreign trade, and that is a sound knowledge of the needs and conditions of other countries. The way to get that knowledge at first hand is to raise up in this country an army of young American business men who have been trained, not only in business but in languages, the whole training to be rounded out with practical experience in foreign fields.

One of the most important steps yet taken by our unicersities in this direction is that of the University of Kansas, where an effort is being made to install at the first opportunity courses in Dutch, Portuguese, Russian, Chinese and Japanese, in addition to the courses already being given in German and the Romance languages. One object will be to combine, with a training in the speaking of these languages, some knowledge of the business and social conditions where they are spoken.

If all this means anything at all, it means that the days of business pioneering, and of opportunity for making great fortunes through such pioneering, have not passed. It means a new era in American business, and possibilities for growth far beyond anything we have dreamed. It means enormous stimulation of our industries; new paths set for the feet of our young men; and a material prosperity so great that it may well harm us—unless, indeed, we hold fast to spiritual ideals, and unless we come to understand, with it all, that we are not engaging in cutthroat competition with the rest of the world, but are the world's business partner, making straight the path of commerce for the profit of all, and forging out of common interest a bond which shall bind us to the rest of humanity with hoops of steel in that new era of lasting peace for which we pray.

ROYAL COMMISSION ON PAPER

Revised Regulations As To Licence For The Import Of Paper, Etc.

The Royal Commission on Paper issued on the 21st ult. following revised regulations as to licences for the importation of paper and paper-making materials on and after March 1st:—

1. Under the provisions of the Proclamation of His Majesty the King, dated February 15th, 1916, no paper or paper-making materials may be imported into the United Kingdom by any person other than those who are licensed by the Commission, or by an agent acting on behalf of a person so licensed.

Printed Matter, Coated Paper, Paper-Hangings, Etc.

2. The importation of printed forms, writing paper with printed headings, calendars, show cards, labels, posters, and colour or lithographic printing, and other printed and coated paper and paper-hangings will not be permitted.

The importation of such printed matter as newspapers, magazines, periodicals, catalogues, price lists and unbound books, other than single copies sent through the post, will not be permitted, except in special cases for which a licence may be granted in exceptional circumstances.

Wrapping and Packing Paper, Straw and Other Boards, Boxes and Cartons.

3. Licences may be granted to importers of wrapping and packing paper, strawboard, millboard, wood pulp board, card board, pasteboard, and boxes and cartons of paper, cardboard, etc., to import during the twelve months commencing March 1st, 1917, one-fourt of the weight which they imported in the previous year on other than Special Extra Licences. Extra Licences for the importation of these goods for Government purposes will be granted by the Commission only on production of an authority from the Department concerned.

Other Paper.

4. Licences may be granted to importers of paper other than that which is included in Regulations 2 and 3 to import during the twelve months commencing March 1st, 1917, one-half of the weight of such paper which they imported in the previous year on other than Special Extra Licences.

Paper-Making Materials.

5. Licences may be granted to paper-makers to import during the twelve months commencing March 1st, 1917, ont-half of the weight of paper-making materials which they imported in the previous year on other than Extra Special Licences. Licences may be granted in exceptional cases to dealers in paper-making materials.

The General Regulations, which apply to all importations under licences issued by the Government, are of a comprehensive character, and among other provisions are the following:—

The importer is the person who has bought or ordered the paper or paper-making materials which it is desired to impart directly from a person out of the United Kingdom or through an agent here of such person.

The licences will not be granted to such agent unless the paper or paper-making materials they desire to import are to be imported by them on their own account as dealers.

No allowance of extra weight of paper or materials can be made for new businesses, newspapers, increased business, or increased circulation since March 1st, 1916.

No allowances of extra weight will be made after March 1st, 1917, for wet chemical pulp.

Transfers of allowances will only be made on the basis of ton for ton if the change is to be from paper to material, or to one ton of paper for 30 cwts. of material if the change is to be from materials to paper.

It must be clearly understood that any allowances which the Commission may issue will not override but will be subject to the granting of a Board of Trade licence in the case of any importation of paper or paper-making material from Belgium. — The British Paper Trade Journal.

PAPERMAKING IN VENEZUELA.

A paper mill in Caracas will shortly commence operations. It is located high in the mountains. The plant is a one-machine mill, erected originally for a German concern. It is equipped almost entirely with German-made machinery. Operations will begin with about 50 hands. A relative of the President of the Republic of Venezuela is the largest stockholder in the new paper company, while prominent New York capitalists are financing the proposition. American papermakers have been engaged to take charge of the machine and beater-room of the company, whose product will be specialties, including high-grade writing papers which will be manufactured chiefly from native grass.

Brazil Wants White Paper, Well Packed

Several visits of investigation among the importing trade here, says Consul General Gottschalk of Rio de Janeiro, have brought to light interesting data about the American print paper that nowadays reaches the Brazilian market.

The American print paper is said to be not white enough, and this attributed to lack of bleaching material in the United States. The paper as received here is oftenobjected to as being gray in tone. Exporters should note that one of the requisites of this market is that ordinary coated print paper shall also admit of writing on it with pen and ink. Another criticism is that the paper at times is too transparent and too likely to let the printing on the reverse side show through.

Packing, Duties and Terms

American print paper arrives here in pine cases, which often seem to be made of a poor quality of wood. The thinness of the wood is objected to, as is also the insecure hooping, which latter often breaks. Paper shipped to Rio de Janeiro is not subjected to extraordinary bad handling, but it invariably should be packed strong enough to stand ordinarily rough treatment. The duty on machine-finished papers amounts, all charges considered, to some 200 reis per kilo (about 5 cents U. S. gold a pound), and that on writing papers to some 600 reis per kilo (about 15 cents a pound). Errors in invoicing should therefore be carefully guarded against.

Paper Market Easing.

The paper market is easing here. Much of the paper still comes from the United States, but also much from Norway and Sweden, and some little from Holland, the last named sending chiefly writing paper. There is considerable feeling over their somewhat curt treatment by American manufacturers. The American manufacturer is accused of having not enough foresight to see that while paper is high in cost and much in demand in Brazil today, importers will remember when the market grows easier, that most American shippers have asked them to pay before they could obtain the documents at the bank, whereas European exporters used to allow them one to three months' time for payment.—Paper Trade Journal.

HOLLAND PURCHASES FROM SCANDINAVIA.

Before the war the principal suppliers of pulp were Norway, Sweden, Finland (Russia), and Germany. Since the outbreak of the war the imports from Finland and Germany have been stopped, as a result of which the Dutch paper mills have bought practically all their pulp from Norway and Sweden. The writer continues:

During the war the paper industry in Holland has been running in a generally favorable way, large quantities of paper having been exported, and the inland consumption having been larger than in normal times. During the last five or six months, however, a depression in the market has taken place and the exports, as well as the consumption in the home market, have decreased considerably. A very keen competition in paper from Germany has been ruinous for the Dutch paper mills during this last period.

The year 1915 and the first half of 1916 were very satisfactory periods for the Dutch paper trade, and consequently the imports of pulp during that period were considerable in proportion to the normal consumption of this country. Rather large stocks of pulp and paper are actually accumulated in Holland on account of the recent depression on the paper market, which has reduced the production and the consumption of paper.

News from Abroad

That veteran paper-maker, Mr. H. Hobday, of Buckland Mill, mentioned to me this week that his family had pursued the paper-makers' art continuously for over 140 years.

His youngest son is now the manager of Messrs. Wiggins, Teape & Company's Buckland Mill, and thus represents the fourth generation of the family in that responsible position, whilst the possibilities are that another member of the family in the person of Mr. Hobday's grandson, who is now studying the business, will bring the record up to the fifth generation. This surely must be something like a record in the history of paper-making!

In quite a number of mills women have adapted themselves splendidly to real hard work ofa class which prior to the war was essentially considered man's sphere. In fact, in Lancashire, there is a case where a man turned down a job because he considered the work too heavy. That work is new being performed by a woman, who apparently enjoys the occupation.

Aniline dyes are regularly being sold by public auction in the city. Recently a case containing 188 unopened half-pound tins of various aniline colours sold for £15. Other prices included the following:—Direct diamine green B, 19s. per lb.; standard direct red 4 B. 12s; and acid scarlet, 10s.

At another auction in the city, some kegs of pre-war standard Victorian blue B. were knocked down at 32s. 6d per lb.; carthamine (rhodamine), brought 12s. per lb.; pre-war standard acid black realised 10s; direct yellow G., 10s; and direct orange D.S., 10s. per lb.

Enquiries are coming to Manchester from India for all classes of stationery goods that were formerly supplied by the Huns.

In commenting on this manner in which trade restrictions on paper in England are enforced and the way licenses are given to persons no longer in the paper business, the Paper Makers Monthly Journal hopes the Government will investigate alleged storage of paper by consumers as well as by makers.

The editorial continues: — "It appears to us that there are many papers which could be curtailed and even stopped during the period of the war, without any disadvantages beyond those which the firm would necessarily suffer as proprietors of such journals. Attention seems to be chiefly directed to the daily newspapers as though they were the greatest offenders in the consumption of paper making supplies. We venture to thing that the chief daily newspapers fulfil an important function as a medium of communication between the Government and the general public.

"Attention could be more profitably directed to the temporary suppression of a large number of weeklies which consume considerable quantities of paper and merely serve as a means of filling up a few idle moments."

Fabriksaktiebolaget Sulfitsprit (says "The Journal of the Swedish Chamber of Commerce for the United Kingdom") has erected a factory at Gota, near the Lilla Edet, not far from Goteborg, and this factory was started at the end of last year. It will obtain its raw material from the Gota Sulfit Cellulosafabrik in the form of sulphite lye, which will be treated according to the invention of Mr. Gosta Ekstrom. The estimated annual production will be from 1,000,000 to 1,250,000 litres of spirit. With the completion of this factory Sweden obtains her fourth sulphite spirit factory.

Mr. T. W. David, a Cardiff timber expert, declares that wood-pulp for paper-making can easily be produced at home, and cites the case of Glamorgan, where, he says, there are whole districts of waste land where timber for pulping could profitably be grown.

Major Renold Marx, son of Mr. Robt. J. Marx, of 133-139, Finsbury Pavement, London, E.C., has been awarded the Military Cross. As a Lieutenant in the Royal Artillery he served throughout the entire campaign at Gallipoli, and was eventually wounded. Since his recovery he has been serving in France.

It is officially stated that the Ministry of Munitions is again urging economy in the use of bleaching powder, especially in connection with the manufacture of paper. If the large use made of bleach in the production of certain qualities of paper were restricted, a substantial saving would be effected for Government purposes, and the paper would not suffer except in appearance. The Ministry therefore appeals to all users and buyers of paper to be content with lower shades of whiteness, and generally to refrain from all demands that would interfere with the desired economy. All that is asked for is the sacrifice of an aesthetic requirement in view of the national need.

With regard to the use of bleach, paper-makers are asked to economise as much as possible, in quite a number of cases bleach has been very difficult to obtain.

When it is realised by the general buyers of paper that the use of bleach in paper manufactures is purposely restricted in order to use it for more important national requirements, they will cheerfully put on one side their partiality for the perfect white paper they have been accustomed to.

The labour difficulties at the paper mills are still acute, and it is feared that the already reduced staffs may be still further depleted.

At the British Industries Fair the printing and stationery departments are excellently represented, and the display of books and magazines, die and relief stampings, embossing, engraving, fine art publications, letterpress process work and lithography, cards, calendars, diaries and pocket books, notepaper and envelopes, etc., is of a most representative character. We wish we could say the same with reference to the section devoted to paper and cardboard, but unfortunately only six firms who may strictly be considered manufacturers of either of these products have seen fit to avail themselves of the opportunity presented by the Fair of bringing them before the attention of buyers from all parts of the kingdom.

SWEDISH PULP IN FRANCE.

The Chamber of Commerce at Epinal has prepared a memorandum with regard to the conditions under which cellulose and mechanical pulp may be imported into France from Scandinavia, and particularly from Sweden. According to this memorandum, the conditions of sale vary considerably, some firms selling under guarantee of the cost of freight, others without such gurantee, whilst others, again, reckon the freight according to the rate of exchange current at the time of lading. Other firms fix the rate on the actual day of shipment, and still others there are who take the day of arrival of the goods for the basis in fixing such rate. All demurrage must be paid by the buyer. The prices for air-dried pulp, that is to say, completely-dried pulp with a humidity of 10 per cent. c.i.f. Rouen, without demurrage, are at the present time as follows: dried cellulose, 72 francs per 100 kilos.; dried mechanical pupl, 45 francs per 100 kilos. Costs of transhipment from the vessel to the railway must be borne by the buyer. The rate is 100 francs—72 kr. Delivery is, of course, subject to the proviso that the Baltic ports are not ice-bound and thus closed. According to "Papier Zeitung" even the ordinary kinds of Scandinavian pulp are preferred before Canadian pulp; and trade with Canada languished becaues Canadian offers are made through middlemen who have no knowledge of the market, do not state the conditions of sale precisely and clearly, and omit incidental stipulations that may very well run prices up 30 to 40 per cent. Scandinavian mechanical pulp makers offer moist white mechanical at prices which, calculated on dried pulp, are from 3 to 3½ francs per 100 kilos. lower than the price of dried pulp.

ROUMANIANS WRECKED PAPER MILL.

At the time of the Roumanion invasion, not only the Zernest mill of the Kronstadt Paper Pulp Mill, Ltd., but the paper mill there owned by Martin Copony also fell into the hands of the Roumanians, and during the six weeks' occupation the mills — as regards all objects of value in the mills, employees' dwellings, and the offices, the whole of the portable tools, warehouse fittings, pulleys, beltings, strainers, felts, technical apparatus, laboratory equipment — were partly demolished. The mill buildings and machinery are intact, as are most of the finished goods. After the expulsion of the Roumanians, the owners returned, and the Kronstadt Co. succeeded in rehabilitating the mill, so that its re-working will be possible in a little while. Some of the employees are meanwhile busy in the company's Turoczentmarton Cellulose Mill.

THE WORLD'S AVAILABLE TONNAGE.

Only 57.2 per cent of the world's tonnage is available for commercial service at present, according to Stevenson Taylor, president of the American Society of Naval Architects and Marine Engineers. This situation will compel drastic increases in freight rates. When peace is restored world's shipping tonnage will be short 6,000,000 tons. World's normal shipping tonnage when war began, was 50,000,000 tons. Tonnage destroyed amounts to 5,000,000 tonnage commandeered to 12,000,000 and tonnage interned 4,400,000, leaving available 28,600,000 tons. Counting 1917 production as 4,000,000 tons as junk, Mr. Taylor estimates that available tonnage, in the event of a near peace, will be 44,000,000 tons.

PAPER MATERIAL TROUBLES IN ENGLAND.

The chemical pulp market continues to be troubled with the unusual conditions affecting all business transactions, uncertainty of freight, increased insurance rates, and the reduction of imports to insignificant proportions.

There is no movement yet in the mechanical market, trading being held up by the shipping difficulties, and quotations are on the upward grade.

Licenses to import — which have been doled out by the Board of Trade for the months of March to April to papermakers — have been so meagre that it has been most difficult for any firm of shippers to arrange charters. Two month's permits are regarded as too short a period in which to charter and get home cargoes of Esparto. Freights are exceedingly difficult to arrange, as steamers available for this trade are hardly in evidence. Under these circumstances, it looks very much as if by the end of April stocks on this side will be conspicuous by their absence. The price of Spanish has advanced 2s. 6d. For the sixth week in succession no imports of Esparto were reported at British ports during the week ended Saturday last, although we understand, cargoes are due.

NEWFOUNDLAND MILLS PROSPER

Newfoundland, despite the war, enjoyed prosperity last year—commerce, industry, trade and manufacturing exhibiting a gratifying buoyancy. In regard to the logging industry it is stated that spruce and fir are used very largely in the manufacture of pulp and paper, and in the great Anglo-Newfoundland Development mills at Grand Falls there is a vast consumption of this material in order to produce the daily output of 200 tons of newsprint paper and 50 tons of sulphite, pulp, which is the capacity of this plant, while smaller mills in the same vicinity are also producing mechanical pulp to capacity, indeed the outlook now is that other pulp and paper mills will be started in the near future, no less tran three different projects being in hand at present looking to this end. Finally, the cutting of material, not suited for either of these two purposes, for use as pit props or colliery wood in the coal mines of the British Isles, and in the trenches in France, has also grown into an industry of large dimensions.

NEW JAPANESE ANILINE DYE FACTORY.

According to Oil and Color Trade Journal, 50 (1916), 1903, the Japanese Government having decided to grant state aid to the color industry, and enterprise has now been started in Japan under the title of the Japan Dye Manufacturing Company. As, so far, however, no agreement has been come to between this group and the government as to exact interpretation of subvention law (which fixes the subvention at 8 per cent of the paid up capital), it has not yet been possible even to commerce the erection of the factory building. Apparently the project has been carelessly handled and the great difficulties have been disregarded as well as the question whether Japan possesses sufficient experience to enable her to take up this branch of industry and compete successfully with Germany in the dye trade after the war.—Journal Industrial and Engineering Chemistry, Feb., 1917, p. 200.

INCREASED PRODUCTION OF PAPER YARN IN GERMANY.

The British Minister at Stockholm has forwarded a translation of an article in a recent issue of "Affarsvarlden" relative to the paper yarn industry in Germany.

For a considerable time, it is stated, Germany has been a large buyer of Swedish sulphate for use in the manufacture of substitutes for jute and other raw materials for textiles. There has been a considerable expansion of the sulphate industry in Sweden of late years, a number of new sulphate factories having been built, but the demand is greater than the production. The greater part of the output goes to Germany, and a portion is now exported to the United States.

Long before the war Germany and Austria had invented methods of manufacturing paper yarns, but the introduction of these products was resisted by the jute industry. Conditions have changed, however, owing to the stoppage of imports of textile materials into Germany, and, with improved methods of manufacture, an enormous expansion has taken place in the production of paper yarn and manufactures thereof as substitutes for jute, linen, hemp and cotton.

The home production of sulphate in Germany is considerable and there is no reason why it should not be increased so as to cover the greater part of the requirements of textile manufacturers, who anticipate considerable difficulty in securing supplies of Indian jute after the war.

Owing to the high price of sulphate, it has been found necessary to mix sulphite with it in the production of paper yarn, and preparations are being made by one German firm for the introduction of an impregnated yarn of sulphite alone, which is expected to be a more suitable substitute for linen.

The leading firm in this new industry, in addition to importing sulphate, manufactures this commodity at Grefl Krappitz, and has factories for the production of paper yarn and textiles.

In the process of manufacture the paper is cut into strips by special machines, then impregnated to increase its toughness. The strips are spun on special machines, but machines formerly used for jute spinning are also utilized. At first the paper was spun together with other materials, but now paper alone is used in most cases.

The price of paper yarn has lately risen in Germany. According to the "Frankfurter Zeitung", however, the ordinary kinds of paper yarn, with 15 per cent moisture, sell at a maximum price of 2.40 marks per kilo (about 1s. 1d. per lb. taking the mark at par,) which cannot be considered high.—Board of Trade Journal.

WHO INVENTED PRINTING?

Those who believe printing to have been invented in Europe during the fifteenth century may have been surprised to read of Cambridge University having acquired "the works of the Chinese philosopher, Li Tsung Yuan, printed in 1167." China has been credited with anticipating not a few modern inventions, but her claim to have discovered the art of printing centuries before its first adoption in Europe is beyond dispute. An edition of most of the Chinese classics was printed by means of wood blocks in 922 A. D., and movable type is said to have been devised by a blacksmith, Pi Shing, in the eleventh century.—Titbits.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Why Fourdrinier Wires Decay. — By Max Oberdorfer. Paper Vol. 19, No. 26, pp. 13-16. The article deals at some length with the causes of deterioration of the wires brought about by mechanical and chemical action and suggests means to be taken for their preservation. A few of the important points: (1) Use clean mill water. (2) Keep the fourdrinier part of the machine in perfect condition. (3) Keep in close contact with your wire maker that he may give you the most suitable wire for your machine. (4) Look to the quality of the wire not the cost.—E. K. M.

Deep Draught Log Booms.—Can. Lumb., Vol. 37, No. 7, p. 32, April 1, 1917.—Equipment needed and method of construction in making rafts for ocean travel. G. G. Davis patent.—H. N. L.

(Courtesy of Chemical Abstracts).

Lining for Sulfite Pulp Digesters.—Werner Bergs. Chem. App. 3, 109-10 (1916). — Two cuts show the arrangement according to the "Kupka" and "Stella-Werke" methods. Usually the lining consists of acid-proof schamotte, quartz sand, cement, with some additions which are factory secrets. In the "Kupka" method this layer is 100-150 mm. thick and is covered inside with protecting acid-proof plates 25–30 mm. thick, all joints being covered with lead cement. In the "Stella-Werke" method there is a 20-mm. layer of cement next to the shell, next a 70-mm. acid-proof plate, then a 20-mm. layer of special cement and finally a 70-mm. acid-proof plate, all joints being stopped with lead cement. All flanged connections are made acid-proof by using bronze rings extending inside the lining 200 mm., then at a right angle out between the flanges. These connections must be as few as possible, using 1 opening for several purposes. Constant attention is required to detect and stop any leaks in the inner lining, which should be examined after every 2 charges. The lining is a good heat insulator and the outside of the digester should not be covered, as it would prevent detecting leaks through the rivet joints.

Determination of Free Rosin in Size.—G. L. Clark, Emerson Lab. Paper 18, No. 20, 18 (1916).—The method of the Committee on Standard Methods for Testing of Paper-making Materials is criticized because of the troublesome emulsions formed and of the possible hydrolysis of the size. The following method is suggested. Accurately weigh approximately 5 grams of size into a beaker, add 10 cc. of neutral absolute alcohol and mix well. Transfer to separatory funnel with 30 cc. cold water. Rinse out beaker further with 40 cc. acid-free ether. Shake. Repeat extraction 3 times with 20 cc. ether, washing combined extracts with three 15-cc. portions of water. Distil off ether, dry and weigh.

Grinding of Wood from "Old" and "Young" Trees.—G. C. McNaughton, Paper 19, No. 8, 13 (1916).—Pulp-grinding experiments on California white pine show that the advantages of production, power consumption, strength and color are all in favor of the younger wood.—See Pulp and Paper Mag. p. 214 (Feb. 22, 1917).

New Method of Making Waxed Paper.—J. A. DeCew. Paper Makers Monthly J.; through Paper 18, No. 23, 14 (1916).—An unsaponifiable wax is added to ordinary rosin size, the mixture heated to 60 pounds pressure and forced through a fine screen into warm water, making a fairly permanent emulsion. By using size so made, a waxed or semi-waxed paper can be made.

Experimental Studies in Beating Pulp.—E. K. Mansfield and J. Newell Stephenson, Pulp and Paper Mag. Can., 13, 325 (1916).—Small-scale beating experiments using a ball mill show that the addition of certain chemicals accelerates the beating operation. Na_2CO_3 is recommended because of cheapness and by adding 1 to 5% on the weight of pulp, a stronger paper was produced in a given time, or a given strength was produced in a shorter time when none was used. The results were confirmed using a 12½ lb. beater.

Niter Cake as a Substitute for Alum in Sizing. — Anon. Paper 18, No. 24, 22 (1916). — Niter cake has been suggested as a substitute for alum in rosin sizing. Niter cake produces a denser precipitate than alum and the sizing effect is somewhat different. It is necessary to know the analysis of the niter cake, but for 100 parts, approximately 24 parts of $NaHSO_4$ are required.

An Explanation of Color Values.—Henry P. Carruth. Paper 19, No. 5, 13 (1916).—The author discusses the need of a means of expressing color values particularly in the pulp and paper industry. The Munsell System offers one solution and might come into universal use if the three-color dimensions could be quickly and accurately determined.

PATENTS.

Disintegrating Vegetable Fibers.—M. Müllre and O. Heigis. Aust., 72,308, Aug. 25, 1916.—In the production of pulp from jute, manilla, rush, bamboo, esparto, and like substances, the crude material is boiled under pressure with a lye which contains as the chief constituent, alkali acetates and sulfites.

Reclaiming Sulfur Dioxide.—A. F. Richter and T. L. Dunbar. U. S., 1,213,414, Jan. 23.—Liquid and gaseous products from a digester used in the manufacture of sulfite pulp are cooled and separated from each other, the gas is further cooled and is then added to a mixture of the liquor from which it was separated together with fresh liquor, for forming pulp.

Sulfite Liquor. — A. F. Richter and T. L. Dunbar. U. S., 1,213,415, Jan. 23.—SO_2 and spent liquor produced in a digester in the manufacture of sulfite pulp are separated from each other, the spent liquor is mixed with fresh sulfite liquor and then treated with SO_2 from a burner (excess gas from the burner being combined with $Ca(HSO_3)_2$ form the fresh sulfite liquor) and the SO_2 separated from the spent liquor is then added to the mixed liquors charged with SO_2.

UNITED STATES NOTES

Extensive experimental tests are now being made at the Riverside Paper Company, No. 2 Division mill, of the American Writing Paper Company at Holyoke, Mass., for the manufacture of de-inking newsprint paper. The experimental tests which have been going on for a number of weeks are under the direct supersivion of Thomas Jasperson, who has a process for making de-inking newsprint, a product that is equal to the present newsprint paper. Mr. Jasperson is now offering to the local paper trade samples of the new paper in any quantity desired, either on rolls or flat. This new paper appears to be of an exceptionally good quality, and if the final experiments are successful the manufacture of this paper will doubtless be continued and on a broad scale. Mr. Jasperson said that he could not divulge the nature of the process to-day, and that he would first have to consult with others interested in it. He was not in a position to make a statement as to the success or failure of the process now, but intimated that developments would probably be forthcoming soon. So far as can be learned, the tests have nothing to do with the American Writing Paper Company, the company have merely given over its experimental station at the mill for making tests of the new process and manufacture of this newsprint paper.

Suit has been filed in the Superior Court at Pittsfield, Mass., by the American Writing Paper Company, against the firm of Darmstadt, Scott & Courtney, of New York. The suit, which calls for damages amounting to $20,019, has been filed for alleged non-delivery of sixteen carloads of white and coated shavings.

With the purchase of the Cheboygan Paper Company of the Union Bag and Paper Company its mills will produce no more newsprint paper, being turned over completely to the manufacture of bag paper. Up to now the Cheboygan Company had been making about 20 tons of newsprint per day.

George E. Brown, who recently resigned as superintendent of the bag department of the Taggart Brothers Company mills in Watertown, N.Y., has accepted a position as sales manager of the Raymond Bag Company at Middletown, Ohio. Mr. Brown was employed in Taggart Mill for about twelve years, working his way from the bottom up.

A strike of a large number of the employees of the Underwood Paper Company mill at Plattsburgh, N.Y., took place last Tuesday, and many of the men went out. The mill was forced to operate at a slower rate of speed and was closed down nights in order to concentrate the force of men who did not go out. From 10 to 20 per cent increase in wages was the demand, and the strikers would not allow a moment for consideration by the management.

Plans are being prepared it is understood for the merger of several of the largest American dye and chemical concerns into a $20,000,000 corporation. The merger, will represent the consolidation of the chief dye industries in the United States, and will place the industry in a stronger position to face the competition from Germany which is expected at the end of the war.

The annual meeting of stockholders of the Remington Paper & Power Company, and the election of directors and officers for the ensuing year was held at Watertown, N.Y., last week. The board of directors elected were: M. S. Wilder, M. A. Hanna, C. H. Hanna, and R. B. Maltby, of Georgetown; George Seaman, of Chicago; Joseph Seaman, of New York, and W. P. Leach, of Cleveland, Ohio. At the meeting of the directors, the following officers were elected: Mark S. Wilder, president; Mark A. Hanna, vice-president; Carl H. Hanna, second vice-president; R. B. Maltby, secretary and treasurer; John A. Remington, assistant secretary.

The Kalamazoo Vegetable Parchment Company of Kalamazoo, Mich., is rushing work on its new paper mill. The building is now almost ready for the roof, while the five boilers for the boiler house have been shipped and will be installed as soon as they arrive.

The deed transferring the Crane Brothers mill at Westfield, Mass., to the Mars Paper Corporation, has been filed with the register of deeds at Westfield. The Mars Paper Corporation acquired control of this property several months ago, and the work of repairing and remodelling the plant was immediately started.

Advices from Kaukauna, Wis., stated that the stockholders of the Fox River Valley Pulp and Paper Company, decided at a recent meeting to dissolve the corporation and articles of dissolution were filed in the office of the register of deeds. A. W. Priest is president of the company and Judson G. Rosebush, secretary.

The Forest Service is offering for sale some fine timber on the Plumas and Tahoe National Forests, in California. This tract embraces, it is said, an area of about 7,400 acres. The timber consists of about 91 per cent red fir and 9 per cent white fir. The red fir trees average, officials say, from 26 to 30 inches in diameter and run about five logs to the tree. The density of the timber varies considerably, the maximum being about 75 to 80 m. per acre. The area within the Tahoe Forest (2,000 acres) has been carefully cruised; the area within the Plumas has been estimated ocularly by experienced men and a cut of 650,000 cords in all is guaranteed. Officials of the service say that the pulp and paper plant needed in connection with this operation may be located in the vicinity of Blairsdon on the Western Pacific Railroad. There is plenty of room, they say, at this point for settling basins and yards, and water could be secured from the Middle Fork and Feather River for use in connection with the plant, but not for power.

Chief Engineer, J. W. Brassington, of the American Writing Paper Company at Holyoke, Mass., will continue the duties of the fooice recently made vacant by the resignation of A. O. Weber, with that of Chief Engineer. The Engineering Department of the American Writing Paper Company, has many busy days mapped out for it. All of the local plants of the company will be gone over with the view of making changes and improvements later where it is found advisable.

Newsprint Situation Made More Complex by Indictment

(Special by R. W. JOLLY).

New York. N.Y., April 14, 1917.

Perhaps never before was the newsprint situation more complicated than it is at the present time. And to make matter worse, we learn to-day that the Federal Grand Jury has actually indicted seven of the prominent ment in the industry. It is true that an indictment in itself means nothing, but it is felt that this action will absolve those mills who have been assisting and co-operating in the work of the Federal Trade Commission, from continuing along this line. That is to say, the manufacturers in question will be less zealous to "aid" and may decline to be considered in any movement to distribute newsprint. Before discussing the other situations that have just arisen, let me tell of the indictment of the "big" men in newsprint.

The indictment includes the following five members of the Executive Committee of the Newsprint Manufacturers' Association: George H. Mead, chairman of the Executive Committee and President of the Spanish River Pulp and Paper Mills, the Lake Superior Paper Company, and of the G. H. Mead Company, of Dayton, Ohio; Philip T. Dodge, president of the International Paper Company; Edward W. Backus, president of the Minnesota and Ontario Power Company, and of the Fort Frances Pulp and Paper Company; George Chahoon, jr., president of the Laurentide Company, and manager of the Canada Export Paper Company; G. H. P. Gould, president of the Gould Paper Company, and the Donnacona Paper Company. These others have also been indicted. Alexander Smith, of Chicago, vice-president of the Abitibi Power and Paper Co.; Frank J. Sensenbrenner, vice-president of the Kimberly, Clark Company, of Kalamazoo.

The statements of Mark Hyman, one of the special assistant United States District Attorneys, will be of interest. He said that the alleged conspiracy to raise the price of newsprint paper began late in 1915, or early in 1916. Prior to these dates, business was dull and the demand for paper was limited. When business picked up, the combination began to increase the price which then ranged from $36 to $38 a ton.

"The Newsprint Association," said Mr. Hyman, "represents about forty-three paper manufacturers. Among its members are all of the manufactures in the United States except the Great Northern Paper Company and the Tidewater Paper Company. The increase in rate went on until the minimum price was $60 a ton, and the maximum rate appeared to be the blue sky. Some of the little fellows who bought through jobbers paid as much as $160 a ton."

The indictment sets forth that since December, 1914, the date to which the inquiry goes back, the grade of paper mainly used by publishers has been manufactured in large quantities in various states and in Canada, and that some of it was shipped abroad. It says that the daily output of the paper in the United States is about 6,300 tons of an approximate value of $250,000. Of this output about 5,600 tons are manufactured and shipped by the concerns represented by the Newsprint Manufacturers' Association.

The indictment was rather scathing and spared no feelings. George F. Steele, secretary of the association, was not named as a defendant, the indictment explains, because he appeared as a witness beofre the Grand Jury, and was instrumental under subpoena, in furnishing many facts needed by the Federal prosecutors. But Mr. Steele is held culpable with the defendants because they with "said Steele have had the active control of the affairs of those concerns." The indictment says that because the newsprint manufacturing concerns controlled 55 per cent of the newsprint trade and had the facilities for controlling 65 per cent. the "defendants and said Steele were able to dominate ~~to~~ said listed concerns as to the manner in ~~which they should carry on said trade concerns as to~~ the manner in which they should carry on said trade and commerce, and were able, through their said knowledge and said connections, to encroach upon said trade of such concerns as might fail to submit to the regulations, rules and decisions. The indictment goes on to say that the rules and regulations promulgated by Mr. Steele and the defendants prevented the concerns from competing with each other or with the Great Northern Paper Company, of Millinocket, Me. Other parts of the regulations, rules and decisions, said in the indictment to have been adopted for the purpose of controlling the trade so that high prices might be demanded read:

To co-operate in discouraging the erection of new mills or for the installation of new machinery for the manufacture of such paper, to co-operate in preventing new concerns from competing by transferring orders and contracts to such paper to such new concerns on condition that such new concerns should not compete with said concerns, to furnish from time to time to said Newsprint Manufacturers' Association, at 18 East 41st street, in the Borough of Manhattan, for the information of the defendants and said Steele, full and complete information and data concerning their contracts with their customers and the quantity of such paper manufactured, carried in stock, or sold by them and also the capacity of their several plants and other details of their several businesses."

At the request of Mr. Colby, bench warrants were issued for the defendants. Bail in each case will be fixed at $5,000. What effect the indictment will have upon any agreement pending between the representatives of the concerns involved in the proceeding and the Fderal Trade Commission could not be learned. Mr. Hyman said that the inquiry had been conducted without considering what might be going on concerning the matter in Washington. So far as he knew, the two proceedings would not come together. Each would have to stand on its own feet.

No doubt the trade will be interested in this statement handed out by Mr. Colby, another of the assistant United States District Attorneys.: "The newsprint combination is a somewhat loosely articulated one, but in my opinion clearly and obviously designed to circumvent the prohibitions of the Federal laws against combinations in restraint of trade. The association gathered from its members not only data as to their capacity and output, but copies of outstanding contracts with the publishers of newspapers, of every member of the association. The association thus had information as to how every newspaper in the country stood as to its supply of newsprint paper, and the date of expiration of every contract. The members of the association frequently refused to give quotations on newsprint paper to any publisher who had a contract

(Continued on Page 408)

PULP AND PAPER NEWS

The Gordon Paper Co., 72 Albertus Ave, Toronto, wholesale and retail paper dealers, has been dissolved and the business will be continued by Claude A. Gordon.

John G. Sutherland, sales manager of the Spanish River Pulp and Paper Mills, who has been residing in Toronto for several years, left last week with his wife and family for Dayton, Ohio, where they will make their future home.

Gummed Papers, Limited, Brampton, are building an addition to their plant of 40 x 60 feet, in order to take care of their increased business. The members of Gummed Papers, Limited, have also organized a company to be known as Dextrine Products, Limited, for the manufacture of dextrine and dextrine products, light and dark British gum and sizing for paper and cotton mills. The company have associated with them in the business, G. W. Unsworth, who has been in the manufacture of these goods for the last thirty years and is an expert. The plant of the comapny is in Brampton and they expect to be in a position to supply materials within a few weeks. The organizers of the Dextrine Co. are R. R. Barber, W. J. Hood, E. R. Colbert and G. W. Unsworth.

Good progress is now being made on the new thirty ton sulphite plant of the Lincoln Paper Mills Co. at Merritton, and it is expected that the mill will be in operation in June next. J. G. Armbruster is the superintendent of the sulphite division.

Thomas Murphy, chief engineer of the Port Arthur Pulp and Paper Co., left Toronto last week for Port Arthur to superintend construction operations. Excavation has been begun and it is expected that the first unit of fifty tons of the new sulphite mill will be running before the end of the year.

E. C. Martin, representing the Scott Paper Co., Philadelphia, Pa., spent a few days in Toronto last week on business. Hhe states there is every indication, owing to the entrance of the United States into the war, that all classes of paper will advance in price.

The Rainy River Pulp and Paper Co., whose head offices are at Dover, Delaware, have taken out an extra provincial license to carry on business in British Columbia, as lumbermen and to manufacture lumber, timber, pulp and logs.

The Toronto members of the Canadian Paper Box Manufacturers Association, the annual meeting of which was held some time ago, hold forthnightly luncheons at the St. Charles hotel, Toronto. The functions are quite informal, but many matters of interest are discussed at these gatherings.

W. N. Hurlbut, of Sault Ste. Marie, Ont., who is assistant to the president, George H. Mead, of the Spanish River Pulp and Paper Mills, Limited, is removing to Dayton, Ohio, in the near future, where the headquarters and sales offices of the company are established.

John M. Imrie, manager of the Canadian Press Association, Limited, Toronto, has returned from an extended trip through to the Coast. He attended several divisional meetings of newspaper men and reports that between two hundred and fifty and three hundred weekly publishers in the Dominion have raised their rates to a dollar and a half per year, while some of the owners in British Columbia are getting two dollars for their journals. In no instance, where a newspaper man has raised the price of his paper, has he had cause to regret the step taken. About thirty dailies have also increased subscription rates and several sheets in the west are now charging subscribers ten cents a week. The membership of the Canadian Press Association was never as large as it is at the present time, and Mr. Irmie secured over thirty new members. Of the 123 daily newspaper properties in Canada no less than 101 are identified with the Association. The annual meeting of the Canadian Press Association will be held in Toronto on June 14 and 15.

At Iroquois Falls everything is getting into full swing for the summer now. They are getting ready to concrete the new machine room, the Sulphite Mill is three-fourths finished and the additions to the Grinder room and Screen rooms are well under way. All this makes operation quite a problem, but up to the present the mill has kept going at almost maximum capacity.

HUGE TANKS FOR PULP INDUSTRY.

The Canadian Pipe Company, Ltd., Vancouver, recently turned out a number of tanks for Ontario and British Columbia pulp companies, which Manager McGregor describes as easily exceeding in size and massiveness anything in the way of a circular wooden container ever manufactured in this province up to the present. Four tanks for Ontario customers were each 26 feet in diameter by 20 feet in height, inside measurement; the side material was 6 x 8 inch clear fir, while bottoms and heads were 6 x 6 inch stock. Five tanks were built to the order of Pacific Mills, Ltd., for their Ocean Falls plant; three of these were each 26 feet in diameter by 24 feet high, made of 6 x 6 inch clear fir, with bottoms and heads of the same thickness. Two were even larger—28 feet diameter and 28 feet high, 6 x 6 inch stock for sides, bottoms, and heads. The latter are blow-pit tanks and have false bottoms of three-inch material set at a slight angle, each bottom being perforated with nearly 20,000 holes, tapered from 1/8 to 5/8 inches, and each seared with a red-hot iron to harden the wood roundabout. An average of 25,000 feet of lumber was required for each tank, the stock being furnished by the False Creek Lumber Company, Ltd.

The annual report of Mr. Graves, Chief of the United States Forest Service announces total receipts for the past year to be over $2,800,000, an increase of more than $340,000 over the preceding year.

There is apparently a possibility that the Murray Bay pulp mill of 100 tons daily capacity, which has been crippled from the beginning for lack of water power, may secure several thousand horsepower from the Laurentian Power Company, Ltd. This would necessitate a transmission of 35 miles and it is rumored that a rate very favorable to the manufacturer can be secured.

It will be recalled that this pulp mill was built by the Forget interests a few years ago but went into liquidation almost at once.

Almost all pulp and paper mills in Quebec and Ontario will have a shortage in their expected log cut this season. This shortage varies from 15 to 40 per cent. Those firms which have a lumbering business as well as pulp and paper will likely undoubtedly curtail or close down the lumber end to make up for the deficiency in pulpwood.

There is likely to be an acute situation both in the lumber and pulpwood products next fall.

Grosart, Limited, logging contractors report a very successful winter at Mattagami River where they have thus far cut some sixty thousand cords of spruce for the Mattagami Pulp and Paper Co. Cutting still continues and will be carried on all summer.

Harry Riemer has severed his connections as editor of The American Stationer and Office Outfitter to become associated with the editorial staff of the Fairchild Publishing Company, of New York. Mr. Riemer was for sometime associate editor of the Paper Trade Journal.

WAX AND GLASSINE PAPER CO.

The first annual meeting of the Wax & Glassine Paper Co., Limited, of Cookshire, Quebec, was held on April 14th, when the following board of directors was elected: President, Senator Pope; vice President and Managing Director, J. L. McNicol; Secretary, C. MacRae; Treasurer, M. L. Planche; Directors, E. Cromwell, T. E. Osgood, W. A. Stevenson.

The main building in connection with this company is now in course of erection, and should be completed ready for the equipment on or about the first of May. The equipment in connection with this new company consists of one 62in. patent waxing machine manufactured by Mayres, of Rochester, N.Y.; one 57in. Oswego cutter; one 60in. Cameron slitter and winder; one 65in. Hamblet sheet cutter, supercalender, and one 48in. three color multisize rotary press, and other printing equipment used in connection with the manufacturing of wax and glassine paper. The company hopes to be in full operation some time around the first of July, turning out high grade wax and glassine paper suitable for the bread wrapping, and confectionery trade. After the election of the directors it was very gratifying for them to learn that nearly all the shareholders present at their general meeting at Cookshire doubled their holdings to insure the company starting off with a clean sheet. The Managing Director, Mr. J. L. McNicol has a wide and varied experience in connection with all grades of paper manufacture. Another one of the directors is a man of very wide experience in connection with paper mill equipment, Mr. W. A. Stevenson, President of the Norwood Engineering Co., Lawrence, Mass., and Cowansville, Que.

OTTAWA NOTES.

Ottawa, April 16th.

Big American pulp producing and paper manufacturing interests are operating in Ontario at present on a large scale with a view of buying practically every available stick or log of pulpwood for export purposes.

This information is locally known to the paper manufacturing trade here and according to authority from an authentic source $75,000 was deposited in an Ontario Bank a week or so ago for the use of agents representing American interests. The money, it is said, was to be used in purchasing pulpwood at the prevailing market prices or at fractions higher.

For the first time in many years outside interests have been willing to purchase the "green" wood standing on its virgin soil. The best information is that parties representing interests outside of the Dominion are willing and eager to purchase such a supply.

Northern Ontario is to be extensively tapped for its great stocks of spruce timber. Greater efforts are now being made to get at this very valuable supply.

With the United States at war it is reasoned by a local paper manufacturer that, at least regarding newsprint, that consumers in the United States will have to have their present full supply or perhaps more. The fact that American agents are willing to buy "green" standing pulpwood is an indication that they are looking ahead to ensure their supply.

A clause in Canada's treaty with the United States regarding the export of pulpwood curbs the activities of American interests in encroaching on the Canadian supply. This treaty absolutely prohibits the export of unmanufactured pulpwood taken from Crown lands. Thus all pulpwood growing on or cut on Crown lands has to be utilized in Canada or else prepared or manufactured in Canada before being sent abroad.

Though there is nothing known locally of a definite nature there are some indications that point toward the erection of a big American owned pulp preparing plant in Canada soon.

Officials of the Booth, Eddy and Bronson paper plants in Ottawa are in somewhat of a quandary as to how the entry of the United States into the European conflict will affect trade with their American customers.

Every day since the announcement came that the States had decided to "go in" some unusual development has cropped up with the result, as Mr. Jackson Booth says, "it is too early yet," to fully state what will be the ultimate outcome of the unprecedented situation.

When the freight tie-up occurred a week or so ago and the C. P. R. and the Grand Trunk roads refused for a time to accept freight shipments, the paper trade did not suffer overly heavily because shipments of paper were on the "exempt" list.

What the outcome of the situation which has created itself will mean to the paper and pulp trade of Canada is still very much a matter of speculation. Unusual circumstances will doubtless crop up and like as not will be adequately dealt with by the manufacturers. According to opinions expressed by manufacturers in Ottawa it is a very fair assumption that the effect of the entry of the United States into the war has not yet given its full significance to the Canadian Paper and Pulp trade.

The Markets

CANADIAN MARKETS.

Toronto, April 17th, 1917.

The most important announcement during the week in the newsprint arena is the action of the Canadian Government in appointing R. A. Pringle, K.C., as a commissioner to inquire into the newsprint situation in the Dominion. It was only in March last that a set figure was finally reached with regard to newsprint and this agreement is understood to be in force for three months, expiring in June. If the makers of this commodity then feel that the cost of production has gone up so that it cannot be profitably supplied at two and a half cents, they can submit evidence before the federal authorities and a new price arrangement may be entered into. The indictment of several Canadians before the federal grand jury in New York for alleged use of their power in restraint of trade in violation of the Sherman anti-trust law, created some interest in newsprint circles, but just what will come out of the proceedings remains to be seen. It is significant that the Ottawa government has also got a move on about the same time and it looks suspiciously like collusion between the authorities at Washington and at Ottawa to force the hand of the paper manufacturer by any means at their disposal. What will arise from Canadian investigation or what scope it will take, no one can now say. At any rate, the manufacturers are not at all affrightened by the new turn of events.

"It is all very well for certain newspapers to hurl charges that the newsprint manufacturers are making money out of war conditions," remarked a leading member of the trade this week, "but why get after the newsprint end all the time. Why not, as the saying goes, probe the fellow higher up, or upon whom many of the mills are dependent—the pulp man? Not one word is heard about investigating this branch of the business and the newsprint manufacturer is made the goat."

In the meantime the demand for news grows more acute all the while and the tonnage exacted by American papers, in view of that country entering the war, will be greater than ever. The hand of the news manufacturer may be forced to such an extent that he will adopt the expedient of turning out other kinds of paper on his machines or shut them down altogether and sell his pulp, thus making more money than he can by furnishing newsprint at an aribtrarily fixed figure.

In the wrapping paper line a somewhat contradictory state of affairs prevails. Fibres and krafts are moving rather slowly and the stocks on hand in wholesale houses is large which has induced price cutting in some quarters to unload. On the other hand, there is a splendid demand for grey browns and manilas and mills cannot fill orders. The reason of the unusual requisition for the cheaper lines is that there is a tendency on the part of many establishments to economize just now in paper bills and they find that they can best do so by using the manila and grey browns for wrapping purposes.

Tissue and toilet mills are all busy, and while orders have dropped off somewhat, the manufacturers have no cause to complain. It is understood that a meeting of the trade was held recently and everything was found to be going satisfactorily with the makers. Prices are not likely to be raised, at least, for some time unless an unforeseen circumstance occurs and mills have business enough on hand to carry them along for several weeks.

The groundwood situation does not improve and prices remain stiff. Some of the mills have been suffering from low water and anchor ice and have had to shut down part of their grinders. The outlook is gloomy and price levels may reach a much higher position. The cause will be lack of wood. The announcement that twelve thousand more men are needed for forestry units is not an encouraging one. Recruiting depots have been opened all over Canada to receive candidates and, in view of the shortage of ocean tonnage, Great Britain has undertaken to provide herself in large measure with lumber and timber from forests at home. Therefore, the work of the forestry battalions have grown in importance and the call for men to wield the axe and the canthook is all the more incessant. At present, ten thousand Canadians are engaged in lumbering operations in the British Isles and of this number five thousand were enlisted and sent overseas from forestry battalions. This has taken the fellows from the Canadian woods and leaves a great dearth of labor which will be further felt by reason of the fresh enlistments.

In sulphite pulp, prices remain firm, although consumers have been prophecying a drop. It is a remarkable fact, that there has been practically no change in cellulose quotations for six months. About a year ago values began to climb and when sixty and seventy dollars was reached it was predicted that the end had come, but loftier went the figures until they touched a hundred and ten and a hundred and fifteen for easy bleaching pulp and there they remain. It is estimated that there will come on the market in the Dominion during the next few months, with mills under construction, about 360 tons daily. Some will be ready in a few weeks, but the remainder will not be offered until next year. What then will be the effect on prices? It is believed, in view of the small shipments from Europe occasioned by the war, that the added tonnage will be easily absorbed with growing demand Canada is now producing about one thousand tons daily of sulphite pulp and all the mills are finding a market for the same. There is very little offering outside of contracts and last year the United States received from sources, outside of Canada, about one hundred and fifty thousand tons or five hundred tons a day which has been shut off owing to the submarine campaign. Consequently American mills must look elsewhere for supplies and to the Dominion is the natural channel. As the added production in Canada will be only 360 tons, the supply will fall short of meeting the ordinary demand and this will likely tend to keep prices up, so say those in a position to know.

There is some feeling in certain quarters, shown by the paper mills, against the pulp manufacturers, who, it is contended, are responsible for the present very high prices of paper in all lines, but can one blame the pulp producers, for allowing the law of supply and demand to govern the figure for their product? This is the situation in a nut-shell.

All book and writing mills are busy and so are coating plants. Orders are not as numerous or large as they were a few months ago, but there is plenty of business for all concerns.

"The paper market as a whole is in a rather peculiar state just now," remarked a leading sales manager this week. "Jobbers and large consumers do not know where they are at. There is a tinge of uneasiness all around and they do not know whether to enter the market and buy in large quantities or hold back. The future is full of uncertainty with the United States entering the war, and, while prices on all lines of book papers have softened across the border, there is no evidence of any recession in values on this side of the line where, under normal conditions, production does not quite come up to consumption."

Printing establishments are pretty busy at the present time and jobbers are doing a good business in all lines of cover, ledger, bond and machine finished papers.

An evidence of the widespread inquiries for pulp is revealed by the fact that the Port Arthur Pulp and Paper Co., which has just started excavatio non its new sulphite plant at Port Arthur received a request this week from an Old Country concern to send prices and all other data.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (car load), No. 3	$7.75
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.75 to $10.00
xBook papers (carload, No.	$9.25
xBook papers (to lots, No. 1	$10.25 to $11.00
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

xThese prices are for machine finish; super-calendered one-quarter cent higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.000 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 Hard White Shavings	$5.00 to $5.25
No. 1 Soft White Shavings	$4.00 to $4.50
Mixed Shavings	$1.10
White Blanks	$2.00
Heavy Ledger Stock	$2.75
Ledger and Writings	$2.05
No. 1 Magazine	$1.25 to $1.35
No. 1 Book Stock	$1.15 to $1.25
No. 1 Manila Envelope Cuttings	$2.75
No. 1 Printed Manila	$1.40
Folded News	.90
Over Issues	$1.10
Kraft	$3.50
No. 1 Clean Mixed Papers	.80
No. 1 White Shirt Cuttings	$8.25 to $8.50
No. 1 Unbleached Cotton Cuttings	$8.25 to $8.50
No. 1 Fancy Shirt Cuttings	$5.50 to $5.75
No. 1 Blue Overalls Cuttings	$5.50 to $5.75
Bleached Shoe Clip	$6.75 to $7.00
Unbleached Shoe Clip	$6.25 to $6.50
White Cotton Hosiery Cuttings	$8.25 to $8.50
Light Colored Hosiery Cuttings	$7.25 to $7.50
New Light Flannellette Cuttings	$5.75 to $6.00
No. 2 White Shirt Cuttings	$6.00
No. 2 Unbleached Cotton Cuttings	$6.00
City Thirds and Blues	$2.25 to $2.50
Flock and Satinettes	$1.40 to $1 50
Tailor Rags	$1.40 to $1.50

NEW YORK MARKETS.

New York, April 14, 1917.

The extent of the effects of the war on the labor question is the subject of much discussion throughout the local trade. The realization that production must be affected considerably by enlistment of the mill workers and others allied with the trade is impressing itself everywhere and, now, for the first time in a few months, it is freely admitted that there is but one course for the paper market to pursue and that is to still higher levels. It seems judging from the reports being issued by the various banks and from the tendencies noted in different parts of the country, that the business of the country will continue good, in spite of the war. As a matter of fact, business organizations of every sort are doing their utmost to impress on the minds of business men that it is their duty to see to it that the volume of trade continues as little unmolested as conditions allow. From this, it is safe to assume that the demand for paper will, instead of falling off because of the war, take a forward step. Before leav-

ing the matter of labor, it is only fair to state that there are some who are not inclined to put much "stock" in this argument, pointing to the conditions now existing abroad and to the places being occupied by women in mills, factories, etc. They maintain that the same thing must take place in the United States and, they go further, is going on at the present moment. It is true that this state of affairs has not yet reached the paper mills, but it is known that women are now working in the fields and are engaged at various sorts of arduous labor, taking the places of men who have gone to the front. However, the whole thing is an economic question that time alone can solve. One thing seems certain, that the competition for labor must become krene than it is at the present time. For, with the munitions factories and the textile plants going at capacity to fill government needs, it will be necessary to do everything conceivable to insure having on hand at all times the maximum amount of help. It is this fact that is worrying a good many of the paper mills — for they fear that they will have considerable trouble in competing against the factors just mentioned. By way of conciliation, it is said that the price of the added cost of labor will go into the quotations on paper ——— "and the consumer will pay the bill."

With regard to pulp wood, the situation remains unchanged, except for a noted forward tendency. The fear that the work of the Trade Commission in placing the price of news print at 2½c would affect the ground wood market is now known to be groundless, for the reason that the 2½c "stunt" is not working as it was expected it might. The big thing, we have stated before, in the future of the ground wood market, in all other pulp markets for that matter, is the fact that the coming wood cut is expected to be considerably less than normal — and that it has been predicted that wood would be selling at a premium by summer, and that there would be a good many grinders who might find themselves "up against it" because of inability to get supplies. Transportation difficulties are being felt today, for the card are being used largely for foodstuffs and other perishable, as well as for government materials — with the consequence that many other commodities are being given comparatively little consideration. The consensus of opinion is that the demand for ground wood will continue active for some time to come. As a matter of fact, those who are considered best informed are unable to see anything but firm ground wood for the future. It is hoped that, now with the United States in the war, the Canadians will endeavor to supply us with a larger quota of pulp — and possibly pulp wood. But, it is rather unfair to make any such calculations for it is known that Canada is coping with problems of her own in this industry. According to reports, the average price throughout the East, for ground wood, is about $50. per ton at the grinders' mill. It is said that higher prices have been paid and are still being paid from time to time. There is, however, comparatively little pulp to be had for the market is practically all sold ahead, with the producers working their machines to the best of their ability to take care of obligations.

In the chemical pulp market, everything rules firm, just as has been explained in ground wood, but there seems to be little easing in immediate demand. How-

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y.

over, dealers in pulp feel that it is only a short time before the demand must take on considerable animation. Already, the declaration of war has shown to be somewhat of a stimulus to business and it is expected that it will continue to act in this capacity. On this ground, it is argued that the consumers must come into the market for sulphite shortly — and that prices will go up. None of the dealers with whom your correspondent has come into contact are hopeful of getting pulp from abroad. They say that efforts may be made to ship from Sweden after the opening of the Baltic in May, but there is no confidence that any great quantities of pulp will come over for it is believed that the German U-boat activities will be such as to discourage any attemps or that any ships leaving port may be caught enroute. The domestic mils are as busy as they can be taking care of contracts. Work of the mills now in construction is proceeding as fast as human ingenuity will allow and all sorts of hopes have been placed in them by those who are "bearishly" inclined, but this does not seem to have affected the market. For, as we have explained, the difficulty in getting materials is great as matters stand—and what will it matter when other mills are ready to operate and find that it is not likely they can get stock— or if they can get options, find it so costly that it will not be possible to dispose of their products at anything less than a price as high if not higher than the prices now being asked. It is hardly likely that if tonnage of the mills in question were placed on the market tomorrow that it would affect matters to any great extent — at all events, for more than a few days.

No added interest seems to have been injected into the rag market. The dealers seem to be coming with the situation as well as they can, doing their utmost to maintain for the market a firm position and, judging from reports, there is little shading of prices going on, while most of the sellers are holding for what they believe the market ought to be. However, the mills are not being influenced in any way, claiming that they have sufficient stocks. It may be to the disadvantage of the market that the impression has gotten around that there is an annually bountiful supply of rags available and that because of this supposed condition, the market might be compelled to bear itself. However, the dealers, while they are willing to admt that there is not a shortage of rags prevalent, maintain that, considering conditions, the stocks on hand are far from being sufficient to take care of needs for a very long time. With the war taking all the men into the army, it is argued that there will be little or no collections for osme time to come. One thing seems to be certain to the rag men and that is that the women will not replace the men in the work of collecting rags for it is not a profitable vocation — especially when the munition plants are bidding with exceptionally alluring offers. Matters can be summed up by stating that the dealers are still holding out in hope, while there is not much interest being shown by the consumers. New white shirt cuttings are bringing about 8c to 9c; old white cuttings are going as high as 5¼c; house soiled whites are being held for 3c and a little higher; street soiled whites are quoted at about 2¼c to 2¾c; and black stockings are said to be getting over 2¼c. The greatest activity is said to be in the roofing stocks where the felt mills seem to be buying considerably. Prices in these grades range as high as 1¾c.

In old waste papers, a sort of fall-off during the week was reported. But those who are to be regarded as authorities state that this will not in any way hinder the forward movement of the market. They are as certain as ever that waste papers are destined to play an important part in the immediate future of paper manufacturing because of the situation confronting the pulp markets. The practice of reclaiming raw stock from waste papers is becoming more and more general — and there is but only consequence that is logical — that the market must be strenghtened accordingly. The trouble during the past week was caused by transportation difficulties and by the fact that these difficulties isolated a few large buyers from the market, leaving dealers with more stock on hand than had been expected. Hard whites are in fair demand, ranging as high as 5½c.; soft whites have been bringing up to 4½c.; magazine stock still keeps below 2c.; ledger stock is bringing up to 2¾c.; old manila cuttings sell as high as 1½c. A good demand continues for old krafts, but this market is somewhat exhausted and sulphites are bringing up to 4c. In newspapers, a good demand is reported and considerable stocks are said to be moving. Strictly overissues are bringing as high as 1½c.; strictly folded is up as high as 1¼c.; while mixed papers still going at from 80c to 90c per hundred pounds.

Buying in the paper market has not "picked up" to any great extent, although there is said to be a noticeable disposition toward betterment. Prices have been holding firm and now, with war in progress and preparations for an active campaign in full swing, more strength has been taken on. Manufacturers are free in saying that they feel sure that the future can witness nothing else but still higher prices. In newsprint, while the market is strong, there is enough uncertainty to keep some of the manufacturers worried. Everyone is trying to guess what the result of the indictement just handed down by the Federal Grand Judy will be. From the latest reports, it is apparent that the Department of Justice proposes to push the matter to its extreme. On the outcome of the affair will depend considerably the course of the immediate future of the market. Tissue papers are all holding firmly at the high prices with a little added interest by jobbers noted. Wrapping papers, including krafts and manilas are in good demand, with supplies insufficient to take care of all the needs. A better inclination is reported in fibres. Book papers are very strong, being sold ahead on contract and with comparatively little stocks available from the mills. Boards are still very firm.

New York Quotations.

Ground Wood, f.o.b., mill . . . . . $50. to $55
Foreign bleached sulphite, ex-dock, New York . . . . . 11c and higher
Foreign easy bleaching sulphite, ex-dock, New York . . . . . 6¼c and higher
Domestic bleached sulphite, f.o.b. pulp mill . . . . . 8¼c and higher
Foreign unbleached sulphite, ex-dock, New York . . . . . 6c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York . . . . . 5¾c and up
Domestic unbleached sulphite, f.o.b. pulp mill . . . . . 5¼c to 5½c
Easy bleaching, f.o.b. pulp mill . . . . 6c and higher
Kraft pulp, f.o.b. pulp mill . . . . . 6½c and higher

Foreign kraft pulp, f.o.b., ex-dock, New York ..... 6½c to 7c
Bleached soda pulp, f.o.b. pulp mill . 6c and higher
Foreign unbleached soda pulp, ex-dock, New York ..... 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. ..... 6½c to 7c
Bond papers, sulphite ..... 12c and way up
Best grade writings ..... 20c and higher
Regular superfine ..... 19c and higher
Ledgers papers ..... 13c and way up
News, contracts, f.o.b. mill ..... $2.50 to $4.25
News, spot lots ..... up to 5c
Book, super... ..... 9c and higher
Book, coated ..... 8½c and higher
Tissues, good sulphite, bleached, per ream ..... $1.30 and higher
Tissue, ground wood, manila, per ream ..... $1.30 and higher
Kraft ..... 9c and higher
Manila ..... 7¾cand higher
News board, pert on, f.o.b. New York $70.00
Strawboard, per ton, f.o.b. New York . $6.00 higher
Chip board, per ton, f.o.b. New York $65.00

ROWLAND W. JOLLY.

INDIA AND EUROPEAN SUPERVISION.

In an interesting article on India, which recently appeared in the Brantford "Expositor," Mr. Arthur Casperez recalls that India has 315 million inhabitants, of whom about 225 million are backward agricultural peoples, and 302,000 are lawyers. The country possesses 35,000 miles of railways (about the same as Canada), but carrying 400 million passengers, in the year, and giving employment to 582,000 Indians, 7,600 Europeans and 10,000 Anglo-Indians. The third-class passenger can go 1,300 miles for $4. He has pure water, economical shelters and cheap food wherever he chooses to break his journey. He is governed by about 5,000 Englishmen and a quarter of a million of his own country-men, who fill all the posts of the subordinate judges and magistracy and are inspectors and sub-inspectors of police. The entire police force is returned at 1,728,668. "The government has long acted upon the principle," says Mr. Casperez, "that every post which can be filled by an Indian should be filled by one, even if efficiency be somewhat impaired thereby. India is really governed by Indians, with a minimum of European supervision."

Fraser, Limited, of Fredericton, N.B., who have a number of lumber mills through New Brunswick and southeastern Quebec have begun work on their new pulp mill at Edmundston. The work is being done by their own men under the superintendence of Mr. H. V. Lincoln.

Mr. Thomas H. Ayers, one of the founders of the firm of Ayers, Limited, makers of paper mills felts, died at his home in Lachute last week, at the age of 66 years from a paralytic illness. He is survived by Mrs. Ayers and their three sons, John Thomas, William and Henry and Ernest Francis, all of whom are actively engaged in the business. The funeral has been arranged for Friday.

A SOLUTION FOR CAR SHORTAGE.

With a view to remedying conditions which are at the root of the car shortage situation a C. P. R. official has some interesting figures to quote, as well as a suggestion which is worthy of more than passing consideration. "We have just issued the following bulletin", he said, "the first of a series, which we hope will secure the co-operation of the public with the railroads in dealing with freight congestion. The railroads themselves cannot hope to solve the problem, but with the help of the public they will be able to go a long way towards the solution. The figures incorporated in the bulletin are taken from the Railway Statistics of the Dominion of Canada and cover all the railways of Canada, 1907 being the first and 1915 being the last year for which figures are available:

	1907.	1915.	Increase P.C.
Total tons freight carried 1 mile.	11,687,711,830	17,661,309,723	51.1
Aggregate capacity of freight cars (tons)	2,908,903	6,731,265	131.4
Total freight cars	105,540	201,690	91.1

"The average car in 1907 had a capacity of 27.6 tons and a contents of 15.4 tons, while the average car in 1915 had a capacity of 33.4 tons and a contents of 18.4 tons. This means that while the capacity was increased 5.8 tons the contents only increased 3.0 tons; in other words 48 per cent of the additional capacity provided was not used. Why does not the public utilize to better advantage the present available rolling stock? By increasing the available carload to 23.4 tons, or 5 tons more than during 1915 we would have the same result as if we placed 54,800 additional cars in service. Light, bulky commodities of which there are many could be loaded to the maximum carrying capacity authorized. It would mean a saving in the number of cars used, a consequent saving in track space, it would make it easier on the engines, for the decrease in tare would more than counteract the increase in contents weight, and we would not require any more than at present. Co-operation between the railroads and the shippers is required if we are to solve the transportation problems of to-day.—"Journal of Commerce".

200,000,000 TONS OF COAL USED.

A report of the New York Chamber of Commerce states that the railroads of the United States consumed in 1916, 200,000,000 tons of coal. Former seasons seldom ran above 150,000,000 tons, but the year just passed was one ofthe extraordinary demands on railway motive.

It is estimated that the cost of the railroads at mines, which the roads in many cases operated on their own account, during 1916, was $1.30 a ton, or near the contract price for supply coal in Pennsylvania. At this rate the railroads of the country must have expended $260,000,000 for fuel oultay in 1916, allowing nothing for the cost of handling their own material. The report shows that the American coal trade, taken as a whole, last year amounted, to 608,500,000 net tons, including 88,500,000 tons of anthracite produced and 520,000,000 of bituminous coal shipped. This makes a new record for the bituminous output.

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L'AIR LIQUIDE SOCIETY

WINNIPEG MONTREAL TORONTO

NEWSPRINT SITUATION MADE MORE COMPLEX BY INDICTMENT.

(Continued from Page 399)

with any other member of the association. As the dates of the expiration of such contracts approached the newspapers were obliged to renew contracts for their current supply, but on asking questions as to price were met by the refusal of manufacturers of newsprint paper to deal with each others' customers. The result remitted the publisher to the concern with whom his expiring contract was made, and left him helpless before the exactions as to price and other conditions dictated by the manufacturer.

"The prices charged by members of the association are greatly in excess of the prices which independent producers, even under war conditions, are content to receive. There has been a relatively slight advance in the cost of materials entering into the manufacture of newsprint paper, but nothing comparable to the advance in prices which has been made through the concerted action of the membership of this combination, and under restricted competitive conditions brought about by the association whose purposes and methods are now directly challenged by the Federal Grand Jury. The Newsprint Manufacturers Association was unincorporated. It had no articles of association, no by-laws. It kept no minutes of its meetings, nor was any record kept of the proceedings of its Executive Committee, which held meetings nearly every month. The informality of its procedure marks the latest phase in the progressive effort to invent some means of evading the Sherman Anti-trust law. It was clearly the effort of the association to secure all the benefits of illegal combination without exposure to risk of prosecution."

It is understood that the indictment has given the Federal Trade Commission considerable concern, because of its possible effect on the plan proposed by the manufacturers under which the Commission would fix the paper prices. The manufacturers, it is understood, have threatened to withdraw from the price-fixing agreement if indictments came from the investigation by the Department of Justice evidence it had gathered pointing to violations of the law by the manufacturer in setting up high prices under an alleged combination. Officers of both the Department of Justice and the Trade Commission have declared no inducements of immunity were held out to the manufacturers as a reward for their offering to put the marketing of their product into the hands of the Trade Commission at prices set by the Commission. Publishers, it is said, are divided in their attitude in the Department of Justice's investigation. Some have insisted, it is said, that indictments be brought, believing no price-fixing plan would offer permanent relief from prohibitive prices and that the only sure remedy would be a prosecution that would break up the alleged newsprint trust. Others, and it is said that a part of the membership of the Trade Commission concurred in the view—have held that the price-fixing plan would have solved all difficulties. Some of the publishers are hopeful the price fixing plan will be put through and that prosecutions will not be pushed if the manufacturers evince a willingness to observe strictly the law in the future.

THOROLD'S RAILWAY FACILITIES.

The meeting of the Dominion Railway Board, held in Thorold, Saturday, will quite likely result in an order being issued for the construction of an interswitch at that point between the Grand Trunk and the N. St. C. & T. Ry. The Grand Trunk is opposed to the construction of the Switch, but the N. S. & T. is quite willing to proceed with the construction. The cost to the N. S. & T. Ry. would be about $5000, while the Grand Trunk's share would amount to about $7,524, or a total cost of construction of $12,524.74.

It is estimated that the number of cars that would be handled on this switch would amount to 16,000 a year.

Town solicitor Battle showed where in some cases it took five days to get cars from one point in town to another.

Those present on the railway board were D'Arcy Scott, chairman; S. J. McLean, and O. S. Goodeve, commissioners, and J. J. Simmons, assistant chief engineer.

The Grand Trunk were represented by Mr. Chisholm, their solicitor and the N. S. & T. Ry. by their manager, Mr. Seixas.

WATEROUS MAN NOW IN NEW YORK.

Most Canadian paper makers know the P. C. Fuchs-es, Senior and Junior. P. C., Senior, has been with the Waterous Company for years and years. P. C., Junior, graduated from Toronto University in 1907 and has followed mechanical engineering. For six



years he has had charge of the Waterous advertising, in which position he has impressed himself on the trade journals with the fact that he not only knows what he wants, but when and how he wants it. In his new position, with A. E. Michel Advertising Engineer, New York, Mr. Fox will work on technical publicity entirely, where his training and experience will have a greater field.

During 1916, the pulp mills of Sweden made 4,764,135 liters of sulphite alcohol of 50 per cent. strength, about 1,257,000 U. S. gallons.

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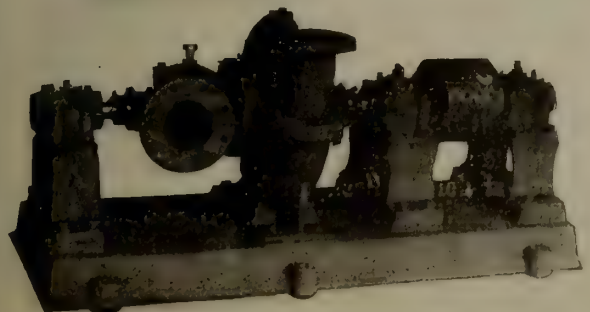
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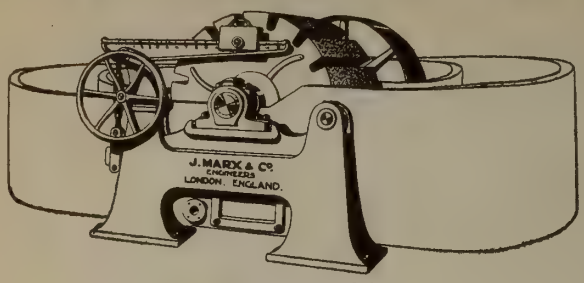


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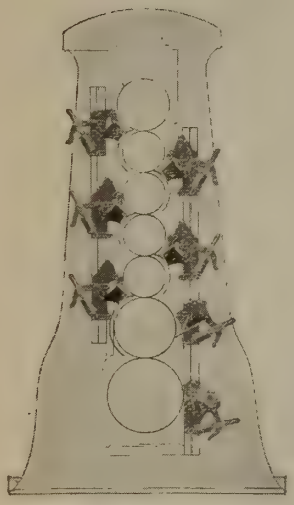
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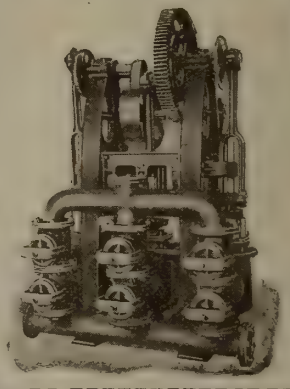


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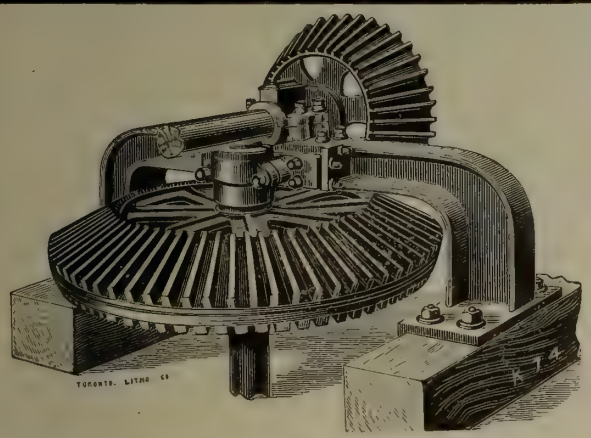
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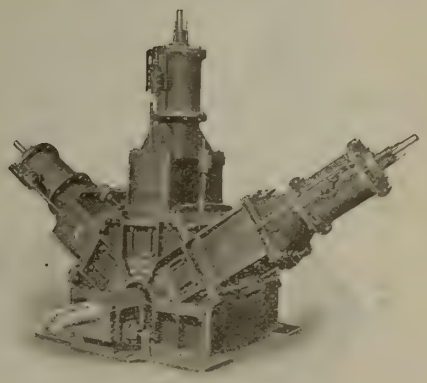
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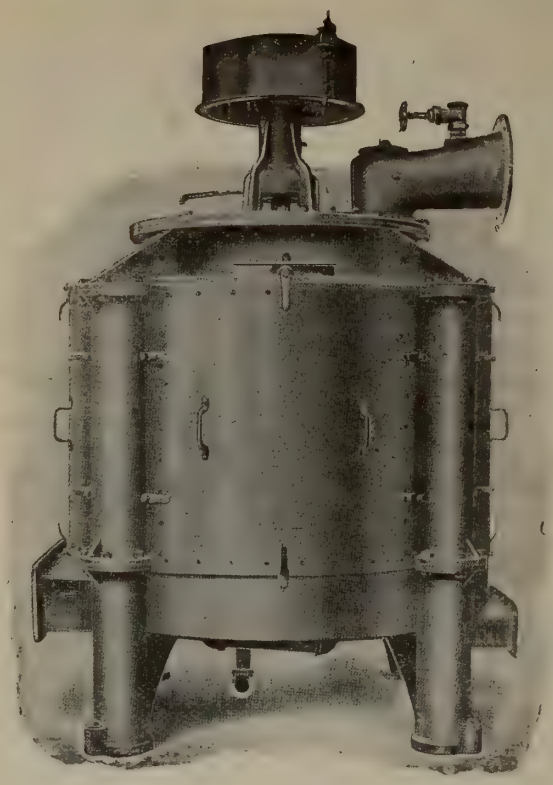
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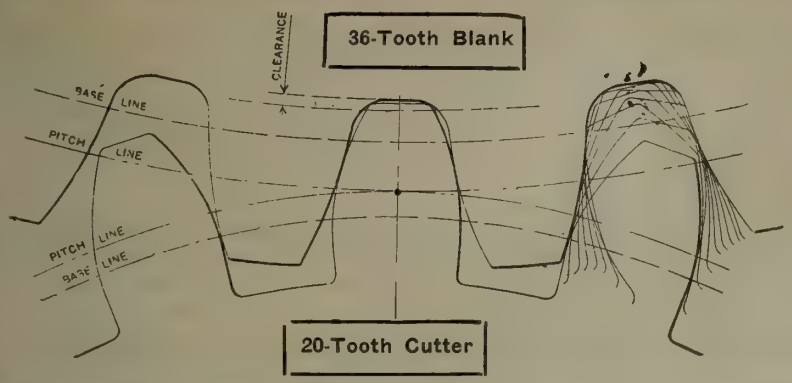
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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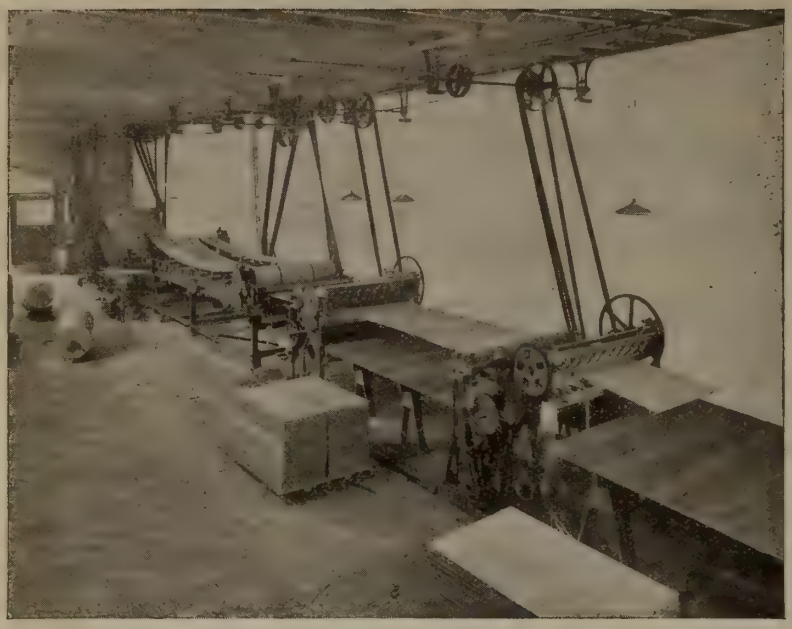
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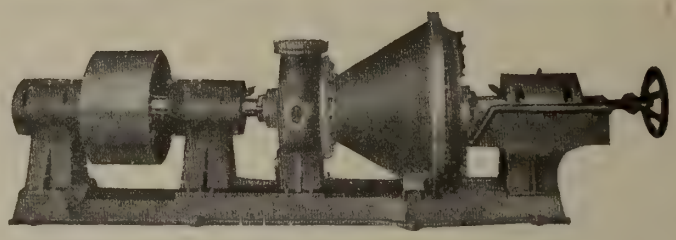
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

INADEQUATE PENSIONS.

With hundreds of wounded soldiers returning from the front the work of the Pensions Board takes on a new meaning. While it cannot be expected that an organization of this nature can achieve the maximum results with the minimum of friction, it must be admitted that there are many just causes for the complaints which are being voiced by soldiers and their dependants.

Many soldiers returning suffering from severe wounds or shell shock, and while still incapacitated, find themselves discharged and forced to depend on a meagre pension for a livelihood. In some cases pensions amounting to but $11.00 a month are being paid to men who are practically unable to do any kind of work. The inadequacy of such a pension is so apparent that moderate words can hardly be used in connection with the matter. The Pensions Board is being administered like so many other departments of the Government's activities, namely, in as hap-hazard and as hit-and-miss a manner as is possible. There have been cases come under our attention where the most slavish adherence to red tape and precedent has characterized the actions of the Pensions Board.

We feel in this connection that the appointment of Mr. J. K. L. Ross as Chairman of that Committee was a serious mistake. Mr. Ross doubtless has many estimable qualities, but is not the type of man to direct the organization over which he now presides. Mr. Ross does not know the value of money in the sense that a man who has had to work for his living knows it. He was the only child of one of Canada's richest men; has never had to work for a living and is, therefore, unable, no matter how sympathetic he may be, to understand the struggles and difficulties of the man to whom an extra hundred dollars may make all the difference between starvation and self-support. The man who has been brought up to think in millions is not the man to deal with hundreds.

Another cause for complaint is that officers and officers' families receive many times as high pensions as do the men in the ranks. In a democratic country such as Canada this has a tendency to emphasize class distinctions. In this war some of the finest men in the country have gone overseas as privates. Thousands of college men, men from banks and big business houses are proud to serve in the ranks, while too often it is the social favorite or the man with a big political pull who has been given a commission. To say that the wives and children of these college men or young business men are on a lower social or intellectual scale than the wives and children of officers is an insult to the real heroes of this war.

Whatever decision may be arrived at in regard to the administration of the Pensions Fund, it is to be hoped that the country will act generously with the men who have risked life and limb on behalf of the Empire. To offer a totally disabled man a paltry hundred or two dollars is little short of criminal. Such a policy will do more to discourage recruiting than anything else that could be devised. We are looking to the Government to increase the pensions, and to the Pensions Board itself for a more intelligent administration of the responsibilities which have been conferred upon it.

THE SURVIVAL OF THE FASTEST.

Nearly every week we read of a paper mill where a machine is taken from news production and put to making other grades. The reason for this that comes first to one's mind at this time is the unfortunate restrictions which the governments of Canada and the United States are placing on the manufacturers of newsprint. It is perfectly reasonable to expect that if a government persists in limiting the price of the finished product to the market value of one of its constituent raw materials, no expansion of such an industry will occur. Such a condition is a very serious discouragement for a growing industry to face. It is very much like showing a high school boy an attractive college catalog and telling him that he may go to college and get a hard earned education, but assuring him that he must not ask for more than $15 a week for his services. Could anyone blame him for taking a job in a machine shop at $3 or $4 a day?

The demand for newsprint is growing and its actual value, irrespective of the boosting effect of a clamoring market, its intrinsic value, is greater than it has

been in many years. Such a prospect is properly conducive to expansion and a normal development was well under way when the governments of Canada and the United States attempted, under pressure of the Press, to regulate the price of newsprint. If recent projects had not been already started, it is doubtful whether half of them could now be successfully launched in the face of the present attitude of these governments.

In spite of this present discouragement, paper makers have faith in the future and they are building new mills and enlarging old ones. But it will be noticed that these new mills are news mills and that news mills are now being planted among the forests that feed them. Paper makers are coming to recognize and realize that in normal times, between the millstones of a cheap foreign product and the influence of a howling press, the mill that has to buy any raw material at all, save perhaps coal and sulphur, is working under a very serious handicap.

And besides having a cheap and abundant supply of raw material, the manufacture of such a cheap product at any profit at all demands that the overhead expense be cut to a minimum. This means the installation of the most modern high speed machines and efficient methods. The older, slower news machines are working to capacity and beyond just now, but with a lower price for news, many of them could not operate economically. Furthermore, these machines are for the most part in mills that must get at least a portion of their pulp from some other mill. As the speed has increased at which all kinds of paper can be made, these machines become easily adaptable to the manufacture of other grades. So it is quite natural, that, as the newsprint business goes to the tall timber—and just now, more or less "to the wolves"—some of these machines should be turned to making wrapping, bag, book, etc., for which the demand is growing and the price is good.

We look to see all the old slow-coaches of machines converted to grades that will command a better price than newsprint and this paper, which is required in such enormous quantities as a public necessity, made by the greyhounds of mechanical perfection.

A SUBSTITUTE FOR NEWSPRINT.

With a woman in Congress, women getting the vote in Ontario, making munitions and running tram cars in England and engaging in various other activities throughout the world, it would be a bold man who would undertake to outline the limits to be placed upon their activities.

In the United States there is a great scarcity of paper, and many publishers of small newspapers are at their wits ends to know where they can get a supply of newsprint. One resourceful lady publisher rejoicing in the euphonious name of Mabel McClane Brown, has scornfully rejected the advances, or lack of advances, made by print manufacturers and has used shingles as a means of delivering her message to the waiting world. Mabel publishes a paper out in Washington and is very keenly interested in the lumber industry. She wants a high protective tariff on lumber, as she claims that under existing circumstances the Canadians have monopolized the American lumber market. Just to show that she knows what she is talking about, or in other words, that lumber in the shape of shingles is cheap in Washington State, and paper dear, she used a hundred thousand shingles in getting out a single edition of her paper. She claims that she has saved money by the transaction. Perhaps so, but we are more concerned over what this may lead to.

In the old Babylonian days lovers chiseled out love letters from solid slabs of rock, and in other ways used up so much heavy material that postmen could not be hired for love or money. If the old fashion is to be revived and newspapers printed on shingles with the belligerent editorials on slabs and heavy planks, there is not telling how many heads may be broken. What is to prevent a man who has been called a lobster by an editor taking the shingle or board on which the words are indelibly engraved and beating that individual to a pulp?

There is no doubt but that paper makers have a lot of sins to answer for. Here they have driven Mabel McClane Brown into using a substitute for newsprint, and goodness knows where it is going to end. The only persons to divide responsibility with the print manufacturers are these who gave women votes, the right to edit papers, and other privileges that were unknown in the days of our forefathers.

TECHNICAL ASSOCIATION OFFERS SERVICES TO UNITED STATES.

The Technical Association of the Pulp and Paper Industry, through its Executive Committee, has offered its services to the Government and the offer has been accepted by the Council of National Defense. President Carruth brought the subject to the attention of the Executive Committee on Saturday, April 7, and this response was immediate and hearty, following which a letter was drawn up and signed by the president and secretary of the Technical Association for presentation to the Council of National Defense at Washington.

CHANGING U. S. FREIGHT RATES.

The Interstate Commerce Commission has tentatively authorized a 15 per cent increase in freight rates on the lines under their jurisdiction. A few exceptions are made to the general ruling. The new rates are to be effective after June 1st.

Another ruling of the Commission will have the effect of lowering the present rates on long hauls of newsprint from Michigan and Wisconsin mills.

Flax Straw as Basis for Paper Industry

By E. B. BIGGAR,

(Former Editor Pulp and Paper Magazine.)

Among the many industries that will be affected by the systematic, scientific exploration of Canadian possibilities, which is bein gmade by the researchers employed by the Canadian Pacific Railway, the paper industry will surely derive great benefit. Much attention has been rightly given to proper forestry and lumbering methods to conserve our timber, but there are other materials that should be used for paper making. The article we reproduce from the "Toronto Globe" gives an idea of the enormous waste of flax straw in Canada and the possibility of its use to the advantage of both paper maker and farmer.

* * *

To seek and to save that which was lost is as true redemptive work in the economic sphere as in the spiritual world, and the need of such saving was never more urgent in Canada since the factory system was established. If one could gather with a visible aggregate the value of the products which annually go to waste in our industrial processes as now carried on, the total would be amazing.

A scientific authority in the United States has calculated that the wood now wasted in the yellow pine lumbering industry in that country would, if distilled by the steam process into turpentine, equal all the turpentine now produced from pine gum. Tanning extracts are now largely produced from chestnut trees, and specially for that purpose, and yet the waste limbs and slabs of the chestnut would make all the tanning extract now realized from the destruction of all this timber by present processes. If all the waste of Canadian wood now adapted to the chemical pulp industry were now utilized it would sustain a chemical pulp industry from three to five times the present output. These illustrations, taken from the wood industries, might be multiplied in dozens of other fields of work.

Example of Straw Waste.

The recovery of waste is not alone a problem of raw material, but of bringing science and skill and mechanical power and transportation to bear on that raw material. These factors must be united to bring success. Given a unity of these elements, what a field is open to utilizing some of the waste of our Prairie Provinces. Take for example, straw. More of the grain straw should be returned to the soil as manure, but the native fertility of the prairies tempts the farmer to ignore this, and much wheat and oat straw is burned for fuel in the thrashers, while flax straw which is not so readily rotted, is burned in the field "to get rid of it." Yet it is from flax fibre that linen fabrics and real linen paper are made, so that a raw material of incalculable value is here lost.

There are difficulties of a rather obstinate nature in the utilization of the flax straw of the Canadian prairies for linen fabrics. Flax in the Canadian west is grown primarily for flaxseed, which is sold for linseed oil and for the making of oil-cake and other forms of animal food. For the greatest production of seed flax is sown thinly so that the stalks branch out and produce a greater quantity of seed. The fibre, therefore, is short and of comparatively little use for the textiles. In growing flax for linen trade the seed is grown thickly, and the main stalk grows long and straight and with unbroken joints, but there is little yield of seed. Then to get the best results flax is pulled by hand, and not cut by a machine. Hand pulling is out of the question in the west owing to scarcity and dearness of labor, and no successful mechanical flax-puller has yet been devised, although many thousands of dollars have been spent in experiments in the western States to this end. A linen textile industry is not yet in sight in the Canadian west, except in the use of the short fibres in mixed goods and for special purposes such as linen for medical dressings, etc.

Flax as Basis for Paper.

The flax as produced in the west may be used in the paper industry, and here, without question, is a flourishing field for a new Canadian industry. The flax crop of the United States in 1915, grown on 2,200,000 acres, yielded twenty million bushels of seed and 1,600,000 tons of tstraw. The flax crop of Manitoba, Saskatchewan and Alberta in 1915, grown on 801,000 acres, yielded 10,559,000 bushels of seed and about a ton per acre of straw—say 800,000 tons. Of the flax crop of the United States, only about 200,000 tons a year are put to any profitable use, so that 1,400,000 tons a year are wasted. Such a tonnage would, it is estimated, make all the wrapping paper used in the country and double the amount of writing paper used in normal trade, and it would give to the farmers of the United States an annual revenue of $5,000,000 from the raw material now wasted.

Worth Three Extra Millions to Farmers.

The progress in Canada for a new branch of our paper industry are more favorable than in the United States—first, because the paper industry of Canada, relative to population and wealth, is much greater, and second, because the growth of yield and flax in Canada is greater in proportion to the total tilled area while at present practically no use is made of flax straw except in Ontario which is not now under consideration. The present product of flax straw in the Prairie Provinces, now amounting to 800,000 tons a year, will soon be increased to a million tons, and on the basis of the present output the raw material would bring to the western farmers a newfound revenue of $3,000,000 a year. If all this were turned into linen paper the finished product would be worth from $7,000,000 to $15,000,000 a year, according to the class of paper made. The first and most easily made variety of paper would be wrapping, and this would be a class of paper not inferior to the average Kraft paper, now in such demand for wrapping purposes. The second class of flax paper would be fibre board, for which it is eminently suited, and the third which would involve bleaching, would produce a more expensive, but more valuable class, real linen, bond and writing. Then there is another important use for the raw material which would be a by-product of the preparatory processes, that is flax tow and so-called

flax waste, which would be a valuable contribution to the textile industries, and for twine, also packing, medical dressings, insulating material and many other uses. In Ontario there are a number of flax cutting mills, chiefly in the counties of Waterloo and Wellington, producing tow and fibre, for twine, but in the west nothing of this kind exists, outside of the household flax and linen-making in some of the foreign settlements.

New Branch of Paper Industry.

Now that paper and paper making materials have reached such unprecedented prices that there is a general hunt for new fibres, the question of using Canadian flax straw for paper becomes important. The remarkable expansion of the paper industry of Canada in the last twenty years is well known, but this industry is based exclusively on wood as the raw material. To add a new branch based on flax fibre would round out the business as one of the great basic industries of Canada, and would open up a new field for the export trade which could not be developed upon wood pulp and paper alone.

It has been suggested that the Canadian Government could lead in such work by establishing a pioneer plant and use the product to supply its own needs in linen and wrapping paper with ultimate economy, while showing the way for private enterprise to follow in the near future. It happens fortunately at such a juncture that a Scotch engineering firm (Bertrams, Limited, of Edinburgh) have brought out a new type of machine for making pulp and paper from straw, and the writer has received from this firm samples of unbleached paper made from flax straw, wheat and oat straw, Tambookie grass of South Africa, and fibre from one of the Asiatic palms. The samples show a very strong and serviceable paper, and apart from the special products from flax straw, it is evident that immense quantities of paper and straw board could be made from the hundreds of thousands of tons of wheat and oats straw now allowed to be wasted in Canada by burning. The imports of straw board by Great Britain alone in 1915 were 191,100 tons.

Investigations of C. P. R.

The Canadian Pacific Railway Company have not waited for the Government to move in this matter, but some months ago commissioned Arthur D. Little, a paper mill chemist of Boston, to investigate the problem of making paper from flax straw. He has already demonstrated the feasibility of this special industry in a preliminary report to the company. He shows that straw board can be made cheaply, and that a sort of straw lumber, suitable for walls and partitions in houses might be produced at a price as low as $5 or $6 a ton. He is not enthusiastic as to the manufacture of linen, for the reasons already mentioned, which are appreciated by those who have had the longest experience in this industry, but as a paper-making material flax fibre has without doubt a great future. Samples Mr. Little has sent to United States paper mills —which produce fine linen papers, including paper specially made for printing bank notes — have been very favorably reported on, and these manufacturers are prepared to follow up these experiments. The strength, quality and color of these samples are very satisfactory, and it may be added that prices for such fine papers range now from $150 to $200 a ton, while in normal times, before the war, the prices were from $100 to $140 or more per ton.

Given favorable transportation rates the utilization of flax straw in the Canadian west would not only mean a new source of income for the prairie farmers, where for the last thirty years there has been a lamentable loss, but it would mean a new series of native industries based on the products of these farms and giving a new and wide range and variety to the paper export trade, which it could not attain in any other way.

NEW PAPER PLANTS NEEDED AS RESULT OF THE BIG DEMAND.

The difficulties due to shortage of labor and scarcity of raw material to which reference has been made from month to month show no signs of lessening, and the demand for manufactured goods continues undiminished, says the April Commercial Letter of the Canadian Bank of Commerce. The prospect of relief from these conditions has not been increased by the recent war developments in the United States, from which country we have been obtaining steadily increasing supplies of raw materials ever since the outbreak of the war. Machinery for munition making has also been imported in large quantities and, although our Canadian plants are now well equipped, the machinery has constantly to be replaced. The hope is entertained that a satisfactory arrangement will be arrived at between the two countries so that their resources may now be applied to the same great cause.

One of the results of the entry of the United States into the war will be an increase in the demand for paper. To meet this demand will be a matter of some difficulty, as the plants have been operating at their fullest possible capacity, and it will in all probability hasten the erection of the new plants already projected, especially in the central and far western pulpwood areas. British Columbia mills in 1915 exported to the United States 47,319,178 pounds of news print, valued at $1,002,527, and in 1916, 57,055,778 pounds, valued at $1,209,466. The greater part of these shipments was destined for California and Washington, but the demand is steadily widening. The value of the paper exported from Canada in the calendar year, 1916, was $23,510,410, as compared with $18,452,708 in the previous year, and the value of pulp and pulpwood was $24,210,911 in 1916, as against $15,443,527 in 1915.

ABITIBI HOUSING PLANS.

Abitibi Power and Paper Co. plans to erect about 100 houses during this coming season, but the number of houses that will be erected depends entirely upon the design, the material and the available labor. In other words it is their intention to erect as many houses as they can secure material and labor for.

They will all be of attractive design, and plans are being prepared by a prominent firm of Montreal architects.

Every consideration is being given the men and there are already a few clubs in existence at the present time. One of them is a Social Club, which conducts weekly dances, and the other an Athletic Club, which during the winter had a very attractive hockey league, consisting of six teams.

Bird's-Eye View of the World's Paper Industry

As Seen by the Secretary of the Newsprint Manufacturers' Association

The last few weeks have seen a great improvement in the conditions obtaining in Scandinavia, and it is quite probable that the mills that had to close down because of a scarcity of coal, pulpwood and labor, will soon be able to resume operations. England has raised her embargo on the shipment of coal to Norway and her fleet has allowed a renewal of inter-communication by water. Conditions in England have been very bad since the first of February, but relief now seems to be in sight.

France.

"The Paper Maker & British Paper Trade Journal," London, England, March 1st, quotes the Chamber of Commerce at Espinal, in regard to the pulp situation in France, to the effect that ten per cent moist sulphite woodpulp is bringing $126 per short ton, and dry mechanical woodpulp $78.80 per short ton, c.i.f., Rouen. Port and transhipment charges amounting to about $17.50 per short ton are borne by the buyer. Moist mechanical woodpulp is selling about $72.00—$73.50 per short ton on the same basis. These purchases are being made from Scandinavia, Sweden in particular.

A leading Norwegian Trade Journal contains a very interesting article in regard to the future of France in the paper producing world. In the past France has been dependent for mechanical woodpulp on Scandinavian countries for the main part and on Russia, Germany, and Canada for the balance. Most of the chemical wood pulp came from Sweden, the rest from Germany, Austria-Hungary, and Norway, the German product having been manufactured from Russian wood. Wood pulp was imported in 1913 to the extent of almost $13,000,000, as well as large quantities of rags, old papers, and pulpwood.

French North Africa, Tunis and Algeria export annually 187,000 tons of alfa grass, which is smaller and cheaper than real esparto, but usually referred to as esparto. Practically all of this goes to England (where its manufacture was begun) to produce annually 110,000 tons of alfa pulp. France imports but 4,000 tons of alfa grass annually from her provinces for the manufacture of paper, and, as a result, she is constantly competing in her own market with the English product.

There is hardly a paper mill in the British Islands which does not use esparto. Its treatment is quite similar to that practised in producing half stuff of rags, and it yields about one ton of printing paper to two tons of raw grass.

It is believed that the pulp can be manufactured in Africa by means of new methods at a cost of about $49.00 per short ton, and delivered in France in normal times for $56.00 per short ton. It is to be expected that France will endeavor after the war to develop this material in her provinces together with straw and bamboo and assume a more important place as a manufacturer of paper.

"L'Industria della Carta," Milan, Italy, quotes the "Perseveranza," Paris, France, to the effect that the Decree of the Council of Ministers, published in our last Digest, has met with a storm of protest. This Decree, which allows a larger number of pages to the higher priced papers than to the lower priced ones, has seriously affected some of the smaller political journals, and it will also prevent the larger papers from taking advantage of stock where they have been accumulated. This Decree is expected to save the five big dailies ("Matin," "Journal," "Petit Journal," "Petit Parisien," and "Echo de Paris) about $100,000 a month, and will also prove a blessing in disguise for the smaller journals.

Russia.

According to the Petrograd correspondent of the "Paper-Maker & British Paper Trade Journal," London, England, the situation in the Russian paper-making industry has undergone little or no change during the past month, but efforts are continuously being made, and with some degree of success, to maintain operations on a fairly satisfactory scale. The scarcity of raw materials, particularly rags and sulphite pulp, is still felt, and there seems to be no immediate prospect of any material improvement in general conditions.

It is announced that the development of the Russian mercantile marine is the object of a new company called the Great Russian Steamship Company, and that arrangements have already been made for the laying down of new shipbuilding yards on the Baltic and on the Black Sea.

The large reduction in the number of workmen in Russian factories is gradually leading to the substitution of mechanical labor for hand labor.

"The Weekly Bulletin of the Department of Trade and Commerce," Ottawa, Canada, publishes a Report of the Trade Commissioner at Petrograd, from which the following is extracted:

"A number of resolutions were adopted by the conference regarding the opinion that the estimate of twenty million logs could be handled by Russian capital and Russian labor, and that the granting of concessions to foreigners should not take place; that a new federation or syndicate comprising all the timber exporters in Northern Russia be created, to whose members small concessions be made, the terms of such concessions to run from three to twelve years for the production of sawn goods, and up to thirty-six years for the production of pulp. In the latter case suitable districts to be selected and water-power to be given free; that all logs sold from the Government forests be sold exclusively to the new federation, which would itself take over the direct sales to the representatives of the Allied Governments, and that no Government monopoly be created; that members of the federation be entitled to import duty free the machinery and materials required for the extension of existing mills and for the creation of new ones; that employees be treated as working for the defence of the State and therefore not to be called up for military service."

Finland.

There is no change in the pulp and paper situation in Finland. The Russian demand continues for any

supplies obtainable, and production is maintained on a fairly satisfactory scale.

China.

Recent United States Commerce Reports have dealt with the paper market in China, and have enlisted the interest of Trade Journals in other countries.

Following the upward trend of China's development, newspapers have increased in circulation, size, and advertising, creating a strong demand for newsprint paper. Street and poster advertising have also greatly advanced. Other grades of paper have met a similar demand, and with but three up-to-date mills in China, an ever-increasing market will be open to the exporter. Two of these three mills were built by American engineers for the Chinese Government and equipped with American machinery. The third mill, with a capacity of fifty to sixty tons daily, is at Shanghai, and is owned by a Japanese syndicate. But two mills are operating at present, producing machine glazed cap, newsprint wrapping, tissue, book, and bankrupt papers. Groundwood and sulphite pulp are imported principally from Sweden and Japan. The leading Shanghai paper claims a circulation of 30,000 copies a day, and it is the only paper using news in rolls, all the others employing sheets.

Spain.

"The World's Paper Trade Review," London, England, recently published the following interesting article regarding the manufacture of paper in Spain:

"The Revista Nacional de Economia recently instituted an inquiry to ascertain: (1) Whether sufficient pulp could be produced in Spain for all kinds of paper; (2) The cost of manufacture of pulp in Spain and in other countries; and (3) The cost of plant per ton of pulp produced.

"The most complete report presented was that by D. Jose Duran y Ventosa, nidustrial engineer. In 1914 mechanical wood pulp cost $21.01 per short ton, and chemical $35.02 per short ton, whereas now the prices are $52.53 to $61.28 per short ton, and $113.81 to $175.09 per short ton, respectively, and continually rising owing to freightage.

"With regard to the first question the author considers that sufficient pulp could not be produced at the present time, but in time this could and should be done. To provide for the deficiency of wood supply in Spain he proposed the utilization of plants. In spite of the absence of forests in the country, Spain exported in 1914, 48,000 short tons of rough timber and 40,000 short tons of raw esparto, which represented half the imports of pulp. The cost of chemical pulp manufactured from esparto, etc., in Spain was not, the author considered, more favorable than in other countries. The pulp could, however, be made cheaper by constructing water powers, which would reduce the cost of power.

"As regards the cost of plant per ton of pulp, the author estimated that the capital needed is approximately $7,000 per short ton per day for mechanical pulp, and $12,000 per short ton per day for chemical pulp. Water-power usually costs about $14 annually for 24 hour power. A head of water of 1,000 horsepower could be constructed in Spain at a cost of $154,400, including turbines. In normal times good quality coal costs $4.36 to $5.25 per short ton, and lignite $2.64 to $3.50 per short ton.

"To nationalize the paper industry the author advocates afforestation and utilization of hitherto neglected materials."

The Spanish Government is considering the question of reducing by thirty-three per cent the paper supply for newspapers.

Italy.

As promised in our last Digest, we give below the Decree published in the official Gazette, regulating the paper industry in Italy.

"Article 1—The Minister of Industry, Commerce and Labor has the absolute authority to fix and enforce the price at which newsprint paper shall be sold, after the price has been agreed upon by representatives of the Government, press and manufacturers.

"Article 2—The Minister also has the authority to apportion the supplies in monthly installments to which the publishers are entitled.

"Article 3—Upon the refusal of any of the manufacturers to deliver paper in the quantity and at the price decided upon, the Minister may take over the mill and operate it, without responsibility of any sort to the Government. In the event of action of this nature, the Government shall report to the owner of the mill monthly, in regard to operation conditions, costs, etc., on which a complaint by the owner may be based within fifteen days of issuing the report. The validity and settlement of the complaint will be determined by the Minister after consultation with the representatives of the Government, press and manufacturers.

"Article 4—Editors using more or less than their fair proportion of paper are liable to a fine of approximately $10.00 per ton for the amount in question. The sums paid under this clause will be placed at the disposal of the representatives of the Government, press and manufacturers to lower the average price of newsprint paper to the publishers.

"Article 5.—The paper mills will also contribute to this fund a compensation: (a) For the raw materials furnished by the State; (b) For export licenses; (c) For the increased profits made by manufacturing more remunerative grades of paper. Such contributions are to be established by the Minister after consultation with the committees of the various factions.

"Article 6.—Not wishing to withdraw entirely the export embargo ordered on January 2, 1916, the Minister of Finance will refuse export licenses to the mills favorably situated and operated for the manufacture of newsprint paper.

"Article 7.—The Minister of Industry, Commerce and Labor is authorized to make all necessary investigations and to employ such agents as he requires.

"Article 8.—This decree to take effect the day following its publication."

England.

The Board of Trade has issued an order dated March 2nd, under the Defense of the Realm Act, greatly restricting the use of paper for advertising purposes, as posters or in tradesmen's catalogues. No paper posters, advertising newspapers, periodicals, goods sold by retailers, etc., can be exhibited, except on the premises where the periodical is published or the goods offered by retailers sold. No tradesman's catalogue, price list, or advertising catalogue can be mailed or dispatched unless requested in writing, except by traders to traders for the purpose of their trade or to persons abroad. Special licenses may be issued at the discretion of

the Board of Trade, particularly to permit the completion of work already begun. Later explanatory notes from the Board of Trade permit advertising circulars "other than traders and tradesmen's advertising circulars," but do not exclude money lenders, etc., from this prohibition.

"Licenses to import," says the "World's Paper Trade Review," London, England, March 16th, 1917, "granted by the Paper Commission only cover a period of two months, evidently with the object of stamping out the traffic in licenses." This places a further burden on the importer, however, because of the difficulties in mailing, loading, and shipping.

"Notwithstanding the enforced economy in paper consumption, it is very questionable whether mills will be able to supply even fifty per cent of the quantity supplied to their customers last year if conditions do not soon assume a brighter aspect. True, many consumers, in view of high paper prices, are likely to be forced out of business altogether."

This authority in its issue of March 23rd states: "So far as the mills are concerned, the outlook has not yet assumed a brighter aspect. Except for most important work there is no disposition to accept inquiries, and orders are being turned down by every post. It is a dismal fact to have to admit that the submarine menace continues to play havoc with our trade, yet this is so, apart from any difficulties imposed by Government restriction. The word menace is rightly applied, for it is more due to fear of what might happen, than to what is actually happening, that prevents neutral boats from hazarding the sea voyage. The weekly returns of the Admiralty are reassuring, although they would have greater significance if actual tonnage was taken as the basis of the announcement. Meantime, however, the lack of wood and esparto is playing havoc with the small mills, and one hears on every hand of the threatened shutting down of mills which are only stocked for a matter of days ahead.

"Whether much of this talk is of the nature of "calling wolf", in advance, is an open question, but certainly if the situation does not speedily improve there will be some mills which will have to suspend operations. We heard of an agent representing five Scotch mills, four of which have closed, while the fifth does not expect to outlive the next month. The galling part of the business is that with reasonable help from the Government many of the mills would be able to accrue supplies of raw material. In many cases stocks are known to be in port for which licenses have been held but which have expired prior to arrival of the cargo. One such case is that of a mill which is in a bad way for materials. A large consignment has arrived, to order, and is now unloaded at the docks. Unfortunately, the license expired before the boat arrived, and now the mill is in the position of having good supplies which are not get-at-able.

"Prices have an ever-increasing tendency, particularly in the case of common writings, printings and wrappings."

There is practically no trading in mechanical wood pulp, owing to the expiration of licenses and the difficulty of shipping. The buyers seem to be holding off for a betterment of the general situation and sellers show little desire to dispose of their small stocks. Prices are consequently very firm and point to higher levels.

It has been recommended to the Directors of the Paper Commission, on the ground that the recent restrictions of imports bear unfairly on the paper manufacturers and merchants, that unusual licenses expiring February 28, 1917, be carried forward, especially where the product was made and ready for shipment, and that goods delayed or lost through the submarine interference should be permitted remanufacture and delivery.

In the meantime the paper industry in England is practically paralyzed for want of raw materials.

"Quotations," according to the "Paper-Maker and British Paper Trade Journal", London, England, March 1st, "are of such an extravagant order as to cause dismay among consumers.

"I have seen samples of calendered common "news" quoted $243.32 per short ton net, and a printing at $263.60 per short ton; which was nothing but a common glorified "news".

"Some of these wholesale houses who have bought at $81.11 to $101.39 per short ton decline to sell at $243.32 per short ton; in fact, they refuse to sell at all just now, having the idea firmly in their minds that they can command any figure they like between $243.32 and $364.99 per short ton, in small quantities later on.

"Those gentlemen had better be careful, because I am certain if this state of affairs is brought before Mr. Lloyd George and his Cabinet all paper stocks will be commandeered and short shrift given to the plunderers.

"I understand the Government authorities are making some significant enquiries in relation to the prospect of commandeering all paper stocks. An official return of all stocks has now been demanded by the Paper Commission."

"The World's Paper Trade Review", March 16th, 1917, places ruling freight rates from Norway to the West Coast of England (Manchester), at $17.00 per short ton for moist pulp, and $14.60 per short ton for dry pulp, $14.60 to the East Coast (Tyne) and other districts up to $19.50. Insurances average $8.40 per cent to $10.50 per cent. Before the submarine menace, freights to the East Coast were $3.65 to $4.13 per short ton and rates of insurance 1¼ to 2 per cent.

The chemical wood pulp market is in much the same shape, except that shipments from Norway are being more freely made. Stocks in England, however, are very low and buyers will undoubtedly purchase any supplies Norway can place, in spite of an advance of $13.00 per short ton in all chemical pulps. Owing to the uncertainties in freights and increases in insurance, quotations are only being made f.o.b., the "World's Paper Trade Review" March 23rd, 1917, placing them at:

	Per short ton.
Sulphite bleached, good quality	not quoted
Sulphite easy bleaching, 1st quality	$130.35 to $134.75
Sulphite "news" or strong, 1st quality	$121.66 to $126.00
Soda unbleached, 1st quality	not quoted
Soda unbleached, kraft or strong	$117.32 to $121.00

Sweden.

Sweden's trade with Germany in paper and pulp continues, but very little is being loaded for shipment to either warring or neutral countries. For the week ending March 3rd the only paper shipment to England amounted to fifty-five bales of wrapping paper, ac-

cording to "Svenska Dagbladedt," Stockholm, Sweden. It is understood that the Danish newspapers have requested the Government to suspend the duty on paper long enough to enable them to complete their stocks, and if this is done, Sweden will be called upon.

Shipments of both mechanical and chemical wood pulp are practically at a standstill. The demand from the United States is very great, but up to a recent date the ship owners generally have kept their ships in port. As a consequence there have been few quotations at unaltered prices, and it is not thought that prices will change until shipping begins on a larger scale. Prices are very firm in the meantime, especially for sulphate wood pulp, which is bringing about $121.56 per short ton f.o.b. net, according to "Affarsvarlden," Stockholm, Sweden, February 28th, 1917. The latest issue of "Kommersiella Meddelanden," "Stockholm, Sweden, (February 15th) quoted sulphite wood pulp at $91.17 to $97.25 per short ton f.o.b. Gothenburg, and $85.09 to $91.17 per short ton f.o.b. the Baltic, and "Affarsvarlden" February 14th quoted mechanical wood pulp at $46.19 to $48.35 per short ton net f.o.b. Gothenburg.

Norway.

The following brief history of the conditions in the Norwegian wood pulp and paper industry during the last two years, by Consul General E. Haldeman Dennison, dated January 31, 1917, Christiania, Norway, reported in Washington "Commerce Reports" March 26th, 1917, will give the followers of our Digest a clear idea of the conditions that have led up to the present situation in Norway:

"At the beginning of 1916 the price for the usual wet mechanical wood pulp was $23.59 per short ton net, f.o.b. The industry in the northern part of Sweden in the latter part of 1915 had ceased to be a factor in the few remaining markets of the world on account of the exorbitant freight rates and the severe weather conditions that existed in the Baltic, where navigation closed much sooner than usual. As a result of this, stocks of wood pulp from the Northern district of Sweden began to accumulate and had a depressing influence on the market, as sooner or later these large stocks would be released.

"The stocks on hand in Norway had all been disposed of when a decline in Baltic freights occurred, which was immediately taken advantage of by the mills in northern Sweden, and the accummulated stocks were shipped to market and absorbed. After this the market assumed a much stronger tone.

Prices of Mechanical Wood Pulp-Chemical Pulp.

"When Great Britain placed a limitation on the amount of wood pulp that could be imported into that country the market was only temporarily affected and prices began to rise until at the end of the year they had reached from $31.61 to $36.47 per short ton, f.o.b. for prime wet mechanical wood pulp.

"This considerable rise in prices has not, however, brought with it a corresponding rise in profits, because of the large increase in the price of all the raw materials and the high cost and scarcity of labor.

"As the paper factories of England and France in the last quarter of 1915 had managed partly to resume operations they found their sources of supply of cellulose confined to Norway and Sweden. This demand resulted in depleted stock on hand at the beginning of 1916.

"The prices were then from $72.84 to $79.02 per short ton f.o.b. for bleached sulphite, $55.34 to $58.06 for easy-bleaching sulphite, and $48,04 to $54.43 for strong sulphite per short ton, net, f.o.b.

"Toward the end of January, 1916, the Swedish Government placed an embargo on the export of chemical pulp, and while dispensations could be granted they were conceded only to a very limited extent.

"This measure brought, of course, the Norwegian industry into a favorable position; the demand being thus centered on Norway, prices commenced to increase and culminated in June and July, 1916, with $194.50 to $218 81 for bleached sulphite, $170.19 for easy bleaching, $151.95 for strong sulphite, and $121.56 for sulphate per short ton, net f.o.b. 1916 delivery. Only moderate quantities were sold at these prices however.

"In the course of the following months the market became weaker; this was caused mainly by increased imports to France and England from Canada and the United States and partly by the expectation that the Swedish Government would repeal the embargo on cellulose.

"Toward the end of 1916 the British Government restricted importation of cellulose to 50 per cent of the normal import in 1914; this limitation had formerly been 66-2/3 per cent. Toward the end of the year there was quite a brisk demand from the United States and the year closed with prices of $133.72 for easy bleaching sulphite, $121.56 for strong sulphite, and $109.41 for strong sulphate per short ton, net f.o.b

An Unusual Year for the Paper Industry.

"Most of the paper factories in Norway found that the results for 1916 were the best in the history of the industry, and these results were obtained in spite of many difficulties.

"In the paper industry the lean years have been the rule and the good years the exception. There have hardly been any exceptions since the Boer War, and most of the factories have invariably given poor returns to the shareholders.

"At the beginning of 1916 the market was strong with a rising tendency and the prospects were for a brisk demand, especially from Norway's best customer, Great Britain, and also from Australia, South America, Cuba, East Indies, China and Japan. Orders also came from the new markets in France and Russia, which stiffened the market still more. The factories were working under full pressure in all departments, many increased their capital, and several new ones were started.

Difficulties Later in the Year.

"The outlook was most promising when all sorts of difficulties commenced to arise. First came stricter enforcement of the embargo on the export of coal from Great Britain, threatening complete stoppage to the paper industry. Then came the serious rise in the freights and marine insurance. This, of course, had a tendency to reduce exports; foreign exchange decreased in value; the prices of all supplies and raw material increased and became more difficult to obtain. It did not make much difference how great a margin was added for profits in the estimates, these additions to cost seemed to absorb them and thus made business unsatisfactory. On account of the low rates of ex-

change contracts were made in Norwegian currency or indirectly so by stipulating a fixed rate of exchange. Many disputes arose with foreign purchasers, but the export association succeeded in establishing a concise terminology in the contracts, which obviated much of the trouble.

"About the middle of the year all the markets seemed to become slack at once. England's policy of saving and economy resulted in the passing of a law restricting imports of paper to 66 2-3 per cent of its normal imports which later was reduced to 50 per cent. The high prices had also the effect of increasing American and Japanese competition."

Through February manufacturing conditions were in unbelieveably bad shape. "Farmand", Christiania, Norway, February 17th, stated that fifty per cent of the paper machines in Norway were standing idle and that there would be a complete stoppage in the paper and cellulose trades within a month unless coal could be obtained. Furthermore mechanical wood pulp mills faced a necessary curtailment of production because of their inability to clear their stocks. Railway communications had been seriously interrupted as well as postal service between England, France and the United States.

"Tidsskrift for Papirindustri," Christiania, Norway, March 1st, reports as follows:

"The British embargo on coals to Norway has now fortunately been lifted, but shipping has not yet been resumed, and everything is therefore still in a state of uncertainty. Under the present circumstances it is of course impossible to give any market report regarding the current values of pulp and paper."

"Farmand", March 10th, reports that communication with England and other countries is being reopened and the postal service resumed. It will take a little time before coal stocks and pulp wood supplies can again be accumulated. Everything points, however, to a more prosperous condition than obtained during the first two or three months of the year.

"Papir-Journalen," Christiania, Norway, March 8th, reports on the market as follows:

"Since our last report some shipments have taken place to United Kingdom but only on a very moderate scale. The English Paper Mills have been anxious to cover for prompt shipment, and prices are somewhat higher than they were before the German blockade. It is, however, to be feared that they again will go down as soon as sufficient quantities have been imported to keep the mills running for some time to come.

The following prices might be quoted today:

	Per short ton
Bleached	$170.19
Easy bleaching	127.64
Strong	121.56
Kraft pulp	99.68

Mechanical pulp is not very much in demand and $34.03 per short ton (for wet) is hardly obtainable at present.

News print is in somewhat better demand and paper rolls are quoted about $87.53 per short ton, and in flats about $92.39 per short ton, f.o.b. shipping port."

Can the Government Overturn the Law of Supply in the News-print Situation

(Special to Pulp and Paper Magazine).

The interest of the trade in news print has grown keener recently because it is now regarded as a question of the supremacy of the Government or the natural economic laws which are generally considered the controlling factors of business. There was some sort of consternation, a short time ago, when several of the paper manufacturers made the proposition offering to allow the Federal Trade Commission to fix the price at which news print was to be sold. And there was further consternation when the venerable commission decided upon the figure of 2½c as being "fair and reasonable." If this action were to prove practical, then it was only a matter of time before the entire trade—and other trades, for that matter, would be treated in like manner, so reasoned the Solons of the industry.

However, there were only a few of the very large manufacturers which entered into this compact with the Federal Trade Commission. Strangely, the commission calculated that the rest of the mills would follow in the footsteps of the others. But there was a general realization that to acquiesce with this request would either mean bankruptcy within the near future, or the shutting down of the various plants in order to avoid financial trouble. Surely, what chance did a concern have to sell news print at 2½c per pound, when it had to go out into the open market and pay in the neighborhood of $50 per ton for ground wood pulp, the chief ingredient of news?

Price alone would not have solved the problem, for despite any low price that might prevail, unless the paper were available to the smaller newspaper publishers of the country, conditions would be as bad as before. Therefore, the commission was deeply concerned over some scheme of distribution whereby it would be possible for all to get their share of the news production. In this matter, the mills were helpless. Most of them had contracted ahead for some time (many at the low prices current about two years ago) and, of course, it was incumbent upon them to take care of their obligations to the best of their ability. Therefore, it behooved the Federal Trade Commission to ask that the large publishers (who were, by way of explanation, among the loudest "kickers") relinquish a small part of their contracts for the purpose of establishing a general source of supply for the smaller consumers. It was decided that 5 per cent of contracts, a very small percentage, would be large enough to allow the commission to achieve its purpose.

But publishers hesitated to comply with the commission's request. No one seemed over enthusiastic about giving up any of his paper—especially those who were still being supplied on old contracts running below 2½c. While waiting for further developments, the United States declared that a state of war existed between this country and Germany. This seemed to settle any question as to whether or not the large consumers were going to relinquish any part of their contracts. The papers had done much in the saving line by cutting out "returns" and resorting to a good many other stunts. But, the bane of the evil was the

special edition craze. Everyone was going to do his best to cut this out until, we entered the war. Extra editions would be in greater demand than ever before. And the large publishers would therefore need all of the paper at their disposal. Bang! It now appears that the distribution scheme will be recorded as a noble attempt to alleviate a bad condition—and that it died, as a good many other noble ideas die.

The actual climax was reached last week when the Federal Grand Jury brought in an indictment against several of the large factors in the news print industry —coincidentally, most of these factors were men who have been striving to do whatever has been in their power to aid the consumer. Some of these men were foremost in aiding the work of the Federal Trade Commission and, as a matter of fact, it was only through their co-operation, that the Federal Trade Commission dared to hope to accomplish anything. A number of the indicted men were among the few that had signed the agreement practically giving up all rights and handing over to the Commission the sacred privilege of fixing the prices for the sale of their products, in order that the small consumer might be given some relief.

These men were encouraged (?) in their work by an indictment—a most scathing indictment, handed down by the Federal Grand Jury. It is true that an indictment, in itself, means nothing—is proof of nothing and cannot in any way be regarded as a blemish against the character of any man or body of men. Nevertheless, the reading of the indictment was such as to prejudice the minds of the general public and embitter those who were inclined to be lenient—or at least impartial. Accordnig to reports, the prospects of the price fixing game are now very poor and there is little hope for the idea of good distribution of news print among the smaller consumers of the country. As a matter of fact, it has been reported that the Federal Trade Commission does not approve of the action of the Federal Grand Jury, realizing that this will be the means of upsetting all of its plans. One report goes that, in view of the present conditions, unless some miracle takes place, it is not easy to figure out how the distribution plan on which the publishers had built their hopes, can be carried to a successful conclusion by the commissioners. The whole remedy in the matter, according to one official of the Commission, lies with the publishers at this time. If they persist in asking for more paper, the shortage, if it does not now exist, will be created and one publisher will be bidding against another for paper in the very near future. Requests are coming in to the Commission even now asking that allottments for certain papers be increased owing to the increase in circulation.

The seven news print manufacturers, who were indicted by the Federal Grand Jury, as was described in our issue of last week, on a charge of violating the Sherman Anti-Trust law, appeared before Judge Cushman, of the Federal Court for the Southern District of New York, on Tuesday, of this week, and entered tentative pleas of "not guilty". Bail in each case was fixed at $3,000. Henry A. Wise, George Gordon Battle, and O. G. Jennings, counsel for the accused, were allowed until April 30, to file objections to the proceedings. It will be interesting to learn that, in connection with the proceeding against the news print manufacturers, an error has been made which is liable to extend the affairs to such an extent that it may be "forgotten." Special prosecutor Colby objected to the delay for final pleading in the belief that the special Grand Jury which had found the indictments, was being held so that a superseding indictment might be filed if necessary. Mr. Colby was told that the Grand Jury had ben discharged. Asked later, if the discharge of the jury would hurt the Government's case, Colby replied that it was a matter of no consequence. He was sure that the indictment was amply sufficient to protect the public interests. The situation, however, may cause considerable embarrassment of the prosecutors if it becomes necessary for them to in any way amplify their charges against the paper men, as the jurors have all been excused from further duty for three years. Now should superseding indictments prove necessary there will have to be a new inquiry before a new Grand Jury at a waste of considerable time and money. A misunderstanding of the orders of the investigators is believed to have been the probable cause of the confusion.

THE HYDRAULIC PRESS MANUFACTURING COMPANY REBUILDING ON A LARGER SCALE.

Detailed plans are now completed and in the course of execution for rebuilding the burned portion of the plant of The Hydraulic Press Manufacturing Company, on its present site in Mount Gilead, Ohio. The plans also include the erection of two additional buildings which will give more adequate manufacturing facilities for their rapidly expanding business. In all, the plans cover the erection of four complete new buildings consisting of a machine shop, a three-story stock room, a new power plant and a structural and forge shop. The machine shop and stock room are replacements on a much larger scale of the portion of the plant recently destroyed by fire.

The machine shop will be 200 feet long and 100 feet wide and of fire-proof construction, steel, brick and concrete being used throughout, including steel window frames and sashes. The floor space of this building is 100 per cent greater than the building which it replaces. An electric travelling crane of 20 tons capacity will be located in the center portion of the building and operate on a track running the entire length of the structure. This equipment will give adequate facilities for lifting and moving heavy castings of hydraulic machinery in the course of their manufacture. Two smaller electric cranes of three tons capacity will be operated in each side wing of the building. In addition to the new crane equipment considerable other new machinery will be installed, consisting in part of boring mills, milling machines, lathes, planers, etc.

Ground is already broken for the new power plant. Work on all buildings will begin immediately and vigorously pushed to completion. It is planned to have th enew buildings in full operation by July 1st.

SULPHATE TURPENTINE.

In producing kraft pulp from longleaf pine, turpentine is driven from the wood. This turpentine is adulterated to such an axtent that it has, at present, little or no commercial value. A method has been developed at the Forest Products Laboratory, Madison, Wis., whereby sulphate turpentine has been purified and made as acceptable to consumers as gum turpentine.

BOOTH WANTS A DRY HULL.

John R. Booth, lumber king and millionaire, on Friday strikingly allied himself with the prohibitionists who are seeking to put Hull City "dry," when he issued a special appeal to all his employees, in the sulphite, paper, cardboard, lumber and in fact all his Chaudiere plants, to vote the "dry" ticket for the sake "of their dear wives and little homes."

"Old men for counsel, young men for war," is not a new adage. Though Mr. Booth has just passed his ninetieth birthday, his activities will not justify his being called "old" and yet no one will deny his counsel and will give it full weight, based as it has been in his long experience with men and his kindly interest in their welfare.

The appeal issued to the citizens of Hull and particularly to his employees is as follows:

"The city of Hull is now on trial for her existence. If the citizens fail to carry prohibition at this time it will be an acknowledgment that they are satisfied to live in a city where their wives and daughters are afraid to go out alone after the sun goes down or a stranger is not safe to walk the streets after dark if he happens to carry money."

"Do you, Mr. Citizen, want to live in a city that has the enviable name of a "Bum-Town?" Where all who may wish can go across the bridge and fill up with all sorts of drink, and lie around in a helpless state until evening, when they are turned out and then stagger home, bumping against everyone they meet, finally arriving home after many falls, to abuse their wives and families, after spending the money which may be required for their keep?

"Mr. Citizen, do you want to live in a city and raise a family, where they can witness such scenes every day? You may have sons whom you have gone to a large expense to educate and prepare to fill some position that will be an honor to you and themselves.

"Do you want, Mr. Citizen, to tempt your sons to such scenes as you can now see every day in your city? If not, get out and do your duty, now is your Golden Opportunity. It is every father's duty to protect his children from vice which is often very expensive.

"Now, I appeal to my many employees of Hull to grasp this Golden Opportunity, and first think of their little homes, their dear wives and families, when they go into a saloon for a drink, which they take down in one gulp, for which they will pay the price of a loaf of bread, if they happen to drink alone which is very seldom; just stop and consider that for that one drink you could have kept two or three of your family in bread all day.

"Now, Mr. Employee, get out and do your best; if not for yourself, do it for your dear wife and family. If you lose this opportunity you may regret it all the remainder of your life.

"I am sure that if any citizen of Hull could see as much trouble caused by drinking as I do he would do all he possibly could for absolute prohibition.

"Yours very truly,

"J. R. BOOTH."

In ranking himself strongly on the side of the temperance interests Mr. Booth, it is said, has contributed largely toward the cause. One rumor has it that he contributed $25,000.

PAPER MAKERS SAY "NOT GUILTY."

(Special Correspondence).

On April 30th, the seven newsprint manufacturers who were indicted by the Grand Jury will have the opportunity to demur or change their plea of "Not Guilty," which they made to the charge of alleged violating of the Sherman anti-trust law. These seven men are now out on $3,000 bail (reduced from $5,000) imposed on them in the United District Court by Judge E. E. Cushman. The strange turn in the situation is that the Grand Jury which indicted the manufacturers has been dismissed without the knowledge of Bainbridge Colby and Mark Hyman, special persecutors for the Department of Justice, and can not be called again for three years. If the counsel for the seven newsprint makers decide to demur to the indictment and the Judge upholds this demurrer, it will be necessary to call a new jury and to hear once more the testimony in this matter.

Henry A. Wise is counsel for G. H. P. Gould, John Quinn represents Alexander Smith, Gilbert H. Montague is counsel for George H. Mead and for George Chahoon, Jr., O. B. Jennings is the legal representative of Philip T. Dodge, while George Gordon Battle is counsel for Frank Sensenbrener and Edward W. Backus.

Mr. Colby, Special Investigator for the Government, is willing to admit that it is much easier to get an indictment than to get a conviction of the seven newsprint manufacturers. He says, however, that the case will undoubtedly be brought to trial. Henry A. Wise, Counsel for G. H. P. Gould, President of the Gould Paper Company who, as former United States District Attorney, prosecuted the box board men, says that the different attorneys representing the seven indicted men did not yet know what action they will take next month.

HAPPINESS AT ONTARIO PAPER CO.

The following notice was presented to the employees of the Ontario Paper Co., at Thorold:

April 16, 1917.

To the Employees of the Ontario Paper Co., Ltd.:

This company recognizes the fact that the cost of living has continued to increase, and, notwithstanding the uncertainties of its future costs of material, which continue to increase enormously, the company is voluntarily assuming a part of the burden of its employees caused by increase in living cost.

Therefore on and after April 15th, 1917, and during the continuance of existing conditions, the wages of all manufacturing employees, paid on an hourly basis, will be increased by adding two cents per hour to existing rates, and the wages of all mill employees now paid on a weekly basis, will be advanced one dollar per week.

In providing for the increase in wages herein designated the company fully realizes that it means a very large addition to manufacturing costs, and feels confident the employees will appreciate its efforts to better their condition by full co-operation in assisting so far as possible to offset the increased expense to the company.

THE ONTARIO PAPER CO., LTD.,
Warren Curtis, Jr., Manager.

Pulpwood Cut, but No Cars

By SHAGANASH.

Though such high prices as $18.00 to $20.00 a cord have recently been paid for small lots of pulpwood in Canada, the prevailing prices where wood may be purchased and, what is more important, where cars may be had to ship, range from $8.00 to $16.00 a cord at shipping point. At the latter price, a twenty cent rate make the cost about $24.00 to $25.00 delivered at mills in United States. Despite such high rates there still remain small lots of a few hundred cords selling as low as $6.25 a cord. In such cases, local mills are the lucky buyers. Middle men, by their foresight, are also reaping harvests or at least they will so reap if they can make shipments.

One large pulpwood company in Quebec has now over 30,000 cords cut from its free hold lands, but is unable to ship. All winter long they were able to ship out only about a dozen carloads. This wood, by the way, has ben contracted for months ago and reaches the American consumer at a very low price, compared with present sales. This exporter, however, can hardly complain, for the cost to him of stumpage, cutting and delivery to mill will scarcely exceed $4.00 per cord, and this at a time when men have been scarce, wages high, and the price of camp supplies prohibitive.

While there has been much less pulpwood cut in Quebec and Ontario this season than formerly, the congestion along railroads is more acute than in any former year, with no prospects of relief commensurate with the requirements. This is largely due to the run down condition of rolling stock on all railroads which, at the outbreak of war, and indeed since 1913 have cut down maintenance cost to such an extent that it will take years for some of them to regain an efficient position.

Along the line of the Transcontinental Railway in Quebec and Ontario there are thousands of cords of pulpwood stacked up. This wood has been sold to Canadian and American mills at prices ranging from $6.00 to $9.50 where formerly $3.00 and $3.25 were the highest prices paid. But here also the problem of car shortage and lack of locomotives prevent shipments. It is only fair to state, however, that the Temiskaming & Northern Ontario Railway is well equipped and able to handle its share of business, but is unable to pass it on to roads to the south.

How long this condition of congestion will continue is difficult to say. Certainly there will remain many thousands of cords along the railroads in Northern Ontario and Northern Quebec to be exposed to extreme fire hazards. Therefore, unless there is a vigorous awakening to the seriousness of the situation, and measures taken to properly protect this valuable product of the forest, some more deplorable losses will be suffered this year as last.

It is hoped that Ontario officials realize this danger, and that they are preparing to meet it. An occasional political appointment is heard of in connection with the new forest protection system, but no word yet of proper railroad fire equipment, such as the associations in Quebec are planning.

This is no time to waste our national resources. Such high prices as we are experiencing amply testify to their diminishing quantity and beautiful phraseology anent conservation should now be replaced by action.

No Politics in British Columbia Forestry

The lumbermen of British Columbia took an important step recently when they appointed a deputation of their members to wait upon Premier Brewster at Victoria and urge that the Forest Service of the province be so administered in future that politics shall play no part in it. Although not touched upon in the course of the interview, it is a well-known fact that many of the subordinate appointments made by the late government could not be justified save on the score of political expediency, and as a consequence the situation was beginning to alarm those who held that fitness for the position should be the only governing factor in appointments to the force which guards the great forest wealth of the province.

The deputation was composed of of Mr. C. D. McNab, president of the Mountain Lumbermen's Association; Messrs. H. R. MacMillan, Hugh Davidson and R. H. Alexander, of the Coast Lumber & Shingle Association; and Messrs. Mark Rector and W. B. W. Armstrong, of the B. C. Loggers' Association. In order that the Forest Service might be taken entirely out of politics these gentlemen suggested to the Premier that all appointments be placed in the hands of a Commission composed of five members—two representatives of the Mountain lumber interests, two named by the Coast lumbermen, and the Minister of Lands. Premier Brewster said that when taking office his government had determined to make efficiency their guiding principle when makin gappointments, and believed the object aimed at by the lumbermen would be fully safeguarded in this way, but he was prepared to promise very careful consideration of the commission plan on the part of himself and colleagues, their earnest aim being to handle the forest resources of the province in a way that would yield the highest possible revenue while conserving the supply of timber and guarding the future growth.

The Victoria Colonist, in referring to the request made by the lumbermen, backs up the need of technically trained men for the Forest Service in the following words:

"Ever since the former Chief Forester, Mr. H. R. MacMillan, inaugurated the Forest Branch of the Department of Lands, it has been the aim to have a professional service, that is, a service composed of men who have undergone training in the technical side of the business. This practice is now being followed everywhere that governments have control of forest wealth. British Columbia took the lead in Canada in that respect and only recently Ontario, profiting by the drastic experience it has had in the tremendous waste of timber wealth in northern Ontario through disastrous forest fires, has adopted the most of British Columbia's forest protection methods. The fact, too, that the provincial branch has been co-operating in many material ways with the federal authorities in forest protection and that this joint work has done great good in reducing the timber loss from fires to a minimum is indicative of the necessity that in the future the efficiency of the service should be maintained at the very highest point. The present Chief Forester, Mr. M. A. Grainger, is also a strong advocate of a technically trained service, and while since the war began, the service has lost through enlistments some of its best field men, it is his desire to keep the service up to the previous standard."—Western Lumberman.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The (Forestry) Situation.—B. F. Fernow, Journal of Forestry, Vol. XV., No. 1, 1917. An outline of the work of the United States Forest Service from its beginning to the present time, with criticisms.—H.N.L.

Bleaching of Groundwood Pulp. — Paper read at Am. Tech. Section by Otto Schutz, Paper Trade J.: Convention No.; Feb. 8, 1917, p. 119.—Sodium bisulphite is the most effective bleaching agent for groundwood. 2 - 3 per cent will produce a good color. The bleaching proceeds slowly as it is essential to allow the bleaching agent sufficient time to transform the lignin substance into a colorless compound. The most suitable groundwood for bleaching is that from poplar and white spruce. Dull stones and a high pressure will produce a satisfactory fibre for most papers for which groundwood may be used. Properly prepared groundwood is a good material for cheap magazine and light weight catalog paper. Bleached groundwood will develop the reactions with certain chemicals (phloroglucinol, etc.) that are characteristic of unbleached groundwood. Technique of the process. The top press roll of a wet machine is equipped with two small felt covered rolls which may be moved up and down. Above the upper roll a specially constructed lead spray pipe is adjusted to distribute the chemical bleaching solution evenly along the upper roll. The bleaching solution is thus transmitted from the upper to the lower small roll, whence to the lower large roll and from there to the groundwood sheet which is winding up on the top press roll of the wet machine. Bleached groundwood has been used in European mills for many years.—E.K.M.

Cotton Rope for Power Transmission.—J. Melville Alison, Paper Trade J. Convention No., Feb. 8, 1917; p. 137. Discussed the features of the practices in the use of power rope transmission in England and America. The two leading systems; Continuous or American, and the multiple or English.—E.K.M.

The Search for New Paper-Making Fibres.—Paper-Maker and Brit. Paper Trade J. Vol. 52, 1915-16; p. 45-47. Bamboo is now being successfully employed in the production of excellent paper in India and the Far East. Investigations show the Kaing grass of Burmah commercially successful for making pulp. The yield of unbleached pulp calculated on the air-dry grass is 39 per cent. Paper of good quality can be made from spinach according to Mons. R. de Noyer, a French horticulturist. The following are a list of promising fibres; the Savannah grasses of Northern and Central India; Moya grass, which grows over large areas in the hills of the central provinces of India; Lalang; Marran occurring on the sandy shores of the British coast line; Hedichium coronarium, Papyrus, Tambookie, Blady, Elephant, Bear and Delta grasses. Chestnut is now being used by two plants in the Appalachian Mountain region of the U.S. The Carr process, a modification of the soda process is used. The pulp makes an excellent book paper. Difficulty has been found in extracting all the tannic acid from the wood. Southern Pine (long leaf) gives an unusually long fibre and is being used in the manufacture of kraft paper. Hemp hurds produce a very satisfactory fibre. Henequen stalks and waste are capable of conversion into wrapping and bag paper.—E.K.M.

Electricity in the Paper Industry. — By W. W. Cronkhite, Paper Convention Number. Feb. 14, 1917, p. 42. Discusses economy and high efficiency of electric drive.—E.K.M.

New Uses of Pulp and Paper. — Paper-Maker and Brit. Paper Trade J. Vol. 52; 1915-16; p. 47-49. Paper pipes prepared with bitumen are capable of standing a pressure of 300 lbs. of water to the inch. Artificial silk, coarse cloth, and fabrics resembling mercerised cotton, ties and waistcoats are being made from pulp and paper. Both pulp and paper can now be formed into solid substances capable of competing with wood or iron in point of durability and elasticity, such important articles as paper bottles, figures, ornaments and furniture. Waterproof coverings, for walls and ceilings, parchment slates, flanges, paper wheels, roofing, boats, paper barrels, gas pipes, etc., are being made from pulp and paper. Paper is used successfully as a building material in Japan and Scandinavia for walls. In the U.S. a heavy board is made from waste paper, sugar cane and corn stalks. Paper string is now recognized as a valuable substitute for the ordinary variety. Cellulose wadding is used in many forms as a substitute for cotton. The largest use of spun paper in the U.S. lies in the manufacture of fibre rugs, twenty-five factories are now engaged, one of which is turning out 25 tons daily.—E.K.M.

Rosin in Wood and Pulp.—Chr. Bay in Papir J., 1917, p. 31. Only a small amount of the rosin and fat is removed from the fibres in the sulphite process and the rosin and fat content of the pulp can not be reduced by washing with water. The reason why better results are obtained with washing of the pulp in the digester with hot water is probably that this is not so hard and dissolves more easily certain impurities from the fibres than cold water does. Cold wash water, which contains calcium and magnesium salts precipitates on the fibres substances dissolved in the liquor, and these absorb rosin and fat particles, which are torn away from the fibres during the breaking up of the pulp. Attempts have been made to remove the fats and resins from the pulp with chemicals, and as it seems that the fats are most imjurious, fat emulsifiers have been added in the beater, whereby in some cases good results were obtained.—B. J.

The Chemical Composition of Spruce-Lignin. — Peter Klason in Svensk Pap. Tid., 1917, p. 10. A discussion of the lignin reactions and the actions of bisulphites upon coniferin. The lignin reactons are not based upon the lignin itself but upon a partly autoxidation of the lignin in the wood. The lignin consists of condensation products with an aromatic nucleus and allylalcohol, acrylic acid, methoxy groups and hydroxy groups placed as in protocatechuic acid (1, 3, 4).

A similarity between coniferylalcohol and lignin in tehir behaviour to bisulphites is stated. Even a regular "black cook" can be obtained with coniferyl alcohol. Klason draws the conclusion that in lignin an aromatic nucleus of the same sturcture as in coniferyl alcohol and also allyl alcohol as side chain must be assumed.—B. J.

UNITED STATES NOTES

According to President Arthur C. Hastings of the American Writing Paper Company, this Corporation will make machine glazed or envelope paper in a few months time. A large machine has been brought from England and is now being installed at the Crocker Manufacturing Company mill at Holyoke, Mass., one of the division mills of the American Writing Paper Company. According to Mr. Hastings this will be the first time that the company has manufactured envelope paper in the East.

Pulp at Baltimore Exaggerated.

The fantastic story that has been printed in various newspapers concerning the amount of wood pulp on the docks at Baltimore is much larger than usual has been disproved by M. L. Freeman, secretary of the Pulp Manufacturers' Association, with headquarters in New York City. "At the present," Mr. Freeman says, "there are about 13,000 tons of pulp at Baltimore which is less than two weeks supply. All the stories printed about the vast amounts of foreign pulp at the ports have been written by men who know little of the paper and pulp business and are without foundation."

The paper industry is becoming interested in the growth of the trade acceptance movement in the United States which promises to revolutionize modern methods of trade by giving the seller immediate cash for his goods and greatly facilitating trade. A great number of bankers are pushing the movement and the Trade Acceptance Bureau, National Association of Credit Men, 41 Park Row, New York City, is working to familiarize business men with the new idea.

The paper mills of the country have demonstrated their patriotism by informing the Joint Congressional Committee on Printing, Washington, D.C., which is in charge of the purchases of paper for the United States Government printing office that they would furnish paper at cost to the government during the war.

More than 1,500 workers of Kalamazoo, Mich., gathered some days ago to hear George F. Barber, president of the New York Efficiency club deliver a talk on efficiency as the first step in a movement to advance the interests of the workers by a three months course in personal efficiency. The paper manufacturers of the city are among the business men who are giving the movement their concerted support.

The Remington Paper and Power Company, of Watertown, N.Y., have just granted their employees the second raise in wages that has been made in the last six months. This increase amounts to ten per cent and will affect more than 500 employees.

There is every possibility that there will be a general freight rate advance because of the tentative order issued by the Interstate Commerce Commission which changes the rules to allow the railroads to file immediately an application for a fifteen per cent rate advance. The hearing in this matter will be held soon.

The Eagle Wrapping Corporation and the United Paper Company of Ballston Spa, N.Y., whose mills were burned down recently will rebuild in the near future according to the latest reports. The mills were fully insured.

The Seybold Machine Company of Dayton, Ohio, one of the largest plants for making paper mill machinery will increase their plant in the near future. To cover this expansion the capital stock of the company has been increased from $100,000 to $1,000,000.

Three large tracts of timber land in the Klamath Indian Reservation Oregon, are for sale according to the announcement of Cato Sells, Commissioner of Indian affairs. Almost all the timber is yellow pine. One tract contains more than 170,000,000 feet, another 200,000,000 feet and the third 260,000,000 feet. The minimum price is $3 per thousand feet.

The Standard Paper Company of Kalamazoo, Mich., is making many improvements to increase the capacity of the mill. The Wickes vertical water tubes, Murphy stockers and a 400 horse power generator are being installed.

H. I. Prankard, president of the Frank I. Gilbert Paper Company, of Cohoes, N.Y., says that the mill the company is building make the finer quality of colored papers which had been made before in Germany, will be ready to turn out paper about July 1st.

The Albany Perforated Wrapping Paper Company of Albany, N.Y., has purchased eleven acres in the lumber district where they intend to build a mill some time in the future.

President Wallace of the Union Bag and Paper Company at the annual meeting of that company in New York a few days ago said that he was delighted with the progress that the concern was making and called the last fiscal year the most important in the history of the corporation.

It is said that the pulpwood shortage is materially hampering the mills in Wisconsin and some mills have been compelled to shut down. The weather conditions have been very bad and it was not possible for the mills to get sufficient stocks of pulp to run to capacity.

The Charles Bolt Paper Company of Cincinnati, Ohio, intends to have its news mills which will make jute and chip board in operation by July.

According to latest reports the railroads at the instigation of the Interstate Commerce Commission will soon compell all shippers under threat of a fine to use freight cars in full capacity. This will mean that shippers of paper will have to hold up their shipments until they have full car loads if the dictum goes into effect.

Ex-Mayor James Logan of Worcester, Mass., general manager of the United States Envelope Company was the chief speaker at the flag raising exercises at Holyoke, Mass., on April 18. Donald B Logan, son of James Logan is treasurer of the Taylor-Logan Company and second-lieutenant of Company D, Massachusetts military.

The International Paper Co. are receiving large quantities of pulpwood at Orono, Maine, making up for the delay last winter. This company has made the hearts of its employees glad recently by increasing the hour men two cents an hour and the per day men a dollar a week. This does not affect the bonus increase of November, 1916. It is much appreciated in these H. C. of L. times more especially as it comes unasked.

PULP AND PAPER NEWS

S. R. Armstrong, general manager of the Mattagami Pulp and Paper Co., who are erecting a large sulphite mill at Smooth Rock Falls, Ont., is spending a few days in Toronto, after an absence of several weeks at the mill where fine progress is being made with construction. It is expected that the plant will be in operation in June next.

Ellis H. Wilkinson, who is a former well known and popular paper mill representative in Toronto, is now a sergeant in the Cobourg Heavy Battery, at Cobourg, which is the only heavy battery west of Montreal. He spent a few days in Toronto this week. The Cobourg Battery has recruited nearly five hundred men and Sergt. Wilkinson expects to leave for overseas in the near future.

An important meeting of the Thorold High School Board, the Industrial Advisory Committee, of which George Carruthers, President of the Interlake Tissue Mills is Chairman, and the teachers of the Thorold High School, was held this week for the consideration of the extension of the work of the industrial classes which have been carried on for some months for the benefit of workers in the pulp and paper mills of the Niagara Peninsula. The average attendance has been fifty-five and classes have been held two nights a week. A silver medal has been offered to the student making the best showing in chemistry.

W. M. Davidson, proprietor of the Calgary Albertan, Calgary, and a former will known newspaper man of Toronto, where he was engaged in journalism for several years, has been nominated as the Liberal candidate for the provincial riding of North Calgary.

The death occurred last week in Toronto of Frederick Brigden, Sr., President of the firm of Brigdens, Limited, engravers and printers. For forty-five years the deceased was one of the leading engravers of Canada, and in 1872 established the Toronto Engraving Co., which was later taken over by his two sons, George Brigden, President of the Toronto Rotary Club, and Frederick Brigden, Jr.. In his boyhood the late Mr. Brigden lost his hearing from scarlet fever and spent much of his time and money in helping the deaf. He is survived by two sons and two daughters.

Fire broke out last week in the composing room of the British Whig, Kingston, Ont., and a great deal of damage was done to the type-setting machines and stock. The loss is estimated at twenty thousand dollars. J. G. Elliott, President of the British Whig, is also President of the Canadian Press Association.

The MacLean Publishing Co., Limited, Toronto, have issued a neat, twenty-four page booklet of display faces, linotype faces and borders for the use of their editors, advertisement writers and other members of the staff. The booklet is filled with excellent and timely advice on the setting and designing of advertisements and on the use of rules and borders.

The George Powley Paper Co., have removed from 1251 Queen Street west, Toronto, to 1237 on the same street, where they have more commodious premises.

Robert L. Patterson died at his home in Todmorden, near Toronto, on April 21st, after an illness of two months. He was seventy-two years of age and in his youth was on the Toronto Globe staff. Then he became Canadian manager of the firm of Miller and Richard, typefounders, which position he held until ten years ago, his son J. H. L. Patterson, succeeding him in Toronto, while another son, H. K. Patterson was appointed manager of the branch at Winnipeg. The late Mr. Patterson probably knew more newspaper men and publishers personally than any other man in Canada and, at his beautiful home in Todmorden, every summer a lawn bowling tournament was held for the Toronto journalists. Mr. Patterson was Vice-President of the Manufacturers' Life Insurance Co., and a director of the Dominion Guarantee and Accident Insurance Co. His wife died two years ago and three sons and two daughters survive, one of the latter being Mrs. Ritchie, wife of F. A. Ritchie, President of Ritchie and Ramsay, coated paper manufacturers, Toronto.

Extensive improvements are being carried out to the plant of the Interlake Tissue Mills at Merritton, Ont., with a view to economy in manufacture and improved production. A new fifteen ton Appleton screen, a new save-all, a new sizing system and a new vapor extractor are being installed. The installations will be completed within a month or six weeks.

The Manitoba Pulp and Paper Co. at the head of which is J. D. McArthur, of Manitoba, nas been incorporated with a capital stock of one million dollars and purposes erecting a fifty ton mill in Winnipeg if suitable arrangements can be made. The company has asked the city for a fixed assessment of fifty thousand dollars for twenty-five years, a fixed rate of ten dollars per horse-power per year for power required by the company which would be about fifteen hundred to three thousand horse-power annually, and free water to the extent of two to three million gallons per day. The company has acquired an option on some fifteen acres near the McPhillips street reservoir. It is understood that the plant will make principally wrapping and building papers.

The first consignment of pulp from the new pulp plant at Swanson Bay, B.C., was shipped last week. The mill is now in operation and has been completely reconstructed.

The plant of the Toronto Paper Mfg. Co., at Cornwall, Ont., which has been closed down for three weeks while the water was let out of the canal and repairs made to the waterway, has resumed operations. During the shut down the mill was given a thorough overhauling and is now in splendid operating shape.

Among the visitors to the trade in Montreal during the past week were W. J. Finlay, of the Strathcona Paper Co., Strathcona, Ont., George Carruthers, of the Interlake Tissue Mills, Toronto, and Charles V. Syrett, of the Victoria Paper and Twine Co. Toronto.

A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers' Safety Association, Toronto, spent the past week on a tour of the mills in the Niagara Peninsula, where he found the interest in the work of the association being well sustained by both employees and proprietors.

Mr. Robson Black, Secretary of the Canadian Forestry Association is on a lecture tour of Western Canada, during which he will deliver addresses to many of the Canadian Clubs and other public organizations at Winnipeg, Regina, Saskatoon, Calgary, Edmonton and throughout British Columbia. The addresses will take up various aspects of forest conservation as related to the nation-wide campaign for Thrift.

F. W. O'Rourke, who was assistant superintendent of the soda pulp mill of the Canada Paper Co., has accepted a position in the sulphate department of the St. Maurice Pulp and Paper Co., at Cap Madeleine. Mr. O'Rourke is a recent graduate of the University of Maine and has been in the sulphite mill of the Crown Pulp and Paper Co.

H. C. Buncke has been appointed superintendent of the Abitibi Paper Company's groundwood mill. His training includes a degree from Columbia University, a special course at the University of Maine, and experience with Geo. F. Hardy, in New York and at Iroquois Falls, Ont.

The examination of the students in chemistry of the Industrial Evening Classes at Thorold, was held on Thursday, 19th. It has not yet been announced who receives the medal kindly donated by President G Carruthers, of the Itnerlake Tissue Mills, the presentation of which takes place on the 27th April, at the Thorold high school.

Mr. William Davies has accepted the position of boss-finisher at the Interlake Tissue Paper Mills, Merritton, and it is current news that Bill has decided to get married in the near future, which is, we might caution Bill, another very responsible position.

Hugh Hendry, back-tender at the Montrose Division, had the misfortune to get his fingers badly pinched last week. (He has the editor's sympathy).

The people of Thorold were again treated to a little excitement on Sunday afternoon when the fire alarm called out the firemen to extinguish a blaze which had started on the roof of the Davis Section of the Foley Reiger Pulp Co's plant. Fortunately the firemen were on the job in good time and had the blaze under control before any serious damage was done.

Mr. Dan Daverin, superintendent of the Montrose Division of the Provincial Paper Mills Co., Ltd., at Thorold, spent a couple of days in Toronto on business during the week.

Mr. Gunther has resigned his position as boss-finisher at the Interlake Tissue Paper Mills, Merritton, to take up a more responsible position with the Ontario Paper Co., at Thorold.

The employees of the Montrose Division of the Provincial Paper Mills, at Thorold, were agreeably surprised on pay-day when they received their pay check, to notice that their wages had been increased by ten per cent. The surprise was doubly pleasant as the raise had not been asked for.

OTTAWA NOTES.

The manufacture of sulphite for sale is to be undertaken here by the J. R. Booth interests and a second big new sulphite mill is in the stage of erection. For some time the Booth interests have been manufacturing sulphite for their own use, and now propose to make the sulphite and sell it to other firms.

Little information as to what the intentions of the Booth interests are is available now though in a short time it is thought much more can be learned of the new plant, and its product.

One of the most progressive steps that Ottawa Printing firms have for the benefit of its employees is that of the American Bank Note Company here, which institution has installed an admirably equipped "first Aid" department. The department which was installed and equipped by the Bank Note Company, presents a finished aspect and standing inside the door one could hardly imagine that he was elsewhere but in one of the best wards of a leading hospital.

Two years ago the male and female employees of the company took a course of instruction in first aid work and as a result of their study many have gained certificates. One of the ladies who took the course graduated and is now a trained nurse serving in a Canadian war hospital, "Somewhere in France."

The department is a novel one and is the first of its kind to be established in Ottawa. A hospital, bed neatly arranged, a cabinet fully equipped with medical instruments and all requirements used by physicians in emergency, with a stretcher added, complete the provisions of the department in itself, while a trained resident nurse is on hand at all times to supervise the work.

Heads of the J. R. Booth and E. B. Eddy plants are strongly in favor of temperance and total prohibition in Hull. Mr. George Millen, head of the E. B. Eddy plant, stated that he was entirely in favor of prohibition and the Eddy Company was standing on that platform with both feet.

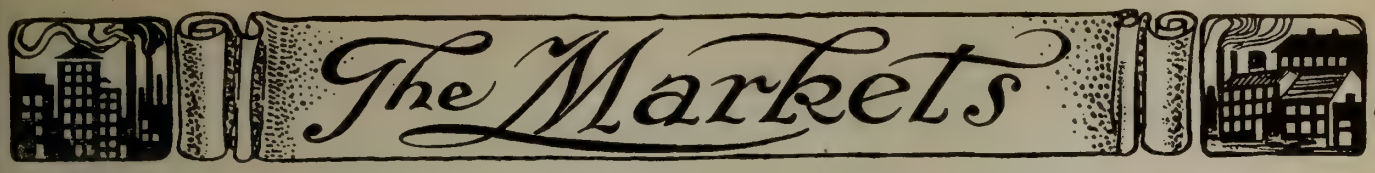
HAMMERMILL BOND FOR UNCLE SAM.

Mr. C. S. Weir, secretary of the Hammermill Paper Company of Erie, Pa., has been calling on business associates in Toronto, Montreal and Quebec. Mr. Weir reports business as being extremely brisk, and tells with justifiable pride of a big order received from the United States Government for their famous Hammermill Bond. Uncle Sam is using the paper in connection with recruiting purposes, evidently being desirous of having his recruits sign their names to the best to be had on the market. Here's hoping so many recruits sign up that another order will come to the Hammermill Paper Company!

NEWS MILLS BIGGER IN CANADA.

Newsprint mills in America worked 310 days last year and Canadian mills 309 days, producing a total of 1,600,666 tons. In March, 1917, 25 U. S. mills made 86,041 tons as compared with 91,047 tons made by 32 mills in March, 1916. Thirteen Canadian mills in March, 1917, made 48,904 tons while twelve mills made 45,396 tons in the same month last year. Shipments continue to equal or exceed production, though the margin is smaller than a year ago.

The average Canadian mill produced 141 tons per day while the average U.S. mill made 126 tons daily.



CANADIAN MARKETS.

There is a faint intimation of a slightly easier price on sulphite of newsprint grade but there does not seem to be any fear of an appreciable softening of the market. The whole pulp situation is intimately connected with the pulp wood situation. Reliable reports from the United States confirm the statements that there is less wood on hand and available than will be required. In Wisconsin this shortage amounts to from 25 to 50 per cent. Everybody wants more than he can get. Maine will also be short. The reason for this condition at the pulp mill is due principally to scarcity of labor and the enormous increase in all lumbering and camp expenses.

Some U.S. mills that should have 50 per cent of their wood supply on hand at this time are using from the cars. With the absolutely certain decrease in wood deliveries it is equally certain, at the present rate of consumption, that there will be trouble next fall. It will not be a question of price but of the non-existance of the wood.

The wise ones believe that sensible mills will stand pat on present prices. There was a slight tendency in March to a softening on higher grades of paper, but this was scarcely felt in pulp markets. With high prices on some grades, as in No. 1 Book, some publishers have substituted cheaper paper. High grade publications can not afford to do this, as their expensive advertising requires the best in paper. In either case, the paper machines are up to capacity.

A point to be considered is the fact that an increasing number of mills are making prices on the dictates of their cost system and not on the profit or loss of a previous month or year.

There seems to have been no ill effect on the market of charging 15 cents more per 100 lbs. for wrapping paper in reams. Orders are being placed without complaint. The tendency seems to be the placing of smaller orders, more frequently. The logic of such a procedure is obvious, with prices where they are.

Newspaper reports try to create an opinion that there is a misunderstanding as to when the special Canadian reduced rate on newsprint became effective. A representative of a large mill says that March 1st is the time definitely understood by the Government.

Some considerable amount of Canadian pulp that normally goes abroad must be finding an outlet across the line. This has failed to affect the market in any degree. A large spot sale of ground wood in the West brought a price way above the market.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (car load), No. 3	$7.75
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.75 to $10.00
xBook papers (carload, No.	$9.25
xBook papers (to lots, No. 1	$10.25 to $11.00
Ledgers	15c up
Sulphite bonds	12½c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $50.00
Easy bleaching sulphite	$110 to $115.00
Sulphite, news grade	$90.00 to $100.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 Hard White Shavings	$5.00 to $5.25
No. 1 Soft White Shavings	$4.00 to $4.50
Mixed Shavings	$1.10
White Blanks	$2.00
Heavy Ledger Stock	$2.75
Ledger and Writings	$2.05
No. 1 Magazine	$1.25 to $1.35
No. 1 Book Stock	$1.15 to $1.25
No. 1 Manila Envelope Cuttings	$2.75
No. 1 Printed Manila	$1.40
Folded News	.90
Over Issues	$1.10
Kraft	$3.50
No. 1 Clean Mixed Papers	.80
No. 1 White Shirt Cuttings	$8.25 to $8.50
No. 1 Unbleached Cotton Cuttings	$8.25 to $8.50
No. 1 Fancy Shirt Cuttings	$5.50 to $5.75
No. 1 Blue Overalls Cuttings	$5.50 to $5.75
Bleached Shoe Clip	$6.75 to $7.00
Unbleached Shoe Clip	$6.25 to $6.50
White Cotton Hosiery Cuttings	$8.25 to $8.50
Light Colored Hosiery Cuttings	$7.25 to $7.50

New Light Flannellette Cuttings	$5.75 to $6.00
No. 2 White Shirt Cuttings	$6.00
No. 2 Unbleached Cotton Cuttings	$6.00
City Thirds and Blues	$2.25 to $2.50
Flock and Satinettes	$1.40 to $1.50
Tailor Rags	$1.40 to $1.50

CANADIAN CHEMICAL MARKET.

MONTREAL, April 24.

The Chemical Market remains very firm with no important changes to report. Transportation conditions have improved very little. Manufacturers are experiencing difficulty in obtaining suitable containers. This will, doubtless, tend to advanced prices.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb.	5½c@6c
Alum, potash, lb.	6½c@7c
Blanc Fixe, paste, lb.	4c@4½c
Blanc Fixe, powder, lb.	5c@5½c
Bleaching Powder, lb.	5¼c@5¾c
Brimstone, f.o.b. New York, long ton	$45.00
Casein, lb.	25c@30c
Caustic Soda, 76 p.c., lb.	5½c@6c
China Clay, imported, ton	$30.00@$40.00
China Clay, domestic, No. 1 white, ton	$20.00
China Clay, domestic, No. 2 white, ton	$15.00
China Clay, domestic, No. 3 white, ton	$12.00
Lime, ton	$7.25@$8.00
Sal Soda, bags, 100 lbs.	$1.25@$1.30
Sal Soda, barrels, 100 lbs.	$1.35@$1.40
Salt Cake, 100 lbs.	85c@$1.00
Soda Ash, lb.	3¼c@3¾c
Starch, pearl in bags, lb.	6¼c@6¾c
Sulphate Alumina, technical, lb.	3½c@4c
Sulphate Alumina, iron free, lb.	5c@5½c
Talc, American, ton	$13.00@$18.00

NEW YORK MARKETS.

By Rowland W. Jolly.

New York, N.Y., April 21

A lull seems to be hanging over the head of the markets. Temporarily, at least, buying seems to have taken a greater slump than it has taken in some time. However, prices have not been materially, affected with regard to finished products, although easing was reported in some of the raw materials. Manufacturers' agents do not regard the present situation as being of much significance. It is possible that the President's message urging economy in all lines is having some effect—or that it has curtailed buying for the moment. While the curtailing of buying is in progress, consumption has not been affected to any great extent. Therefore, it is only logical to assume that stocks with the jobber and with the consumer are rather low and will need replentishing within the very near future. Then, it is feared that there will be in repetition of the events of last year which, while still fresh in mind, are not being heeded by the trade. A sudden rush for goods must impair the already bad situation. It must find an artificial value for stock and must mean that deliveries will be handicapped to the extent of creating unpleasant conditions. Most interest is now being centered in the struggle in Congress to pass a bill ordering the conscription of men between the ages of 20 and 40. The passage of this bill which seems very likely, will take away from the trade, in all of its branches, many young men, thus threatening to im-



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Raymond Concrete Piles

This recovery-tower (Thorne Patent) at the Riordon Pulp and Paper plant, Hawkesbury, Ont., stands on Raymond Concrete Piles.

Wind-pressure is, of course, the thing to guard against in stacks or towers. Every concrete pile in a tower foundation must bear a hundred per cent. load. There must be no "lame duck" piles present. There isn't room for them. Every pile must bear its full proportion of the load.

Raymond Concrete Piles meet these conditions perfectly because they are made in the Shell which stays in the ground to protect the green concrete against the possibility of distortion.

Let us tell you of the Pulp and Paper Plants Standing on Raymond Piles.

Raymond Concrete Pile Co., Limited

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Glazed and Unglazed

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W. H. Smith & Company, Cape Town, South Africa.
Hodge Sherriff Paper Company, Imperial House, Kingsway, London, W.C.

E. A. Flanagan, Esq., Woolworth Building, New York, N.Y.

Hodge Sherriff Paper Company, McKinnon Building. Toronto, Ont.



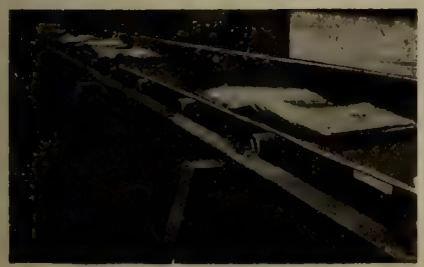




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The Jeffrey Manufacturing Company

Canadian Branch and Warerooms, Montreal

Tender for Timber Limits---Mill and Equipment

The following valuable property composing a going lumber manufacturing plant, is offered for sale in order that an Estate may be closed:

125 Square miles more or less, of timber limits under license from Ontario Government, conditions of which may be obtained from the Department of Lands, Forests and Mines, which permits cutting of all kinds of trees; composed of townships of Goschen, Carlyle, 67 and north half of Humbolt.

200 Acres of land at mouth of river on which are situated water-power saw mill and mill dam, box factory, yard with docks and tramways, store, boarding house, blacksmith shop, machine shop, storehouses, stables and about twenty houses for families. A steel tug eighty feet long, a steam launch and tow barge. Also camp equipment for two camps including sleighs, horses and all necessary rigging.

The territory is well watered and the river improved with dams, slides, etc. Blue prints may be obtained at the office of the undersigned.

Tenders for the purchase of the foregoing endorsed, "Tender for timber limits, etc.," addressed to the undersigned, will be received up to Thursday, 28th June, 1917.

Terms: Certified cheque payable to the undersigned, for 10% of the amount offered, must accompany the tender; 15% to be payable on the 1st of August, 1917; 25% on the 1st of November, 1917; 25% on the 1st of February, 1918, and 25% on the 1st of August, 1918.

Interest at 6% per annum from date of acceptance of offer to date each payment is made.

Cheques of unsuccessful tenderers will be promptly returned. The right is reserved to reject any or all proposals.

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pair, for the time being, the proper continuity of operations.

In ground wood, quotations during the week seem to be a bit lower than they have been in some time—although the available quantities of this commodity are not increased materially. It has been said that the improved water conditions in Canada and through the upper part of the State have made it possible for the grinders to run their machines at a better capacity. The general opinion still prevails, however, that this market is destined to witness still higher prices within the near future. Some reports indicate that, in several sections, the question of wood supply is already beginning to be felt. As time goes on, this question will be more and more appreciated. Predictions made by the most reliable sources state that the coming summer will find this year's wood cut unusually poor, which will mean two things First, it will mean that wood will be bound to advance in price; second, it will mean that there will be considerable difficulty in getting sufficient supplies of wood. Unless freight conditions improve, these difficulties may be greater than is being estimated at the present time. The fact that the Canadian wood cut will be curtailed this year, is also of material importance. Labor and transportation conditions, while they may be alleviated to some extent, must continue to play an important part in the supply of these raw materials, as well in their conversion into finished paper. The declaration of war with Germany by the United States has increased the circulation of many of the newspapers throughout the country and, as a result, the demand for news print is firm and may grow stronger soon.

Judging from reports, consumers are not showing much interest in chemical pulp at the present time. This may be on account of the fact that the demand for certain grades of papers has not been up to normal for the last few weeks, but this has not in the least affected the firmness of prices. It is realized that the available supplies of chemical pulp are far from sufficient to take care of any great demand from the trade. When the demand for paper picks up, as it surely must do in the near future, the need for pulp will grow and the true conditions in this market will be revealed. As we have explained in recent issues, comparatively little hope is being held out with regard to shipments coming from Sweden. It is true that the season of open navigation will soon be at hand, but it is not likely that the foreign producers will take the chances incumbent on sending supplies to the United States. Even if stock is sent over, the prices that will be asked will not be any lower than those now prevailing here and in all probability, they will be much higher—so advises a local dealer. With regard to the domestic manufacturers, they will be faced by the same conditions described under ground wood. The shortage of wood and the trouble in getting sufficient labor will manifest themselves more strongly as time passes. While the general quotations heard around the city are somewhat lower, they are still nominal and it is doubtful whether one could go out into the market and get large stocks for immediate delivery.

The rag market continues quiet, the consumers showing almost no interest. The impression is given out that the mills have considerable stocks in storage and will have no need to go into the market for some time. The dealers regard the action of the mills as a bear movement to get prices down, believing that the mills can have but little stock and therefore, maintaining their figures as well as it is possible for them to do. Dealers are reported to be holding pretty firmly, with only occasional rumors of a shading in price. In might be said that the logic of the rag men is somewhat like that already narrated on the other raw material markets. And, say the rag men, the prospects for getting large quantities of rags in the future are far from being the brightest. The most active stock at the present time, is roofing in its various grades. It has been said that the cause for this fact is that the felt manufacturers are taking advantage of the lull in the market. By buying now, they are able to demand the best packing and get attention that would otherwise be decidedly lacking. New white shirt cuttings are reported at 8c to 9c; old white cuttings are held around 4½c to about 5¼c; house soiled whites, at 3 to 3¼c; street soiled whites, at 2¼c to 2¾c; thirds and blues, at 2¼c to 2½c; black stockings, at 2¼c; roofing stock as high as 1¾. The prices for old rope and bagging remain about the same as we have last reported them. Interest is said to have been slightly stimulated. This market is expected to keep firm, because of the shortage of supplies and because of the fact that England is adhering closely to her embargo on the export of these goods.

With the exception of a few grades, the waste paper market is going fairly active, with prospects said to be very bright. We still feel, that waste papers are destined to remain firm and at high prices for some time to come. Reclaiming stock from old waste papers is being done on a fairly large scale at the present time, and the tendency is growing. The demand for krafts is very good, prices reported to range as high as 4c. Manilas, too, are thriving under exceptional interest, quotations going up to 1½c for old stock. Hard white shavings are moving well with figures topping at 5½c; soft white shavings are in fair demand at 4¼c to a little over 4½c; magazine stock, though a little "off" this week, continue up near 2c; ledger stock is up to 2¾c; newspapers eased little in price during the past few days, but they are bound to come back soon. Strictly over-issue news was reported at a little over 1¼c as the high-mark; strictly folded went as high as 1¼c; mixed papers were reported at 80c to 85c per hundred pounds.

Dealers are still waiting for prices in the paper market to come down. However, there seems to be little or no prospects of such action within the near future. Judging from the fact that many of the manufacturers all over the country have been running their machines on part time, it is evident that the buying movement has been seriously curtailed for the present. In news print, the market continues strong, unaffected by the complications now existing at Washington. With the war getting into full swing, we look for a considerable increase in the consumption of this product. It has been predicted that the next few months would witness new high marks in the consumption of news print. Wrappings continue in fair demand, with the exception of fibres, which have not entirely revived as yet. Tissues are firm, though buying is very conservative. Boards and book papers are very firm.

New York Quotations.

Ground Wood, f.o.b., mill . . . . . $50. to $55
Foreign bleached sulphite, ex-dock, New York . . . . . 11c and higher
Foreign easy bleaching sulphite, ex-dock, New York . . . . . 6¼c and higher
Domestic bleached sulphite, f.o.b. pulp mill . . . . . 8¼c and higher

Foreign unbleached sulphite, ex-dock, New York ..... 6c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York ..... 5¾c and up
Domestic unbleached sulphite, f.o.b. pulp mill ..... 5¼c to 5½c
Eeasy bleaching, f.o.b. pulp mill ..... 6c and higher
Kraft pulp, f.o.b. pulp mill ..... 6½c and higher
Foreign kraft pulp, f.o.b., ex-dock, New York ..... 6½c to 7c
Bleached soda pulp, f.o.b. pulp mill . 6c and higher
Foreign unbleached soda pulp, ex-dock, New York ..... 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York. ..... 6½c to 7c
Bond papers, sulphite ..... 12c and way up
Best grade writings ..... 20c and higher
Regular superfine ..... 19c and higher
Ledgers papers ..... 13c and way up
News, contracts, f.o.b. mill ..... $2.50 to $4.25
News, spot lots ..... up to 5c
Book, super..... 9c and higher
Book, coated ..... 8½c and higher
Tissues, good sulphite, bleached, per ream ..... $1.30 and higher
Tissue, ground wood, manila, per ream ..... $1.30 and higher
Kraft ..... 9c and higher
Manila ..... 7¾c and higher
News board, per ton f.o.b. New York $70.00
Strawboard, per ton, f.o.b. New York . $6.00 higher
Chip board, per ton, f.o.b. New York $65.00

ROWLAND W. JOLLY.

WRAPPING PAPER MEN IN CHICAGO.

A meeting of wrapping paper manufacturers was held in the Congress Hotel, Chicago, last Thursday evening, March 29. According to the Paper Trade Journal, about a hundred manufacturers were present. Both at the dinner and at the subsequent meetings the day following, it seemed to be the consensus of those present that there was plenty of business ahead for 1917. In view of the apprehension felt in certain quarters of the trade in the west, it is gratifying in the extreme to learn that prices are going to stay firm and that the manufacturers, who would be the first to feel the cessation of buying orders, are most optimistic. And it can be said without fear of contradiction that the optimism is based upon 1917 contracts and orders already booked and on the way.

ERFURT PROCESS NOT INFRINGED BY DOLAN SIZING SYSTEM.

Regarding the Dolan Sizing System as an infringement on the Erfurt Process, Judge Sanborn, of the United States District Court of Wisconsin, in the action between:
J. A. DeCew, of Montreal, Canada, Plaintiff, vs. Rhinelander Paper Company, of Rhinelander, Wisconsin, defendant, gives the following findings of facts regarding the assumption of infringement by the plaintiff.

"That the process so used by defendant in November, 1912, was not the Erfurt Process, was not substantially similar to the Erfurt Process in principle or in operation and was not an infringement upon the Erfurt Process"

INSTALLING MORTERUD PROCESS.

Among the mills installing the Morterud Process at the present time are the following:
West Virginia Pulp & Paper Co.
Chesapeake Pulp & Paper Co.
Minnesota & Ontario Power Co.
Southern Paper Co.
Wausau Sulphate Fibre Co.
Nekoosa-Edwards Paper Co.
Canada Paper Co.
Wayagamack Pulp & Paper Co.
Brown Corporation.
Bathurst Lumber Co.

The saving shown by the use of this process in Europe is as follows:

Increased capacity of digesters 30%. (20% due to shorter cooking time and more rapid circulation; 10% due to more yield of the wood).

Capacity of recovery plant increased 50%, (On account of indirect heating).

Saving in wood and chemicals 10%. (On account of uniform digesting in all parts of digesters).

Saving in fuel 40%. (On account of condensed steam from the heater being returned direct to the boilers).

The rights for America and Canada are controlled by Fibre Making Processes, Inc. of Chicago.

WAX COATING MACHINE PATENTS UPHELD.

Patents on paper and wax carbon coating machinery and the methods employed in making both articles, obtained by Charles W. Mayor of Rochester, N. Y., were upheld in a decision handed down recently by United States Judge Hazel. The decision ends a three and a half years' litigation instituted by Mr. Mayer against Albert and Henry Mutschler and Daniel J. Coatley and the Rochester Wax Paper Company, all of Rochester, for infringement of his patents.

In his decision, Judge Hazel upholds Mr. Mayer's position on all claims asked for in the patents. The decision also bars the defendants from using the method of coating carbon and wax paper which involves the use of Mr. Mayer's machinery.

The coating machines manufactured by the Carbon Machinery Equipment Company, of Rochester, are made under the Mayer patent, Mr. Mayer being treasurer of the company.

A MONTREAL BOX FACTORY.

A four-story reinforced concrete building was erected in Montreal this past fall and winter for the Thompson & Norris Company of Canada, Ltd., by the Atlas Construction Company, Ltd., of Montreal, working from plans prepared by Lockwood, Greene & Co. of Canada, Ltd., engineers, of Montreal.

The building will be utilized by the owners for the manufacture of corrugated boxes and shipping cartons, the raw materials—straw-board and paper—being received from other plants. This plant is a branch of the United States company, which operates factories at several cities, including a plant for the manufacture of the straw-board.

BROMPTON DECLARES DIVIDENDS.

Brompton Paper—Regular quarterly 1 per cent., with bonus of ¼, payable May 7th to stock of record April 30th.

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Not only does the Hoyt Metal Co. furnish Sheet Lead and Hard Sheet Lead which we believe is superior to any other Lead manufactured, but our Lead Pipe and Waste is made out of the best selected stock of known acid resisting qualities. We believe we can safely state that our Pipe will last from ten to twenty-five per cent longer than any other Pipe on the market. This is a broad statement but a trial order will easily verify the above.

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NORWAY TO GET BRITISH COAL.

With deep satisfaction has our people received the information that an agreement has been reached by our Government with the British Government concerning the copper question so that the coal embargo has now been removed. This satisfaction is caused, not only, not even chiefly by the fact that we will again be able to get coals, but first and foremost by the knowledge that we are no longer on strained terms with Great Britain, with whom we are connected by so many ties, cultural as well as commercial.

A large number of industrial establishments in various branches will, unfortunately, be compelled to stand idle until their coal supplies can again be replenished, which will necessarily take considerable time. In spite of the u-boat menace it is expected that Norwegian owners will soon resume the North Sea traffic, but postal communication with England is still interrupted.

The stoppage of mills and works will cause a very serious loss of employment to a great number of labourers, and it will tax the administrative ability of the authorities to the utmost to find suitable means for alleviating the consequent distress.—Farmand.

NEW TRANSANDINE RAILWAY ROUTE.

A commission has been appointed by the Chilean Government to make a valuation of the works carried out by the Southern Railway Construction Company, in the construction of the new railway from the Port of Lebu, on the Pacific coast, to Los Sauces, in the interior, with a view to acquiring the property and terminating the scheme which has been paralyzed for lack of capital.

On the Argentine side of the Andes, Bahia Blanca is now connected with Zapata. The sections of road necessary to connect with the Chilean railway are in project or under construction. The most difficult part of the work will be the tunnel about ¾ of a mile long at Nahuel-buta. But little construction is required in Argentina.

The lines on both sides of the frontier are the same gauge as the trunk lines, so that passengers from Santiago would be enabled to cross the frontier via Lonquimay, and by the Argentine Southern Railway reach Buenos Aires, after a journey of one day and two nights, without the inconveniences of changes or hotel lodgings en route.

The opening of this route will be a powerful factor in the future development of the natural rights of the south of Chile.

PAPER TWINE GIVES SATISFACTORY RESULTS

That wrapping twines which give thorough satisfaction can be made from paper has been demonstrated by experiments made by the Forest Products Laboratory at Madison, Wis. Several hundred packages, each containing a medium-sized book, were wrapped and fastened with the lightest-weight paper twine and were mailed to varions points throughout the United States. Reports show that practically every package was received in good order and that in no case was there any damage which could be charged as a fault of the twine.

Paper twine is well adapted to a number of purposes, but the foresters say that as yet no satisfactory means has been found for protecting the twine from the action of water, and it should not be used where it will be exposed to moisture.

NEW AMMONIA—SULPHITE COOKING PROCESS.

A new process of manufacturing cellulose and utilizing the waste liquors of manufacture is summarized in an abstract of a French patent published in the "Journal of the Society of Chemical Industry" for February 15, 1917. Raw cellulose material is treated with boiling water to expel the air; the vessel is then closed and connected with a supply of ammonia gas: a quantity of ammonia is introduced equivalent to one-sixth of that necessary to form the ammonia sulphite it is desired to have in the final exhausted lye, which is generally 2 to 5 percent of the weight of the liquor.

Ebullition is maintained by indirect heating for one-half to one hour under a pressure of 2 to 4 atmospheres. At this stage a preliminary removal of organic matter may be effected, e. g., recovery of tannins, rosins, etc., by precipitation, on neutralizing with sulphur dioxide.

After separating the precipitate, the liquor is treated with a further quantity of sulphur dioxide equal to two-sixths of the desired total and digestion of the material continued for two hours at 2 to 4 atmospheres. The liquor is gradually strenghtened with five-sixths of the total ammonia and after ont hour this is neutralized with three-sixths of the total sulphur dioxide, and digestion completed in four to six hours at 6 to 8 atmospheres.

The waste liquors are treated for recovery of the reagents or for use as a fertilizer.

NEW COMMERCIAL TREATY.

The commercial treaties between the United States and South American Republics which have long been in course of preparation by the United States Government Trade Department, have been forwarded to the South American Republics for ratification.

These treaties propose the abolition of burdensome taxes upon United States commercial travellers in South America, the abolition of charges for use of South American ports by United States ships, the establishment of a gold settlement fund at strategic trade centres to facilitate financial exchange, and other measures designed to create closer trade relations.

The new trade license law just passed by the Chilean Government, imposes the obligation of a license of 1-000 pesos on all commercial travellers, before being allowed to do business in any department of the Republic, such license being valid only in the department in which it is issued. The law comes into force in September, but will doubtlessly be violently protested before that date as being unworkable, containing as it does, a vast number of irritating ambiguities destined to provide work for the courts.

SITUATION VACANT.

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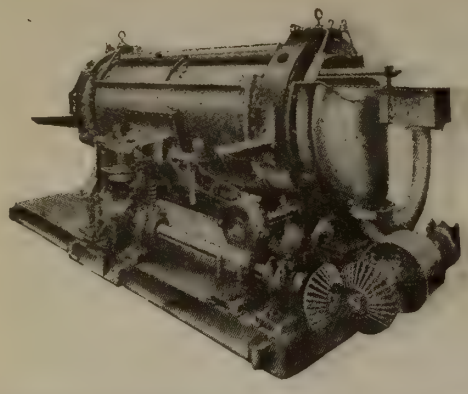
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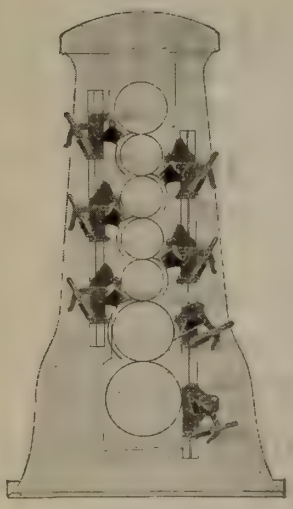
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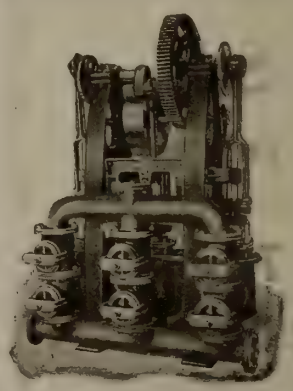
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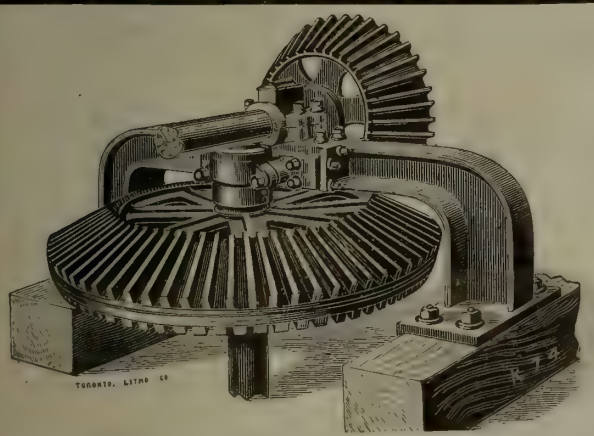
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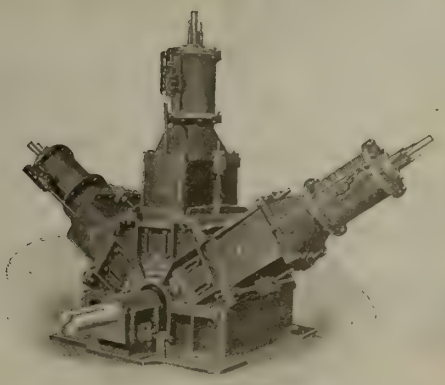
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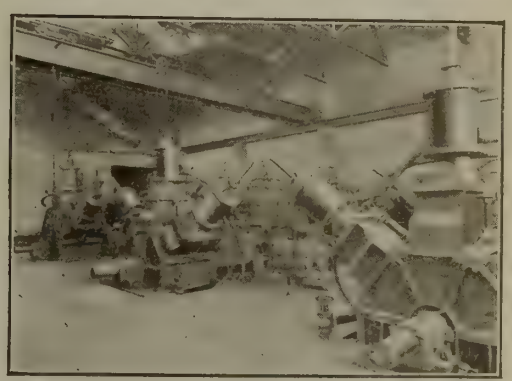
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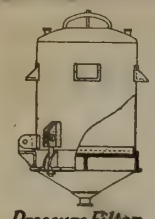
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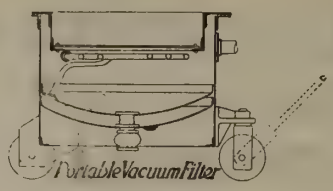
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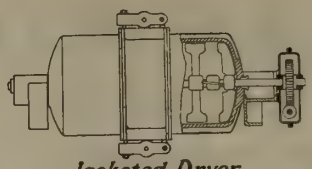
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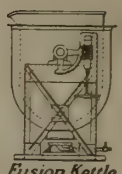
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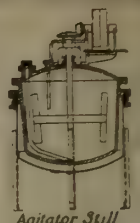
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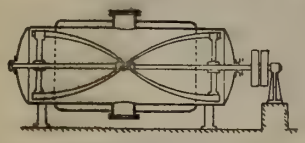

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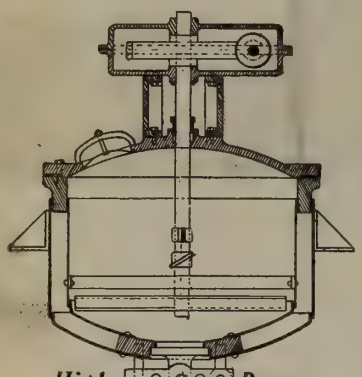

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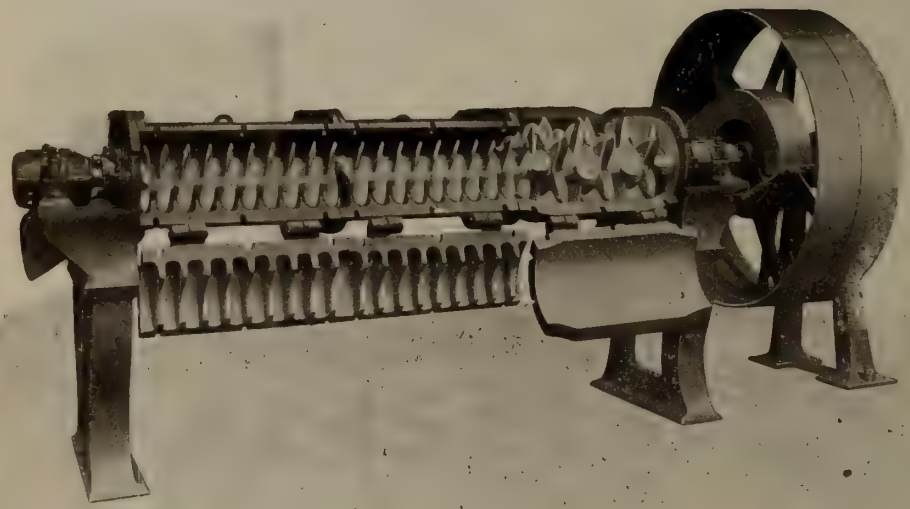

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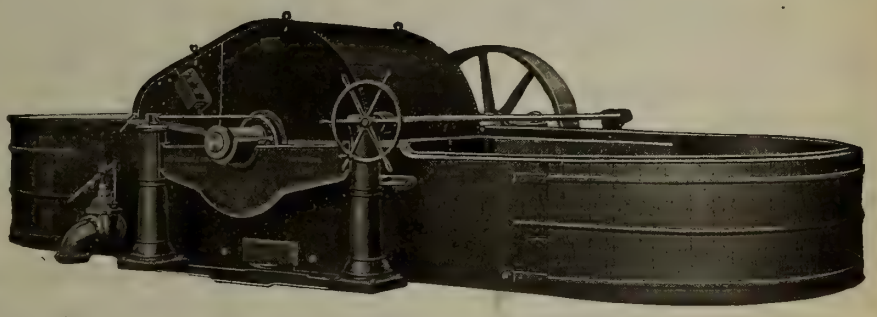
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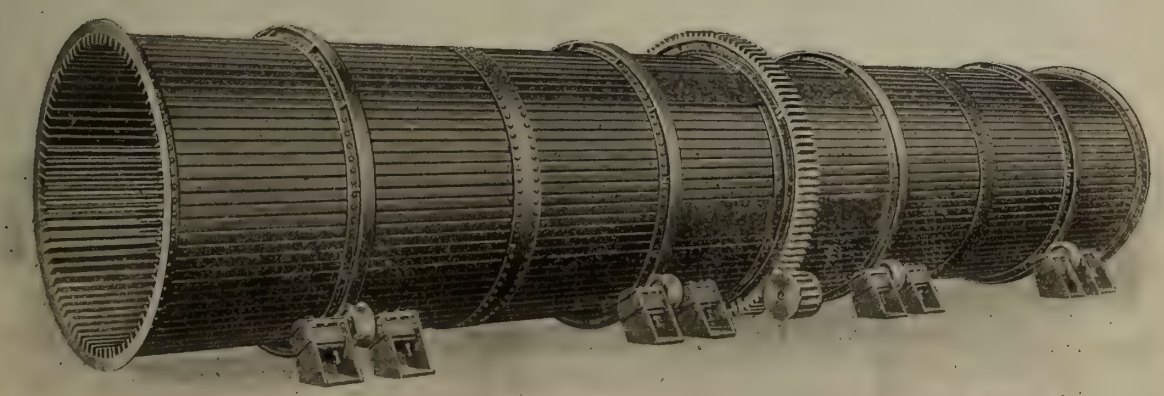
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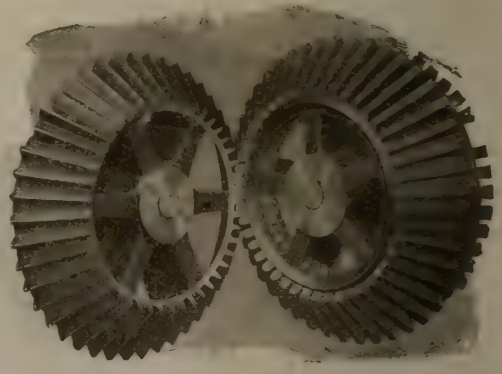
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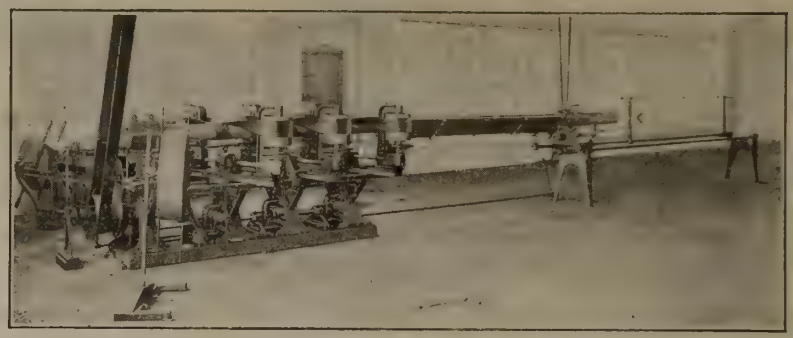
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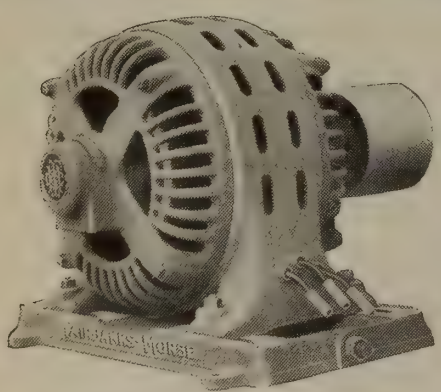
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EDITORIAL

PUBLISHERS ADVISE THEMSELVES.

In their annual report to the American Newsprint Publishers' Association, the paper committee reviews the work done and makes suggestions for future action on the part of the publishers.

According to the report the committee has sought to relieve the paper situation by ensuring economies in consumption by the publishers, by co-operating with the trade commission, by bringing all restraint possible on the oppression of many of the manufacturers, and to establish new mills under the ownership or control of newspapers. The prospect of substantial relief is said to be near at hand.

The statement is made that Governmental investigation has established the justice of the publishers' cause. Yet the committee disagrees with the Department of Justice in some respects and has even assisted in getting assurance of proposing the persecution of the individual manufacturers.

The prediction is made that sooner or later the publishers will work out their own salvation in a commercial way. In this connection we quote the report from "Fourth Estate":

"Much discussion has arisen during this paper difficulty on the advisability of publishers owning and operating their own paper mills. Experiences of this in the past have not always been satisfactory, and it appears that only under certain conditions is the ownership of a paper mill by a publisher an advantage.

"The committee, however, does recommend that all publishers interest themselves in mills in some manner, either by partial ownership, long term contracts, or co-operation in construction. To what extent this can be advantageously carried on depends entirely on publishers and conditions, as well as local mill opportunities and necessities.

"The paper committee has accomplished a great deal in this direction, but we are convinced that publishers must recognize that to meet the situation adequately they must be willing to assume in some way some of the liabilities of the manufacturer of paper.

"It goes without saying that anyone who invests the enormous amount of money required for paper mills in pioneer development, with all the risks involved, is entitled to very liberal return on his money, and unless publishers are willing to assume some of this liability which affects the varying cost, they must be prepared to acknowledge that mills are entitled to interest on money plus good manufacturing profit, plus liberal allowance for contingencies.

"If, however, publishers are willing to co-operate by guaranteeing for a long term a moderate profit upon whatever the manufacturing cost may be, or are willing to share part of this investment, or perhaps all of it, then we may expect paper to be sold at a reasonable price over its fair manufacturing cost.

"The representative of the paper committee will be glad to arrange such a mill connection for any member upon application.

"Much discussion is carried on by publishers and manufacturers regarding the profits obtained making newsprint paper. It will probably always be impossible for both to get together and agree what is a fair profit, or what mills should govern the selling price of any product.

"Publishers do not claim that mills at the lowest operating costs, such as the Abitibi, Laurentide and Great Northern should be taken as a criterion of what the selling price of paper should be, allowing them a liberal profit; neither can manufacturers claim that owners of little mills in northern New York and Wisconsin should be a criterion of what the price should be; the lame ducks in the industry should not determine what is a fair manufacturing cost.

"The question is now being settled by the ups and downs of the market, but we hope for the day when it will be settled by co-operation and agreement, so that a fair price may be sustained, and a minimum market price established in some way which will give a liberal profit to the best mills and a fair profit to the average cost mill.

In the words of the poet, Will Carleton, we add, "Them's my sentiments tew!" The paper manufacturer has tried his "durn'dest" to get the publisher to see some of his difficulties. There is absolutely no doubt that when the publishers really and heartily try to appreciate and co-operate with the manufacturer, instead of dictating to him, that a recurrence of the present situation will be impossible. Perhaps such appreciation will only come by the publisher getting into the game and perhaps getting his fingers burned.

The statement that the investor in the paper plant is entitled to a **liberal** return for his money and risk is rather discounted by recent efforts to limit his price to a figure that makes improbable, if not impossible, even a **fair** return. If the publishers would

view the manufacturer's position in the light of this committee's report, we venture to say that the former need not assume any financial risk nor manufacturing worry. There may be some "crabs" among the manufacturers, but the great majority simply want the spirit of fair play that is recommended here. It is certainly good advice.

In regard to the mill that sets the price, the suggestion is good that this be based on the cost of production of the average mill. That is all right for normal conditions, but at the present time, the price must be influenced by the circumstances of the poorly situated mill that is practically forced to make newsprint under the stress of present shortage of supply in this market. If it is not satisfactory to have price settled by the ups and downs of the market, let the publishers agree to a price to be adjusted periodically in accordance with manufacturing costs. And in so doing, let proper allowance be made for indeterminate uncertainties.

There should be no occasion for Federal interference in a purely commercial transaction. No other commodity that does not affect the public at large is interfered with by our Governments. In fact, little or nothing is done by the Government to help the people in regard to some commodities that are common necessities. Take coal, for instance. The cost of mining may advance 10c. a ton, but the consumer pays an extra 25 or 50 cents. Wheat goes up a few cents a bushel, and flours a dollar a barrel.

As the report states, the power of the press has been used to its utmost to relieve its own situation to get more and cheaper news print. As business men, one expects publishers to do business to their advantage, but one expects a business man to conduct his own business. Would it not be an interesting spectacle to see a contractor, accompanied by a policeman, enter a hardware store to buy a keg of nails? The price is quoted at $6, but the contractor says that is exorbitant, he bought nails two years ago for $4.50. The merchant asserts they cost him that much now, and is willing to show the officer his invoice to prove it. The officer says, "Then we'll let you sell them for $5.25." Can you imagine such a condition?

There are several other topics of interest in the report, such as, standard newsprint specifications, standard contract, print machines on other grades, imports and exports, new mills in the United States, the question of a Government mill, stocks of paper, new raw materials, the wood situation, stock jobbing, non-returns of papers and price raising, information and reports, legislation, standard size of paper and rolls, a testing bureau, attitude of Canadian Government, and the action of the Trade Commission and the Federal Grand Jury.

The wood situation is reported as safe for this year because high prices have induced extra cutting. This statement, however, is not at all in accord with the views of men who are buying and selling pulp wood. Men in the business are convinced that there was insufficient wood cut last winter to carry the mills through.

It is recommended that the publishers make up a weekly statement of paper used, stocks on hand, prices paid, etc., after the manner of the Newsprint Manufacturers' Association.

DEATH AND TAXES.

It has been said by some forgotten philosopher that death and taxes are the only things we can be sure of. And now our faith is shaken by the uncertainty of taxes. The Minister of Finance has added a new excess war profits rate to the business profits tax already in operation. He says that not only the makers of munitions, but also those who profit in extra measure by the influence of war conditions, should bear a greater share of the country's financial burden. A sliding scale has been adopted, and is printed on another page.

The far reaching effect of the new order on the permanent industries of Canada is only beginning to be realized. The blow comes like a thunderbold and could not at once be appreciated. The colossal blunder of chloroforming the paper industry by fixing the price of newsprint was bad enough. The new tax rate will be practically an order for the tomb stone for some businesses.

In the first place, the tax will not rest in proportionate weight on businesses of equal value, owing to the accident of capitalization; some are founded on bonds, some on stock, some on both, and still others on the growth of individual enterprise. In the second place, the tax is retroactive and in some cases will thus take what has already been spent. Some firms have begun extensions or new mills and ordered machinery which altogether aggregates millions of dollars. Hundreds of workmen are employed in construction. To stop work on these projects affects not alone the pulp and paper business, but other permanent industries as well. It would also seriously affect workmen in many lines.

Another reason why this industry, and some others, should be exempt, is that they will have to bear their share of the war's burden for years, possibly generations, after the coming of peace. On the other hand, some military businesses are admittedly temporary, and will die out with the war. Many of them have already wiped out their entire costs of erection and equipment. Returns now are pure "velvet." The pulp and paper industry expects and wants to do its share, but does not want to bear in years to come a burden that should be absorbed by the temporary concerns that are really making the war profits.

The pulp and paper industry wants to be heard on this question. Such a matter is too serious to the future welfare of Canada's real industrial life to be shot off at half-cock.

The Characteristics of Paper Fibres

PART IV.—APPLICATION OF COLORING STAINS AND SOLUTIONS.

By HARRY A. MADDOX.

Having in our previous papers considered in detail the methods of determining the fibrous constituents of paper by feature observation alone, we may now conclude our subject and by devoting consideration to the various methods of deciding or confirming the results of the first-named tests by the application of direct color stains or color reacting chemical solutions.

The purpose of the staining solution is merely to emphasize the native characteristics or features of the individual fibres. Unlike the chemical fibre staining solutions, no color identity is established. Chiefly, dyes from the coal tar series are employed for the purpose of direct staining, and the principal solutions are methylene blue, magenta, malachite green, eosine and bismarck brown, equal in strength to 1 in 2,000 parts of water. In use, the sample is teased out on the slide under moisture in the usual way and one drop of the color stain applied. The color is allowed sufficient time to impregnate the fibres before the cover glass is affixed, after which the surplus staining solution is absorbed and removed by filter paper. Through the microscope it will be oberserved that the stain gives decided prominence to such fibre features as the lumen, striations, bulbs, crossmarkings, and in the case of straw and bamboo cells, wood tracheids, etc., to the pores or pitted marks. Undoubtedly, this proves a great help in confirming the findings of unaided microscopic examination.

Far more important and valuable in practice is the application of the chemical solutions which produce, in contact with the fibres, distinctive color reactions. As in the case of the direct stains, these bring into prominence the characteristic markings, in addition to which they react differently with the various types of material. Thus we are unable to confirm or correct the previous findings on unstained specimens and also to some extent judge the proportions of the materials in a sample of mixed stuff. There are a number of these chemical solutions but by far the most distinctive and reliable in their reactions are the Iodine in Potassium Iodide solution (commonly called the Herzberg solution) and the Zinc Chloride and Iodine solution (commonly called the Zinc Chloride solution:)

The constituents and proportions of the Iodine in Potassium Iodide solution are:

Potassium Lodide	2 grams.
Water (distilled)	20 c.c's.
Iodine	1.15 grams.
Glycerine	2 c.c's.

The last named is added only to produce a body, otherwise it plays no part in the chemical reaction. In use, the specimen of pulp, is teased out on the slide under moisture in the usual way and then one drop of the solution applied to the fibres, which are next teased out to position and the cover glass applied and pressed to remove surplus solution and moisture. The chief thing is to avoid administering too much of the solution, as excess will simply darken the fibres, and harassing instead of aiding the identification process. One drop should always be quite sufficient, and the amount of moisture present should be just enough to enable the material to be worked easily without coagulation. The color reaction of this solution on the various types of fibres is as follows.

Brown Coloration

Cotton,
Linen.
Bleached Hemp.

Yellow to Yellow Brown

Unbleached Jute,
Unbleached Straw,
Mechanical W. P.

Colorless to Slightly Grey

Bleached Jute,
Manila Hemp,
Chemical Wood,
Esparto,
Bleached Straw.

Grey to Brown

Adansonia.

The constituents of the Zinc Chloride solutions are:

A Solution

Zinc Chloride, 20 grams.
Distilled Water, 10 c.c's.

B Solution

Potassium Iodide, 2. grams.
Iodine, 0.1 grams.
Distilled Water, 5 c.c's.

Prepare first A solution, by adding the water to the chloride and allowing the latter to dissolve entirely. Meantime prepare B solution by adding a few drops of water to the Iodide and Iodine crystals (preferably in a conical flask) and after dissolution adding the remaining water. Heat will be necessary to obtain perfectly dissolved solutions. Before proceeding further, the solutions must be covered and allowed to cool thoroughly, after which, B solution must be added to A. Allow the mixed liquor to stand for 24 hours, which will allow any sediment to settle, following which the clear solutiin must be declared off and kept in a dark glass stoppered bottle, in order to prevent weakening b exposure to light. It is beneficial to add a crystal of Iodine before stopping the bottle. The solution will not maintain its efficiency for an indefinite period and it is advisable to make a removal from time to time. If a considerable amount of microscopic work is to be performed it is advisable to double the amounts of the constituents. This will make an easier weakening by exposure to light. It is beneficial to much as one part of the solution may be strenghtened or weakened to suit the requirements of particular fibres. These requirements are best found out by practise.

The color reactions on the fibres by application of the Zinc Chloride Reagent are:—

Light to Dark Claret.

Linen.
Cotton.
Hemp.

Blue to Claret.
Esparto.
(Both colors often occur on one fibre).
Blue to Red Violet.
Adansonia.
Blue to Blue Violet.
Straw.
Blue.
Chemical Wood.
Olive Green.
Manila.
Yellow to Colorless.
Brown Mechanical.
Mechanical Wood Pulp.
Unbleached Jute.
Unbleached Straw.

The mode of application of the solution is similar to that outlined in the case of the Herzberg Solution.

A further formula for fibre coloration is to use the Herzberg, Iodine in Potassium Iodine solution as before and after allowing about a minute in which to react, remove the excess by absorbing with the sharp edge of filter paper. Now treat the stained material with one drop of sulphuric acid which has been diluted with 4-5ths its bulk of distilled water. This will produce a change in the coloration induced by the Iodine solution, according to the following tabulation:

Violet Red to Wine Red.
Cotton.
Linen.
Bleached Jute.
Blue to Blue Grey.
Chemical Wood.
Straw.
Gold Yellow to Dark Yellow.
Mechanical Wood Pulp.
Unbleached Jute.
Impure Fibres.

Apart from those chemically reacting coloring solutions which distinguished mainly between the various classes or groups of fibres, and which are suited only to observation through the microscope; there is another series, mainly used in testing for mechanical woodpulp. With one exception, these M.W.P. test solutions produce their coloration in broad areas on the finished sheet of paper, hence the stain requires no microscope for its observance save when conducting a microscopic quantitative analysis. As the reactions depend upon the native impurity which is retained in ground wood pulp, no coloration occurs in the case of chemical woodpulp, which has had its ligneous encrustation removed in the early treatment. The stains are particularly useful therefore in confirming the presence of M.W.P. in a mixed wood pulp paper, particularly so, because in the majority of cases the solutions will detect the presence of a fraction of a percent of M.W.P. It is wise, however, not to rely too absolutely on the appearance of the stain; the best plan is to combine the coloration test with a microscopic examination. This is sometimes essential. as it will be found that unbleached jute, which represents a typical ligno-cellulose, undergoes a similar reaction to M.W.P. In the case of the phloroglucinol solution, it may be pointed out in advance that there is a distinct possibilit yof color reaction when straw or esparto is present in the sample to be tested.

Proceeding now to detail the formulas for the solutions, we will take first the **Phloroglucinol Solution** (or Phloroglucine Hydrochloride).

Phloroglucinol, 2 grams		4 grams.
Absolute Alcohol, 25 c.c.'s.	or	100 c.c.s.
Concentrated Hydrochloric Acid, 5 c.c.s.		50 c.c.s.

The phloroglucinol is dissolved in the cold in the acid and after standing, the alcohol is added. If a drop of the solution is applied to paper containing M.W.P. a rosy red stain is produced, varying in paleness or intensity according to the proportion of M.W.P. present. As low a proportion as 0.1 per cent can readily be detected, (certain yellow dyes give a confusingly similar reaction.) Obviously, if the sample to be tested happens to be a cerise or red dyed shade, this solution will be of little or no use. In such case it is advisable to apply the Benzidine Hydrochloride solution, prepared in the following manner.

Treat 15 grains (0.97 grams) of chemically pure benzidine with 15 drops of hydrochloric acid (pure, concentrated) the result of which reaction will be benzidine hydrochloride. Dissolve this in 2½ drachms (9c.c.) of water at 122° F. If applied to a sample of paper containing M.W.P. an orange coloration will be produced.

Aniline Sulphate serves the same purpose as the preceding solution and is prepared by dissolving 1 gram of the sulphate in 50 c.c.s. of water, and acidying with 2 or 3 drops of sulphuric acid. The water will require bringing to boiling point in order to dissolve the sulphate. Applied in the cold to paper containing M.W.P. a vivid yellow coloration results. It is interesting to observe that a 1 per cent solution of aniline sulphate will produce a pale rosy pink coloration on paper containing straw or esparto, if a sample of the latter is boiled in a tube of the solution of equal value to the foregoing solutions is the one known as

Alpha Napthylamine Hydrochloride.

This is prepared by boiling a little of the above chemical in water and adding a drop or two of Hydrochloric acid to enable the substance to dissolve. With this solution a bright orange stain is produced on M.W.P. papers. Other hydrochlorides which can be used for the same purpose as those of Anthracene, Phenol, and Pyrrol, the first named producing a Red coloration, the second, Blue-Green and the third, Purple-Red. Concentrated nitric acid will produce a deep brown stain, while a solution of Di-methyl paraphenylene diamine, to which has been added a little acetic acid for the purpose of maintaining stability, will create a deep red stain. To complete our range of colors, a prussian blue stain can be produced by the action of Ferric Ferricyanide solution on paper containing M.W.P. This reagent is prepared by mixing a solution of 1.6 grams Ferric Chloride in 100ccs. of water with 3.3 grams Potassium Ferricyanide in 100 c.c's. of water. This solution, when prepared, is red but in contact with ligno-cellulose, it reacts to create the prussian blue stain.

In connection with the Di-methyl reagent previously mentioned, it should be observed that the popular mode of application is by means of Wurster's Di. paper and standard table of color values for quantitative analysis of M. W. P.

In conclusion, we may briefly refer to Klemm's method of distinguishing between bleached and unbleached Soda and Sulphite Cellulose. For this investigation the microscope is necessary and the testing solutions are as follows. A saturated solution of Malachite Green to which 2 per cent acetic acid is add-

ed and a saturated solution of Rosaniline Sulphate in water to which 2 per cent alcohol has been added and sufficient sulphuric acid to turn the liquid a violet shade.

In use, the sample of pulp is teased to position on the microscope slide, one drop of the stain added and cover glass affixed, after which the surplus liquor is removed by filter paper. According to the author of the test the following color reactions should result.

With the Malachite Green Solution

Well bleached woodpulp remains colorless.

Partly bleached woodpulp is colored Sky Blue.

Unbleached woodpulp is colored Blue Green to Green.

Unbleached Sulphite is colored Dark Green.

With the Rosaniline Solution

Unbleached Sulphite is colored Deep Violet to Red.

Bleached Sulphite is colored Paler Red of Paler Violet.

Unbleached Soda is colored Pale Violet to Red.

Bleached Soda is colored Faint red or Colorless.

A combination of the two tests is necessary in order to establish the identity of doubted fibres.

The method cannot be highly recommended as many of the results from it are unreliable and the distinction between the colorings is too vague to give decided results. There is a probability of securing useful information by observing particularly the color effects on the pitted pores of coniferous tracheids. On these features the reaction appears to proceed more prominently than on the fibres, but taken altogether the method can hardly be termed decisive or satisfactory.

Would Keep More Canadian Pulp In Empire

The question of the sources of supply of wood-pulp and paper for the British Empire has come into special prominence during the war, and the reasons why available resources within the Empire are not being fully utilized for its needs deserve careful consideration. The Dominion of Canada has recently become one of the premier pulp and paper producing countries in the world, and in their fifth interim report, the Dominions Royal Commission express their opinion that it is regrettable to find that the bulk of the exports is sent to foreign markets. The position is clearly shown by the following tables.

Table I.—Exports of Wood Pulp from Canada.

(Chemical)

Year.	United Kingdom.	United States of America.	Other countries.	Total.
1911	$8,219	$1,298,162	$ 1,720	$1,308,101
1912	1,920	1,585,615	—	1,587,535
1913	643	1,995,817	104,382	2,100,842
1914	5,412	2,660,013	257,658	2,923,083
1915	800	4,550,196	255,626	4,806,622

(Mechanical)

Year.	United Kingdom.	United States of America.	Other countries.	Total.
1911	$ 488,709	$3,796,427	$122,295	$4,407,431
1912	672,441	2,834,329	—	3,506,770
1913	827,490	2,580,463	749	3,408,702
1914	1,162,470	2,253,621	25,650	3,441,741
1915	1,495,521	2,893,618	70,400	4,459,539

Table II.—Exports of Paper from Canada.

	United Kingdom.	United States of America.	Other countries.	Total.
1911	$841,100	$ 2,052,259	$1,031,016	$ 3,924,375
1912	609,506	2,057,610	1,213,947	3,881,063
1913	585,001	4,369,417	1,373,356	6,327,774
1914	510,818	10,566,359	1,609,719	12,686,896
1915	594,453	12,879,204	2,035,925	15,509,582

The United Kingdom, on the other hand, derives its supplies of wood pulp and paper mainly from Scandinavia.

Commenting on this situation, the report says: "We made careful inquiry into the reasons for the state of affairs described. Apart from the obvious consideration that the United States provide a ready market with good prices and a rapidly increasing demand, one of the main reasons, as might be supposed, lies in the cost of freight. Freight rates for wood pulp are higher to the United States from Canada, than from Norway and Sweden. Correspondingly, freights to the United States are lower from Canada than from Scandinavia. We are informed also (1) that the Canadian mills are mainly equipped at present for the manufacture of **wet pulp,** whereas 90 per cent, of the chemical wood pulp imported into the United Kingdom in recent years was in the **'dry' state;** (2) that the cost of production in Scandinavia was lower than that obtaining in Canada, the difference being due not so much to variations in the rate of wages as to lower initial capital charges and lower rates of interest.

It does not appear, in the above circumstances, that the existing condition of affairs is likely to change materially, but it is clearly desirable that such steps as are possible should be taken to encourage export to places within the Empire.

"We should like to see 'British Character' clauses, such as those required in respect of oil-bearing lands, introduced in the future when leases of Crown lands in Canada are granted for the purpose of producing wood-pulp, and it is also not unreasonable, we think, that companies obtaining leases should be required to instal plant capable, if necessary, of producing dry pulp.

"We do not think that alarm need be felt lest such action should constitute a handicap to the development of the Canadian wood pulp and paper trade. All the evidence available points to the conclusion that the demand for these commodities is likely to outrun the supply in the not distant future."

The report is signed by Lord D'Abernon (chairman) Sir H. Rider Haggard, Mr. Tom Garnett, Mr. W. Lorimer, Mr. J. Tatlow, Sir Alfred Bateman (who acted as chairman during the Canadian tours of the Commission), Sir George Foster (Canada), Hon. J. R. Sinclair (New Zealand), Sir J. W. S. Langerman (South Africa), and Sir Edgar R. Bowring (Newfoundland).

PAPER MACHINERY.

A handsome booklet entitled "Paper Machinery" has just been published by the Hudson-Sharp Machine Company, of Green Bay, Wis. The booklet contains descriptions and illustrations of the various products of the company designed especially for use in paper mills and including several styles of winders and rewinders for toilet and tissue papers, collapsing reels designed for use in connection with crepe machines, wax machines and super-calenders or any place where the paper is to be run out flat.

New Uses of Pulp and Paper

In its annual number, the "Paper-maker and British Paper Trade Journal" says:—

There are probably no commodities in established use which have so greatly extended their sphere of utility as wood-pulp fibres and paper, and within recent years the novel uses to which they have been, and are still being placed, have enormously nicreased in number. Mr Gladstone is our authority for the statement that even 60 years ago the uses of paper were varied and numerous. In the speech to which we have just referred he stated that he had a list of 69 trades in which it was used. "For example", he said, "it is largely used by anatomical machinists to make artificial limbs; by telescope makers, by boot and shoe makers, by cap manufacturers, for the foundation of caps and hats, forming all the peaks and many of the tops which look like leather; by china and porcelain manufacturer writes," Mr. Gladstone continued, that doll makers, and by shipbuilders; and again in making optical instruments, in pictures and looking-glasses, in portmanteaus, in Sheffield goods and teapots". "One manufacturer writes," Mr. Gladstne continued, that he has made panels for doors from paper, and above all he looks forward to making carriages of paper when the duty shall have been taken off. Another manufacturer, who is asked into what combinations paper may be made to enter writes to me: 'Who can fix the limit to ingenious combinations when we see India rubber being made into strong and durable combs and other articles of that sort? Only this morning I was informed that paper pipes are actually made prepared with bitumen and capable of standing a pressure of 300 pounds of water to the inch.' " This was nearly two generations ago, and during the intervening years it has become increasingly recognized that only may paper be found useful for other than printing, writing, and packing purposes, but that wood-pulp is capable of being advantageously used in the manufacture of other goods than paper and cardboard. Pulp and paper, indeed, have furnished a rich field for exploitation, and in altogether new spheres of usefulness have arrived at a stage which may be said to guarantee their permanent serviceability. Nowadays, the public are familiar with artificial silk, coarse cloth, and fabrics closely resembling mercerized cotton produced from wood-pulp fibres, and it is stating nothing new to say that ties and waist-coats are being made from pulp and paper. As a matter of fact, both pulp and paper can now be formed into solid substances capable of competing with wood or iron in point of durability and elasticity, and for some years past, treated by special methods, they have been converted into such articles as paper bottles, unbreakable writing tablets, figures, ornaments, furniture, etc. Waterproof coverings for walls and ceilings, parchment slates, flanges and manhole rings, paper wheels, roofing and boats, paper barrels, gas pipes, boxes and horse-shoes are also no longer novelties. Probably one of the most valuable by-products of the manufacture of sulphite pulp is that of spirit from the waste lyes, and particularly in Sweden, the distillation of alcohol from cellulose bids fair to become an industry of considerable importance. Then it is but a few years since the chairman of the tanning section of the Toronto Board of Trade declared that paper inventions had gradually entered into competition with leather, and that hides had advanced in price to such a degree that the output had dropped 50 per cent in Canada, a condition of affairs which had compelled the use of such substitutes as fabrics and paper.

Paper as an article for building purposes is well known in Scandinavia and Japan. In the latter country not long ago a country house was entirely constructed of paper, and in Scandinavia a great quantity of wood pasteboard is used as the lining for wall papers, while in the United States a heavy paper board for use in building operations is also made from waste sugar, sugar cane and corn stalks. In a small mill at Koyasa, Kanagawa (Japan), waterproof paper is now manufactured for shirt-making.

Paper string and twine has within recent years come to be recognized as a valuable substitute for the ordinary variety. Paper string is now being made of such stoutness that it suitable for tying up parcels of quite a fair size, and its manufacture is now being carried out in this country. Twine has been produced from paper in Germany for some years; the cord is spun from strips of brown or white creped thin cellulose paper, and the few mills making it are said to be unable to meet the demand.

Making artificial flowers from paper is not a new idea, but it is probably not so well known that they are now being made of paper rendered non-inflammable by the moderate use of asbestine. It may also be recalled that a demonstration given in Toronto a short time ago samples of sections of chandeliers, lamp brackets, etc., made from sulphite pulp, which had been subjected to a very high pressure and then blown into metal moulds were shown, while paper lamp wicks are said to be now replacing cotton wicks throughout Austria-Hungary. The Japanese sunshade is, of course, quite a familiar object, but the collapsible and stormproof paper umbrella, devised for use in emergencies by an ingenious American, has not yet obtained wide favour. Tests, however, are said to have shown that with ordinary care the cover will last for months in heavy rain and strong winds.

Twisted or hardened paper is also being extensively employed at Sheboygan, U.S.A., in the manufacture of paper furniture, and bags and trunks of compressed paper are perhaps somewhat better known than the paper jackets for sausages, which have been introduced on the other side of the Atlantic. Vulcanized fibre, which is simply paper treated with zinc chloride, is also being extensively used in the manufacture of tool handles, bobbins, tubes, etc., and paper binder twine, paper window shades, paper matting and paper floor coverings, the latter generally made with an admixture of cotton, are now widely used. Paper insulators are, of course, in comparatively common use, but it must be admitted that a paper chimney, of which we have heard, is something of a novelty. Paper cartwheels and paper boats are, however, no longer curiosities, though it is stated that the paper boat is, indeed, a very substantial and serviceable craft.

The great war has also developed new uses for paper and pulp. It is now well known that Germany is

using chemical pulp in place of cotton as a basis for the production of high explosives, and a German military surgeon goes as far as to say that not only cellulose wadding, but mechanical wood-pulp, wood flour, wood wool and wood felt have done good service as substitutes for cotton in making dressings, while another authority states that for wound secretions, filter and blotting paper serves the purpose admirably. Cellulose wadding is used in dozens of forms as a substitute for cotton, and its employment is stated to be even more advantageous when loosely cotton woven cotton wicks are substituted for closely woven wicks, particularly in spirit and petroleum lamps. There have also been stories of paper boots and paper socks worn by soldiers of the European battlefields, and it is reported that paper beds, with paper sheets and pillowcases, are now being used in Germany by the poor, the mattresses being made of strong sheets of paper pasted together and filled with dry leaves of beech and oak trees. The paper used is toughened by a special process which prevents easy tearing. In this connection, it may be mentioned that recently in Copenhagen a new German textile, in which paper is spun with about 20 per cent of cotton, was exhibited. From this, paper underclothing, sheets, jerseys, bandages and horse blankets were made, but it is admitted that the cost of production is too high to allow of its competing with cotton and woollen cloth in normal times. Probably the largest use of spun paper in the United States lies in the manufacture of fibre rugs, in the production of which no fewer than twenty-five factories are engaged, one of them turning out something like twenty-five tons of rugs daily. Most of these rugs are made entirely of paper, but in some instances an admixture of cotton or wool is used. The possibilities for sulphite pulp in the manufacture of toys was a topic upon which Sir George Foster recently dilated at a manufacturers' convention in Toronto, and at a school near Southport, waste paper, after being pounded and kneaded, is now being used in place of clay for modelling purposes.

Altogether there seems to be no limit to the potential uses of either pulp or paper, and there is no doubt that in the near future considerable developments in this direction will have to be recorded.

Alaska as a Producer of Pulp

Conditions in southeastern Alaska are so nearly like those in British Columbia that the following is taken from the Paper Trade Journal's report of the survey recently completed by Henry E. Surface, engineer of the U. S. Forest Service. In reading this article it should be remembered that British Columbia is nearer the markets and shipping points.

Alaska's Wood Pulp Projects.

In making his report to the Service Mr. Surface takes up the Status of Alaska's wood pulp projetes; the location of prospects; general resources and facilities available; accessibility, quality and suitability for pulp and paper of the timber on the Tongass National Forest; water power; fuel; transportation problems and such matters.

Just at this time when the paper situation is receiving so much attention it is understood that the Forest Service has been receiving a great number of inquiries regarding existing conditions for the manufacture of pulp and paper in Alaska and the study of the situation was made largely as a result of these inquiries. Of a number of proposals that have been received by the Service for the utilization of this timber, none have so far materialized. Some, it is said, were merely in the nature of the suggestions of purely visionary, while others were hampered by financial difficulties. It is understood that large capital would be necessary to carry on such a project. It is estimated, for example, that for a newsprint enterprise with balanced wood pulp, sulphite fibre and paper plants of standard construction and equipment it would involve something like $2,000,000 cash capital for a 75 ton per day output or about $25,000 per ton, although it is hardly fair, the report points out, to include the town and incidental improvements in a cost figure expressed on a tonnage basis. Taking up some of the difficulties the report says:

Most Important Obstacles.

"Probably the most impotant obstacles holding up serious consideration of Alaskan pulp and paper enterprises by parties well able to finance them are the undeveloped conditions generally existing and especially the lack of detailed information on specific local resources and facilities." Continuing the report says:

"So far as legislation and the regulations of governement departments are concerned, there are no obstacles to the development of pulp and paper enterprises and the use therein of the necessary sites, timber, water powers, and other natural resources of the public lands; in fact the terms of government lease, permit, sale and title may be considered encouraging even for pioneer conditions and capital may be assured of ample security in these regards." Taking up the question of Timber on the Tongass Forest, Mr. Surface says:

"The present stand of merchantable timber on the Tongass Forest is estimated at 70 billion feet and as only the best of the spruce, cedar, cypress and possibly a little of the very best hemlock, is now considered as saw timber, it is evident that for pulp purposes which can include all of the hemlock as well as the spruce in sizes and grades not at present called merchantable, the estimate is very conservative. The area of the stand is estimated at 8,000,000 acres with an average stand of 9,000 feet per acre. Assuming new growth at the very low rate of 25 by 30 feet b.m. per average acre per year, the reproduction alone would perpetually support newsprint paper mills of 1,000 tons combined output per day or five mills the size of the big Powell River concern in British Columbia." Taking up the question of the accessibility of the timber, the report continues:

Machinery Could Be Profitably Used.

"At present hand logging is much in vogue, but logging with machinery is gradually coming in and would be used on all the proposed pulp chances. The Tongass Forest has about 12,000 miles of timbered shoreline and the bulk of the timber can be easily brought to the water and rafted or boomed for towing ing to its destination through the well-protected waters. Present logging costs from stump to boom, even under the more efficient operations, will generally fall between $4 and $5 per 1,000 being tolerably uniform for all accessible areas within a mile of the shore. Towing is very inexpensive, being about one per cent per 1,000 feet b.m. per mile, except for the shorter hauls. For these reasons it is not essential that a pulp mill should be locatd on the area from which it gets its timber.

"That the wood would be thoroughly soaked when delivered at the mill in booms would be of no disadvantage for ground wood pulp making, except that logs left too long in salt water storage will suffer from barnacles on bark and ends of logs. At other Pacific Coast mills these barnacles, which would otherwise form dirt in pulp, are eliminated by special care in cleaning the logs, since they do not have fresh water storage, except at certain points. Soaked wood, while less desirable than fairly dry wood for sulphite pulp making, offers no great obstacle in this regard. A large number of American sulphite mills use wood coming right out of the water, while others have installed special chip driers. For soda and sulphate pulp making dry wood is of much more importance." Speaking of the suitability of the timber for the manufacture of pulp and paper, the report continues as follows:

Suitability of Wood for Pulp Making.

"So far as suitability of species for pulp making is concerned, it should be sufficient to point to the British Columbia and Pacific Northwest pulp mills now operating on Sitka spruce and Western hemlock. One very large plant in British Columbia is now using these species in making 200 tons of newsprint per day, while 50 tons per day of very high-grade, strong, slow-cook sulphite fibre is being turned out at another British Columbia mill. At times hemlock alone is used, and it said to prove as satisfactory as in mixture sa for as quality of product is concerned. Aside from newsprint, only a few grades of building and mill wrapping paper are made at the British Columbia plants, but hemlock-spruce sulphite fibre is shipped to outside mills, for the production of bond, manilla tissue, pure fibre, printing and other high-grade papers requiring a strong, tough, white fibre.

"Western hemlock and Sitka spruce are also the standard mechanical and sulphite pulp woods for the United States mills in the Pacific Northwest, the hemlock being consumed in greater amounts than any other single species. Its consumption is about twice that of spruce". In devoting considerable attention to the transportation situation, the report, in part, says.

Shipping Rates.

"The best rates so far obtainable for pulp and paper shipments for points in the vicinity of Katchikan to Puget Sound and Portland is about $2 per marine ton. For farther north shipments, it varies up to $3 at Juneau and points in its vicinity. These rates, of course, are intended to apply to shipments direct from a mill's own wharf. However, there is no reason why a large enterprise like a 100-ton newsprint mill should not operate its own chartered power schooners or tow its product through the quiet 'inside passage' in decked scows. By such means, even discouraging a return cargo, the rate could be kept below $2 for any point south of Juneau, and possibly at about $1.35 for points in the vicinity of Katchikan.

"There are no all-water rates being quoted on pulp or paper shipments from Puget Sound to Atlantic ports via the Panama Canal. The lowest rate existing was one of $10 per 2,000 pounds for the water-rail-water route via Central American railroads. The consensus of opinion of competent authorities—viz., shippers and railroad and steamship officers—was, that after competition has been thoroughly effected the rate on paper per 2,000 pounds will be about $6, or possibly $5.50, from Puget Sound to Atlantic Coast Ports of call, via the Canal." Relative to markets for the pulp and paper products the report continues:

Prospective Markets.

"The local or regional market for pulp and paper would be practically insignificant, and an Alaskan mill would have to depend entirely upon entering the 'outside' markets now occupied by other mills. This probably is the worst feature of any Alaskan proposition, but it would really be no worse off in this respect than any new venture elsewhere.

"Although the Pacific Coast paper consumption is growing at the rate of 15 to 20 per cent. a year, the operators of the existing West Coast mills claim that by increasing their local installations they will be able to supply this market for some years to come.

"The Oriental market is supplied largely by the Scandinavian and Continental mills, and the Australian market by the British, Scandinavian, and the American Atlantic Coast mills.

"Central America and South America have been suggested as possible markets for Pacific Coast mills and some considerable tonnage is already being moved. Recent estimates put the imports of the principal consuming countries at about $15,000,000 worth of pulp and paper of all kinds per annum. Germany formerly furnished the larger proportion of material. With this source cut off by the war, Eastern United States and Canadian mills have increased their South American exports to fill the vacancy."

LORD DOVERDALE (Sir E. Partington) BEREAVED.

Deep and widespread sympathy has been extended to Lord Doverdale, better known as Sir Edward Partington before his recent elevation to the Peerage, on the occasion of the death of Lady Doverdale, which took place at Westwood Park, his Lordship's Worcestershire seat, on the 17th ult. in her 78th year. Like her venerable and distinguished husband, Lady Doverdale was a native of Heap Bridge, Bury, being the only daughter of Mr. Thomas Howarth, and consistently took a great interest in the scenes of her early life. Both at Easton, her Glossop home, and at Westwood Park, Lady Doverdale was highly esteemed for her unassuming and kindly nature, and will be greatly missed by all who knew her. To Lord Doverdale, the loss of his wife, following upon the death a few months ago of his elder son, Mr. Herbert Partington, J.P., has come with terrible force, and universal sympathy is felt for him and his family, which now consists of one son (the Hon. Oswald Partington, M.P.) and three daughters.

ENGLISH RAILWAYS AND FIBER BOXES.

Editor, Pulp & Paper Magazine:

It may interest you to know that there appears to be a great future for fibre containers on this market. The Railway Companies have now amended their classification so that goods packed in fibre containers are carried at Companies' risk whereas prior to the alteration they were only carried at consignees' risk. We enclose you copies of the new regulations, giving data as to Fibreboard required, maximum weight of contents, etc.

At present, as you are doubtless well aware, the import of boards is restricted to approximately one sixth that of 1914, but when this restriction is removed a big future awaits an enterprising Canadian mill.

Yours faithfully,

L. McCRUDDEN & CO.

Sutton, England.

Savings Made Possible by Ball Bearing Hangers

Exhaustive tests in manufacturing plants have demonstrated that transmission losses due to friction of plain bearings amounts to from 20 to 40 per cent. of the total power used in the plant. This article will show how 60 per cent. of this loss can be eliminated by the use of self-aligning ball bearings.

Shafts in cast iron, babbitt or bronze bearings become "set" if the shafting is idle for any length of time. The oil is pressed out of these bearings and it is extremely difficult to start the shaft from the rest. Again, when the bearings are operated at normal speed, rubbing friction is constantly consuming power at a sacrifice of efficiency. Self-aligning ball-bearings eliminate all these difficulties.

In self-aligning ball-bearings the starting friction is no greater than the running friction. This is a very important fact, for, as it is not necessary to provide for heavier starting loads, a much smaller motor may be used.

In self-aligning ball bearings rolling friction is practically uniform from rest up to very high speed. On this account they start with a minimum effort and operate at all times with the highest possible efficiency.

Where hangers are equipped with self-aligning ball bearings, the selection of a motor for shop drives reduces itself to the problem of providing for normal machine power consumption only, without the necessity of providing for the heavy overload capacity usually required to "start up."

For example: If machines in the shop normally require 250 horse power to drive, and an additional 50 horse power is consumed by the line shaft in distributing this power, a saving of 50 per cent. of the power required for the line shaft will reduce the total power required by 25 horse power, i. e. 10 per cent. of the total. With a motor costing approximately $9.00 per horse power there will be an initial saving of approximately $225.00 in the motor cost.

So far there has been considered only the saving in power and the consequent lower first cost of the driving motor. In addition to the saving in power, which alone is a sufficient item, there is also a considerable saving in lubricant. It is necessary to lubricate double row self-aligning ball bearings only three or four times a year. The lubricant supplied to each bearing at such times is considerably less than is generally supplied a babbitt bearing several times a month.

This economy in lubrication results from the fact that the liberal lubricant chamber around the bearing is sealed on both sides to insure the retention of the lubricant, as well as to protect the bearings from the intrusion of shop dust, grit, etc. The seal is such that the lubricant cannot leak out or creep along the shaft to the pulleys and belts, a feature which preserves the efficiency of the belts and eliminates the uncleanliness and annoyance of oil.

In plants where the transmission is exposed to dust, moisture and grit self-aligning ball bearings will give the best of service. The dust proof housing is oil tight, excludes foreign matter and holds the lubricant. Cement mills, foundries, woodworking shops and machine shops are some of the places where these bearings can be used to good advantage because there can be no trouble from hot or worn-out bearings.

Most shafting in plain babbitt bearings is run at speeds from 100 to 400 R. P. M., and if run at higher speeds, it is necessary to lubricate the bearings frequently to avoid hot boxes.

Self-aligning ball bearings may safely be run at double or triple this speed and the size of the pulleys is cut down so that the rim speed is the same as formerly. A considerable saving in the cost of pulleys can thus be effected.

Or, when operating at increased shaft speed, by keeping the main line pulleys close to their former diameter (thereby increasing the rim speed) narrower and lighter belts can be used. Working along these lines it is possible to effect savings which will equal the difference in cost between self-aligning ball bearing hangers and plain bearing hangers. Thus it is possible to secure the highly efficient ball bearing equipment at the same initial cost as the plain bearing equipment.

Instances are frequently encountered where a manufacturer is using all his available power and is even operating his engines and boiler, or motors at a heavy overload. He constantly faces a complete breakdown of his plant. In order to add more machinery it will be necessary for him to invest considerable money in an extension of his power-generating equipment. However, if he were to use self-aligning ball bearings this would be unnecessary. At least 60 per cent. of the friction load would be eliminated, his load would be cut down materially and so he would have additional power for other purposes. Paper Trade Journal.

BAN ON SUBSTANCE NUMBERS.

The Central States Paper Jobbers' Association at a meeting held in Indianapolis last week adopted resolutions placing the ban on the present system of paper manufacturers placing substance numbers on writing paper packages, and the secretary was instructed to notify the mills. Such members are deemed unnecessary, and the cause of considerable friction, between mill, jobber and consumer. The jobber, it is said, has no trouble in ascertaining the contents of the package, and the substance numbers can easily be dispensed with.

Another matter of interest was in connecting with terms, the association going on record as favoring discount terms of three per cent in thirty days, or net on the thirty-first day, in order to set a deadline on discounts, which have been running forty-five days, and more in some instances, in which the printer or consumer takes advantage of the jobber.—Paper Dealer.

SEE NO ECONOMY IN LIGHT WEIGHT WRAPPINGS.

A large Chicago wholesale grocery house is quoted as follows:

"We cannot see that there is any shrinkage in the consumption of wrappings, and the same is true of paper bags, and we don't believe there will be any shrinkage within a year or more. There are always individual opinions as to light and heavy weight product, but in our opinion there is no economy in the light weight. The ordinary paper buyer for a house believes there is economy in the light weight proposition becaues he is able to show the house a reduced tonnage of purchase, but the wrapping girl can only see that the product is too light to carry a given bundle and therefore uses two or three streets where one of the heavy weight would meet her visible ideas, hence in the end a greater consumption of product."

Newspaper Publishers Urged Government-owned Paper Mill

By R. W. JOLLY.

Many things of importance to the trade were discussed at the annual convention of the American Newspaper Publishers' Association held this week at the Hotel Waldorf-Astoria. Extensive preparations for increasing the supply of news print paper were reported by the Paper Committee. F. P. Glass, of the Birmingham, Ala., News., one of the vice-presidents of the association, is the chairman of this committee. Mr. Glass said that largely through the efforts of A. G. McIntyre, a very large increase in the output was assured for this fall, and that an even greater store would be on hand in 1918. His committee recommends the operation of mills by the Government.

"At an early date your committee entered upon three measures of relief in the paper situation," his report read in part. "The first was to insure economies in consumption through urging publishers to stop returns to cut off all sorts of free circulation, to hold down size of papers, and to conserve the paper supply in every way. The second measure was to co-operate with the Trade Commission in demonstrating the facts in the manufacturing industry and to obtain, through Government power, and publicity, all the restraint possible upon the oppressions of many of the manufacturers.

"The third measure was for final and permanent relief through the establishment of mills under the ownership or control of newspapers, which will be a large factor in maintaining the competitive conditions that may be brought about by other influences. In all of these directions, your committee believes much has been accomplished. Waste of paper has certainly been curtailed to a large extent. New mills are under way, and a large aggregate of new tonnage is in prospect. Abundant publicity has been obtained. Governmental investigation has established the justice of our cause, and has softened the market.

The prospect of substantial relief seems near at hand. The leading facts lately developed at Washington are familiar to you. The Trade Commission found such a serious situation, and such deliberate violation of the Sherman law that it felt obliged in the public interest to turn its evidence over to the Department of Justice. The costs published in the report of the Federal Trade Commission showed that extortionate prices were being charged by the manufacturers and that prices had no relation to cost of manufacture or to the natural law of supply and demand; that there was artificial restriction in trade and a tendency to curtail the production."

Here followed a history of the fight waged by the publishers against the manufacturers through the Department of Justice, resulting in the indictment of some of the manufacturers, and the postponement of the action against them on their promise to obey the law, and to refrain from further manipulating the market. The Canadian Dominion and Provincial Government have offered every inducement, the committee reported, for the development of that country by bonuses, tax exemptions and everything to favor the manufacturer, even going so far as to prohibit the export to a foreign country of raw materials. There are ample timber resources in the United States for the development of all the news print paper mills required on a competitive and economical basis as well.

The timber resources of the West coast of Alaska are now available to the entire territory of this country, including the Eastern seaboard under competitive rates and conditions. Reforestation in Eastern and Central territory will, in time, overcome the handicap now existing.

The southern part of this country must always depend on the East and West, and North, for its supply of news print paper, as the woods in the South are not adapted to the manufacture of news print paper as spruce and fir are. It is, of course, from a publishers' point of view, desirable to have these mills developed in this country, particularly in view of the fact that all of the equipment required must be built in the United States, and where mills are developed in Canada at a very excessive duty, it is always a charge against production and operation. We must, therefore, realize in our efforts for future developments that the Northwest and Alaska must not be overlooked. The government timber resources of these areas are incalculable. They are situated tributary to large rivers, and available to transportation economically to the East through the Panama Canal and across the country as well. The very much lower cost of production in mills in these districts, would more than compensate the long haul.

The report goes on to say that publishers should cooperate in the support of mills and in assuming part of the risk of transportation. Attention is called to the fact that many publishers have suggested that the government should go into the paper manufacturing business, and the committee admits that governmental operation of industrial enterprises in many countries has not been very successful. This country, however, is not in that condition. The report goes on, if there is any department of the government which is efficient, it is the Department of Agriculture, particularly its Forest Service.

The report calls attention to the fact that at the end of 1916 the stock reported on hand by the News-Print Manufacturers' Association were only 49,000 tons, or a little less than a ten-days' supply. According to the report of the manufacturers, only 42,000 were on hand, on January 1, 1917, although the committee suggests many more tons probably were in the hands of jobbers. The stocks reported for March were 32,261 tons, compared with 51,562 for March, 1916, the report states. The Paper Committee recommends that all publishers' interest themselves in mills in some manner, either by partial ownership, long time contracts, or co-operation in construction. Representatives of the Paper Committee will be glad to arrange such a mill connection for any member upon application, the report ends up.

The report of the Publishers' Paper Committee reads very nicely. Despite the fact that the local trade realizes how ridiculous the views in it are, some fear is held because of the power which the press can exercise in behalf of itself and thus influence Congress. For example, with regard to the matter of a government mill. This is nothing new, having been suggested by the newspaper publishers some time ago, and having already been the subject of a bill brought up before Congress at the last session. True, it was not regarded very seriously for some time. Now, however,

(Concluded on Page 456.)

GRIN AND BEAR IT.

If it's breakin' on the wire
Or it's skinnin' on the press,
If it goes around a dryer
An' gets yeh in a mess,
If yer reels are on the hummer
An' the winder's all gone bad,
Say, Jack, jest keep yer shirt on,
Don't get mad—jest grin.

If they're cuttin' out yer Jordan
An' the stack gets too darn free,
If yer makin' "hay" so badly
That it's hard to breathe er see,
An' the screens are runnin' over,
Keep your head: Don't bunch the job:
Jest remember, "Good times comin,'"
Its been worse, b' G—d, and grin.

If yer stacks are plugged so badly
That yer fairly on the bum,
An' chain tongs slip while the broke gets thick
An' the ole girl jest won't run,
If yer backtender gets sassy
An' starts to bawl ye out,
Why, O, don't go wild, completely,
Jest baste him on the snout, and grin.

Think o' days when all was flossy,
When the ole girl rolled around
Fer hour after hour and
Never brake ye down,
An' ye got a record run,
When "point per pound" was lested,
So dig into the thick of it
An' fix the son-of-a-gun, and grin.

When ye chase an end each minute
An' she's never on the reel,
When yer felts are filled and markin',
Yer all in—jest dead ye feel—
An' the "super" 's gettin' mad enough
To tear ye limb from limb,
Jest think o' the poor d—n Fourth-hand,
There's four men cursin' him, and grin.

MICHIGAN WILL FURNISH TREES FOR PLANTING.

The following may be obtained from the State Forester, Roscommon, Michigan:

Species.	Age.	Height inches.	Price per M.
White pine	2	3	$5.00
White pine	3	5	6.00
Norway (red) pine	4	9	8.00
White spruce	5	9	7.00
Blue spruce	5	6	7.00
Blue spruce	6	10	8.00
Norway spruce	5	7	7.00
Norway spruce	6	11	8.00
Englemann spruce	5	8	7.00
Douglas fir	5	7	7.00
European larch	2	7	4.00

No order is accepted for less than 500 plants, or less than 50 of any one class. The prices are f.o.b., Roscommon, Mich., including packing and crating. Fifty per cent is added to the above price for shipment outside the state and orders for stock to be planted in Michigan are given precedence.

EFFECT OF FORESTS ON STREAM FLOW.

Experience has proved that the forest works efficaciously against many dangers resulting from the elements let loose, such as avalanches, falls of stones, erosion, earthslides, inundations. These are facts admitted and indisputable, but how and in what measure does the forest exercise this moderating action upon the destructive power of water? How can it lessen the destruction from inundations? It is in order to attempt an answer to this leading question that the Swiss Federal Station of Forest Research in 1900 installed an observing station in the basin from which two streams of the Bernese Emmental are fed. These streams, tributaries of the Hornbach, are located in the territory of the commune of Summiswald-Wasen, on the north-west slope of the Napf. The geological formation is fissured pudding-stone which decomposes readily. One of the basins, with an extent of 140 acres, is completely wooded. The other with an area of 175 acres has only a small average of wooded district, about 30 per cent.. The forest is composed of spruce and of alder bushes. The measurement of the precipitation, rain and snow, takes place regularly throughout the year. In each of the basins there have been installed three rain gauge stations at different altitudes. At the junction of the two streams with the Hornbach certain apparatus registers automatically every five minutes day and night the volume of the water flowing.

The Research Station found: 1. In case of storms accompanied with heavy rains the maximum outflow in the wooded valley is from 30 to 50 per cent. less than that from the other valley, and there is another beneficial circumstance from the action of the forest, that this maximum flow is produced later in the wooded basin than in the other. 2. In the long periods of drought the summers of 1904, 1906, 1908 and 1911) the wooded district gave without interruption a flow of water while in the denuded valley the stream dried up and all the springs ceased although at a normal time they have an abundant flow.—Canadian Forestry Journal.

AMERICAN PUBLICATIONS INCREASED.

According to Ayer's American Newspaper Annual and Directory, there are published in the United States 23,387 newspapers and periodicals, classified as follows:

Daily	2,514	Semi-Monthly	284
Tri-Weekly	69	Monthly	3,250
Semi-Weekly	590	Bi-Monthly	95
Weekly	16,165	Quarterly	317
Fortnightly	69	Miscellaneous	34

This shows an increase during the year of:

Daily	20	Monthly	186
Semi-Weekly	15	Bi-Monthly	3
Weekly	74	Quarterly	66
Fortnightly	11	Miscellaneous	5
Semi-Monthly	1		

The number of Tri-Weeklies has decreased by 3.

PAPER FOR SIOUX INDIANS.

The Fort Peck (Neb.) Sioux Pioneer is a new paper edited by Gus Hedrich and printed partly in the Sioux language and partly in English. Its advertisement are entirely in Sioux, with the exception of the merchants' names.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Iodometric Determination of Sulfur Dioxide and the Sulfites.—John B. Ferguson. J. Am. Chem. Soc., Vol. 39, P. 364. (March, 1917). The reaction $H_2SO_3 + 21 + 2H_2O = 2HI + H_2SO_4$ takes place quantitatively only when the concentration of the sulfurous acid does not exceed 0.04 per cent. This reaction may be used for large amounts of sulfurous acid if the acid is added to the iodine solution, thus avoiding any excess of the former.

The Seidell and Meserve, the Marston, and the Selby Smelter Commission, methods are essentially the same and may be used only for the determination of small amounts of sulfurous acid. The Reich method can be used only where large volumes of gas are obtainable and cannot be recommended for accurate work. There is no adequate method for determining the end point, and no provision for making blanks. The sulfite method is useful where it is desired to absorb both sulfur dioxide and carbon dioxide. The gas is absorbed in a solution of caustic soda or potash, and the amount of sulfite determined. The most important error is the oxidation due to the oxygen dissolved in the alkaline solution. With mixtures containing not over 3 or 4 per cent. a suitable correction factor will render the results fairly accurate, but with higher concentrations the uncertainty increases.

The excess-iodine method is suitable for both large and small amounts of sulfur dioxide, and is strictly accurate. The sample, about 35 c.c., measured at constant volume and temperature, is forced to bubble through an iodine solution contained in a pipet. It is left in contact with the solution for five minutes, and then the solution is drawn off into a beaker to which the necessary washings are added. To this solution is added a thiosulfate solution until the iodine color almost disappears, then the starch indicator and more thiosulfate until the solution has the pink color of the color standard already made up. A blank is at once made by repeating the procedure, leaving out the gas mixture and the solution so obtained is also brought to the color of the standard. From the different amounts of the thiosulfate used, the excess iodine and hence the iodine reduced is calculated, the difference between iodine reduced in the blank and in the analysis gives the amount reduced by the sulfur dioxide and thus the amount of this gas. The blank amounted to approximately 0.7 c c. in the case of the 0.001 N. solutions. The writer used an all glass apparatus which eliminated the error due to the loss of SO_2 through rubber connections. The amount of SO_2 which will pass through a rubber membrane in a given time is relatively very much greater in the case of SO_2 than with most common gases. With mixtures containing 10 per cent. or more of the SO_2 the rubber connections are a real source of error, with more dilute mixtures they are less important, and may perhaps be neglected with mixtures containing less than 3 per cent. For very accurate work the apparatus has first to be washed out with a gas mixture of similar composition to that which is to be analyzed. All glassware unless dried with very special precautions has adhering to it a film of moisture which absorbs a surprisingly large amount of sulfur dioxide. The gas sample must not come in contact with even a trace of moisture before reaching the absorbent. In a perfectly dry mixture of air and sulfur dioxide no oxidation will take place.

The author recommends in the determination of sulfites that the solid salt be dissolved directly in an excess of an iodine solution containing sufficient hydrochloric acid, and the excess iodine determined with thiosulfate. This eliminates several sources of error due to oxidation of the salt by agents other than the iodine solution.—A. D. C.

Manufacture of Groundwood Pulp for Paper and Cardboard. Svensk Pap. Tid. 1917, p. 25.—Description of F. Friedsam's new process (Swed. Pat. 41477), for manufacture of heavy loaded paper. The loading material, suspended in water, is added to the pulp in the grinder, between the wood and the grindstone. The material is hereby pressed into the fibres, accelerating the disintegration of the wood, and improving the colour. Less power is required than with the usual processes, a better product is obtained by artificial stones than is now the case, the loss in loading material is reduced, the pitch troubles on the wires are eliminated. The pulp can be colored directly on the grinder by addition of mineral colours, and also size can be added with the loading material. Groundwood pulp manufactured by this process can be stored for a long period, wtihout lowering the quality.

The pulp can be used directly for paper without any beating. If it is desired to mix the groundwood with chemical pulp or waste paper, this can be added in the grinder, whereby a uniform colour is secured. Using a three-pocket grinder wood can be added through two pockets, and the other fibrous material through the third one.—B.J.

Waste Sulphite Liquor. Process for Precipitating Organic Substances From.—H. Landmark. Papir, J. 1917, p. 36 and R. W. Strehlenert in Papir, J. 1917, p. 37. In a continued discussion of the two processes L. makes the statement that with his process the oxidation of SO_2 to SO_3 can be effected at ordinary temperatures, and pressure, and that the decomposition of the liquin compounds takes place at less than 12 atm., whereas S. uses 20 atm. in his process. Arrangements will now be made to demonstrate the two processes in the presence of both inventors.—B. J.

Mannan Content of the Gymnosperms. — A. W. Schorger, J. of For., Vol. XV., No. 2, pp. 197-202, Feb., 1917.—Mannan found to be present in 22 species of conifers, but absent in the six hardwoods examined. The mannan content is greater in the sapwood than in the heartwood; in the trees it decreases from the base upwards. Mannan is of industrial importance in the production of ethyl alcohol from sulphite liquor, and by the hydrolysis of sawdust with catalysers. A table gives the mannan content of the conifers, which varies from 1.44 per cent. in white cedar to 9.22 per cent. in the sapwood of Cuban pine. Species growing in Canada give the following: Douglas fir, 6.65 per cent.; western larch, 5.13 per cent.; white spruce, 7.12 per cent.; western white pine, 6.93 to 7.44 per cent.; white-bark pine, 4.22 per cent.; western white pine, 4.64 per cent.—H. N. L.

Spinning Paper and its Uses.—Svensk Pap. Tid. 1917, p. 14. Paper for spinning purposes will no doubt be used to a large extent even after the war. To the spinning paper used for driving belts materials such as rope, spinning wastes, manila bast, sailcloth, waste linen, etc., are now often added in order to improve the quality. If sulphite pulp is used for spinning paper it must be cooked in a special way.—B. J.

Evaporator for Liquor.—Svensk Pap. Tid. 1917, p. 22. A new evaporator, invented by Soderlund-Roberg, is described. The principle of the usual multiple effect evaporators is the use of the steam formed in one evaporator for heating the liquor in a second evaporator. Hereby at least one-third or one-fourth of the steam is lost. With the new evaporator all steam or heat is utilized by increasing the temperature of the steam formed by the evaporation and using this warm steam for evaporation of further volumes of liquor. The increase in temperature is effected by a slight compression of the steam. The new evaporator is put on the market by Aktiebolaget Indinistare, Gothenburg, 5, Sweden.—B. J.

The Correlation of American Forest Research.—E. H. Clapp, J. of For., Vol. XV., No. 2, pp. 165-175, Feb., 1917.—H. N. L.

The Role of the Microscope in the Identification and Classification of the "Timbers of Commerce."—I. W. Bailey, J. of For., Vol. XV., No. 2, pp. 176-191, Feb., 1917.—The increase in the number of woods now used makes it necessary that variations in the structure of the different species be carefully studied in order that reliable methods of identification may be established. Certain variations are illustrated by photomicrographs. —H. N. L.

Practical Method of Preventing the Damping off of Coniferous Seedlings.—C. A. Scott, J. of For., Vol. XV., No. 2, pp. 192-196, Feb., 1917.—The use of high pressure steam to sterilize forest nursery seedbeds. Methods, costs and results; illustrated.—H. N. L.

Forest Biology.—P. S. Lovejoy, J. of For., Vol. XV., No. 2, pp. 203-214, Feb., 1917.—A review of the insects, fungi and animals which directly or indirectly destroy timber.—H. N. L.

Some Problems in Light as a Factor of Forest Growth.—R. Zon, J. of For., Vol. XV., No. 2, pp. 225-232, Feb., 1917.—H. N. L.

The Role of Light in Natural and Artificial Reforestation.—C. G. Bates, J. of For., Vol. XV., No. 2, pp. 233-239, Feb., 1917.—H. N. L.

Pacific Northwest Pulp Wood Attracts America's Paper Making Industry.—West Coast Lum., Vol. 32, No. 372, pp. 20, 21, 30, 31, April 1, 1917.—The pulpwood resources of the Rocky Mountain and Pacific Coast regions as stated by the U. S. Secretary of Agriculture.—H. N. L.

The Origin of China Clay.—By James Scott; Paper-Maker and Brit. Paper Trade J.; Vol. 52; 1915-16; p. 80-81. China clay is a weathered product of granite. Granites differ in structure and composition, according to the locality in which they occur, but most of them contain quartz, mica, feldspar, potash and soda. The most important compound in connection with the paper making industry is feldspar, which is eventually converted into china clay. Extreme heat, such as prolonged summer sunshine, draws out carbonic acid and allows other acids to affect the alkalies. Such processes are continued indefinitely and have a stro influence on the production of China clay. Quartz falls away during the decomposition of the granite, a little hard glassy particles. The sticky constituent of the clay is silicic acid. Potash, soda, and lime are continually replacing each other during the formation of China clay, producing various compounds. China clay is a hydrated silicate of alumina. The alumina portion will provide alum by the action of sulphuric acid. —E. K. M.

New Corrugating Machine Built by S. M. Langston Co.—Paper Trade J., Vol. 64; No. 11; Mar. 15, 1917, p. 30 and 96. Important features of the machine and convenience with which changes and adjustments can be made. Machine takes three rolls of paper and produces in a continuous operation double faced corrugated board cut into sheets and scored one way. Output, 60-70 lineal feet of seasoned board.—E. K. M.

The Paper Yarn Industry in Germany.—Supplement to Paper Maker and Brit. Paper Trade J., Vol. 53; No. 3, Mar. 1, 1917; p. 236. It has been found necessary to mix sulphite with sulphate owing to the high price of the latter in Germany for the production of paper yarn. Preparations are being made by one German firm for the introduction of an impregnated yarn of sulphite alone. The paper is cut into strips and then impregnated to increase its toughness. Special machines are used for spinning, but machines formerly used for jute are also utilized.—E. K. M.

Use of Fluorides in Wood Preservation.—C. H. Teesdale, Wood Pres., Vol. IV., No. 1, pp. 6-11, Jan., 1917. —Sodium fluoride is especially suitable for building construction. It can be applied in open tanks, is less deliquescent than zinc chloride, has no effect on paint coatings, is not a very poisonous material, is not corrosive on steel and iron. Its use on green lumber prevents sap stain. Bibliography.—H. N. L.

TAKING CARE OF THE SILENT CHAIN.

Should a silent chain be removed from its housing it should not be installed unless thoroughly clean. Submerge the chain in kerosene and allow it to remain for about 15 minutes. When thoroughly clean and dry submerge in a medium grade of oil so lubricant will reach every bearing surface. If the silent chain is exposed when in operation it should be oiled as frequently as possible. Lubricate that side of the chain which comes in contact with the sprockets and not the outside of the chain. Never use hard grease for chain lubrication.

VULCANIZED FIBRE.

Vulcanized fibre is a sort of a parchment paper, which is treated with zinc chloride instead of sulphuric acid, as in regular parchments. By this means the cotton which is used as raw material has adhesive properties that will allow any number of layers to be stuck securely together simply by pressure. The cotton, which is used as raw material, must be carefully boiled and bleached, especially when bleaching, otherwise the toughness of the product is impaired. When boiling, 2 to 4 per cent. caustic soda should be used. The raw paper is first passed over a steam heated dryer. It is then immersed in the hot zinc chloride bath. The paper is run between steam heated press rolls and winds up on one of these rolls as on a wet machine. As soon as the desired thickness is obtained it is cut off. The sheets thus secured are dried in a loft, the time for drying being about six or eight days, while very thick sheets sometimes, require months to properly dry them. Calendering is accomplished by passing the sheets through two highly steamed heated rolls until the required finish is secured. Vulcanized fibre is used for soles and heels on shoes, and is used as a substitute for leather in many cases, especially trunks; another important use is for electric installation; when used for this purpose it must be carefully freed from zinc chloride.—Paper Maker.

UNITED STATES NOTES

The River Paper Stock Company was chartered in New York during the past week. This company will deal in paper mill supplies and has a capital of $10,000. The incorporators are A. Robilotta, N. V. Cantassana and M. Stramillo.

Filing Incorporated is the style of a new company that has just been organized in New York City to engage in the publishing business. The company has a capital of $50,000, and will engage in the general publishing business. Rowland W. Jolly, formerly assistant editor of the Paper Trade Journal, and now Advertising Manager of the Gregg Publishing Company, also United States correspondent of the Pulp and Paper Magazine, is the President and organizer of the new concern. The company, with offices at 41 Union Square, New York, will start activities this week with the sale and distribution of E. R. Hudder's book on Filing and Indexing, and will, beginning with September next, publish a monthly magazine devoted to the profession of filing. This will be the first magazine along this line published in the world, and the outlook is very favorable for a prosperous and continuous success of a magazine of this kind. The magazine will be edited by E. R. Hudder, and interested readers of the Pulp and Paper Magazine are invited to address the company direct for more details.

Another charter which has just been granted in the State of New York is to the Gates Paper Twine Company. As the name signifies, the new company will engage in the manufacture and distribution of twine made from paper and pulp. The company has a capital of $25,000, and is incorporated at Pleasantville, N.Y., by H. L. Fisher, H. A. Smith and B. W. Gates, all of Pleasantville.

A novelty which is useful and at the same time represents U. S. A. industrial progress in producing an attractive, artistic, machine made, watermarked paper closely approximating hand made importations is being sent to the trade by the American Writing Paper Company of Holyoke, Mass. It is a water marked window calendar in which the figures, letters, etc., are invisible except when used as a transparency, when they stand out distinct. The calendar has caused considerable comment in the trade as it is the first of its kind to be reproduced in this country.

The annual meeting of the International Paper Company was held at the executive office of the company, 30 Broad Street, New York City, on Friday of last week. Following the meeting of the stock holders at Corinth, N.Y., the directors re-elected the officers of the company for another year. These officers are:— President, Ogden Mills,; vice-presidents, W. D. Russell and Chester W. Lyman; treasurer, Owen Shepherd; secretary, F. G. Simmons; auditor, B. O. Booth. The directors' meeting was adjourned for two weeks, when action for the plan of readjusting the deferred dividends will probably be taken up.

The Schoepfel Paper Box Company of Cincinnati, Ohio, suffered a heavy fire loss during the past week. The loss is covered by insurance.

The St. Regis Paper Company of Watertown, N.Y., has purchased extra power from the Northern New York Utilities, Inc., for its mills at Deferiet and Herrings. The company is also replacing its grinders with new ones, which will increase the daily production of ground wood from 150 to 200 tons. The installation of the new grinders is now going on, and is being done in such a way that it does not interfere with the operation of the plant.

New machinery is being installed at the plant of the St. Lawrence Talc Company, of Natural Bridge, N.Y., which it is expected will be in operation within a short time, increasing the output of the plant 15 tons a day of ground or finished talc, bringing the total production up to about 80 tons a day.

The Walloomsac Paper Company held its annual meeting at Hoosick Falls, N.Y., last week, at which the following directors were elected: Frank L. Stevens, Fred N. Stevens, Howard B. Thompson, Ellory A. Thompson and H. Q. Eldridge. The directors elected these officers: Frank L. Stevens, president; Fred N. Stevens, vice-president; Howard B. Thompson, secretary; H. Q. Eldrege, treasurer; Martin A. Brazell and Allan S. Cobden were inspectors of election.

The purchasing officers of the Treasury Department at Washington have advertised for bids for toilet paper for the department for the fiscal year 1918. Specifications may be obtained from James A. Wetmore, acting supervising architect.

Plans have been submitted for an addition to the Bergstrom Paper Company at Neenah, Wis. The new structure will be two stories high, and will be located so as to practically make one building of the old and the new mill.

The Northern Paper Mills Company, of Green Bay, Wis., put in operation last week its new sulphite mill. The plant is now producing about 15 per cent. of its full capacity, turning out about thirty tons of sulphite in twenty-four hours. The bleaching capactiy of the new plant is ten tons a day.

The executive heads of the Chemical Paper Manufacturing Company, Holyoke, Mass., has just formed a new club to be known as the Chem-Co Club. The purpose of the club is to bring together the various department heads for the general exchange of ideas in connection with their employment, and the promotion of good fellowship.

Friends of Phil. Hussey, who has been in the employ of the Great Northern Paper Company as forester for several years, will be pleased to learn that he has accepted a very fine position with the P. Q. Lumber Company, and will make his headquarters at Bay Chaleur. Mr. Hussey expects to leave for his new duties sometime during the first part of next month. The best wishes of his many friends will follow him.

Book Paper production in the United States, according to the mills reporting, was 711,337 tons in 1916; adding the estimated production of mills not reporting, the total is brought up to 889,170 tons, an increase of 156,750 tons compared with the previous year.

The latest census of manufacturers in the United States shows, it is stated, that in America the manufacture of paper is second in importance only to the steel industry. The total invested capital is estimated at $500,000,000, while the annual value of the manufactured product of the paper and pulp amounts to $350,000,000.

The girls in the "Cloth Department" of the Eastern Manufacturing Co. are greatly pleased with having rolers on the baskets. They save a lot of pulling and tugging, leaving more energy for work.

The first group of students from Massachusetts Institute of Technology have finished their studies at the plant of the Eastern Manufacturing Company and left Thursday, March, 15, for Lawrence, Mass., in care of Instructors Mr. Hanson and Mr. Wylde, where they spent the rest of the week inspecting the engineering features of the Cotton and Woolen Mills, situated there. Monday they reported at Station B., while a new group came to the Eastern for a six week's stay.

ENGINEERING NEWS-RECORD.

On April 5th the two greatest papers reaching the civil engineering and contracting fields effected a consolidation, probably the most important ever made in the field of technical journalism. "Engineering News-Record" and "Engineering Record" will be News" and "Engineering Record" will be consolidated as "Engineering News-Record," New York.

..APPOINTED DIRECTOR FOREST PRODUCTS.. LABORATORY.

Announcement is made by the Forest Service of the appointment of Carlile P. Winslow as director of the Forest Products Laboratory at Madison, Wisconsin, to succeed Howard F. Weiss, whose resignation took place April 1.

Mr. Winslow was graduated from the Sheffield School of Yale University in 1905, and entered the Forest Service in 1908. Since that time he has been engaged in research work in forest products. For the past four years he has acted as assistant to the director of the laboratory. His familiarity with the work of the laboratory and his knowledge of the problems to be studied have led to his election as the successor of Mr. Weiss.

Before entering the Forest Service, Mr. Winslow was employed in general construction and engineering work. He is an expert on wood preservatives and has done considerable research work on this and allied lines.

NEW JOBBING HOUSE IN BOSTON.

A new coarse paper house has entered the Boston trade under the name of Ingalls, Burrell & Cronin. All three members of the new company were formerly with Stone and Forsyth Co., of Boston. John P. Ingalls was connected with the older house for ten years, being buyer of wrapping paper and tissue during the last two years. Charles A. Burrell was in the sales department of Stone & Forsyth Co., for about fourteen years, covering the shoe, wool and leather trade. Charles H. Cronin was associated with the company for ten years the last four of which he was the buyer of twines and cordage.

The new company has its office and warehouse at 10 High street, the telephone number being Fort Hill 2196. An extensive line of twine, cordage and paper will be carried, and, to some extent, paper specialties.

WATERTOWN MILLS WILL PROTEST.

Paper manufacturers in the Black river valley are highly incensed over the new premium schedule just announced by the state rating board on workmen's compensation insurance. They have discovered that the rates have been advances from 13 p.c. in the lowest occupation to 59 in the most hazardous class. The new rates are made effective as of midnight, March 31. They are at a loss to understand the mathematical process used by the rate fixing experts in arriving at the new table. They are determined to make a protest in some manner.

Already local paper manufacturers feel the importance of some combined effort in this matter, and it is reported here that this industry will make some concerted effort to get relief from what they are certain is an injustice. They want a rate for pulp and paper mills that is consistent with the hazard.

Inquiry for reasons for this advance has been met with the elucidating reply that "it was found necessary." The burden seems to be placed upon the manufacturers, and they are apparently ready to go ahead with scientific proofs that the advance was not necessary, but on the contrary the rates should have been reduced. One local paper mill president stated that his record of accidents for the full year beginning August 15, 1915, showed that the loss was less than one per cent of the premium he had paid. Other experiences have been similar. An effort will be made to show the new rates to be excessive and not justified.

PLAN JOINT PAPER PURCHASE.

Joint purchase of news print paper for distribution among its members by a committee was fully indorsed by the Southern California Editorial association. Harlan G. Palmer, president of the association, was given power to appoint a committee to receive the orders of the various members, purchase the total amount reuired and arrange for distribution after the paper is delivered.

A YANKEE TRICK.

There is a very good habit being formed among the married men, of a Maine mill, ever since the Bonus went into effect. Married men beyond numbers are changing the figures on their envelopes so that their wives won't know how much they have. Now this is wrong. How, do they expect the good women to fight the H. C. L. (High Cost of Living) if when you pass her your envelope, she on looking close sees your own figures instead of the Pay Master's, with a soiled thumb print over the figures to fool her? Now men this isn't right. Anyway for the sake of an argument what's the use of being crooked like that if when you are asleep you suddenly wake up thinking of burglars, and see your "better half" softly stealing back to rest with her hands full of "Bonus" as a result of going through your pockets. "Murder" will out so beware. —"One who has found out."

BREWERY MAY BECOME MILL.

The New South Brewing plant, at Middlesboro, Ky., may be converted into a co-operative paper mill for publishers in southeastern Kentucky, eastern Tennessee, south eastern Virginia and Western North Carolina. The cost of a co-operative paper mill was originally estimated at $500,000, but it is believed the brewery plant could be bought and equipped for $250,000.

PULP AND PAPER NEWS

Hon. G. Howard Ferguson, Minister of Lands, Forests and Mines, has returned to Toronto, after a three weeks' holiday spent in the Southern States and is much improved in health.

John M. Imrie, manager of the Canadian Press Association, Toronto, and the business managers of all the Toronto dailies attended the annual meeting of the American Newspaper Publishers' Association, which was held in New York last week.

It is probable that the Department of Lands, Forests and Mines of Ontario will lease twenty-five thousand acres of grazing land to the British Cattle Supply Co. for their big cattle ranching proposition in the province. Land in the vicinity of the Government farm at Burwash, which is at the present time under timber lease, will likely be selected as the property can be subleased for grazing purposes.

A charter has been granted to the Giscome Lumber Co., Limited, with a hsare capital of one million dollars, and headquarters at Giscome, B.C. Among the other powers conferred on the company besides cutting logs and manufacturing lumber is that of erecting and operating pulp and paper mills.

Paper, Limited, with a capital stock of forty thousand dollars, and headquarters in Montreal, has been granted a federal charter to export, manufacture and deal in paper of all kinds, and to act as agents for manufacturers of pulp and paper.

Thomas Robertson, of Robertson Bros., Limited, Toronto, who was President of the Monetary Times Printing Co., passed away recently in Toronto, aged seventy-eight. He was one of the oldest and most respected business men of the city.

The first of the three digesters to be installed at the plant of the Mattagami Pulp and Paper Co., Smooth Rock Falls, is now being placed in position. It is 19 x 65 feet, and will be followed by the other two. It is expected that the plant will be in operation by the end of June, and the output will be one hundred and fifty tons a day of sulphite fibre, both bleached and unbleached, being the second largest sulphite mill in the Dominion. All the buildings are well on the road to completion, and the dam is finished as well as the construction work on the power house.

It is expected by the mill owners along the old Welland Canal that they will have to close down for ten days or two weeks toward the latter end of May, while the canal has the water let out for the annual cleaning and making of repairs. All the plants will take advantage of the occasion to give their equipment a thorough overhauling.

The offices of the Port Arthur Pulp and Paper Co., which have been in the Bell Telephone building, Toronto, for some months past, will be permanently removed to Port Arthur next week. A. G. Pounsford, general manager of the company, and A. G. Heinzke, superintendent, will take up their abode in Port Arthur along with their staffs. Chief Engineer Thomas Murphy, is already on the ground, and some eighty men are engaged in excavation work. The company have contracted for their supply of pulp wood for several months ahead. When the plant is in operation—as it is confidently expected that it will be in November next—the fir mwill require between eight and nine cars a day of pulp wood. I. H. Weldon, of Toronto, is President of the Port Arthur Pulp and Paper Co., and S. F. Duncan, of Toronto, secretary-treasurer. The vice-president and all the directors have not yet been elected, but will be chosen at an early date.

E. Pullan, of Toronto, who is the largest dealer in rags and waste paper in Canada, is doing some extensive bill board advertising, setting forth the fact that rags and paper stock of all kinds are worth money just now, and stating that he is in the market to buy all kinds of supplies.

Mr. A. R. Whitelaw, who for the past year has been engineer in charge of the construction and equipment of the new boxboard plant for the Northumberland Paper and Electric Company, Limited, at Campbellford, Ontario, goes to Calabogie, Ontario, to supervise the construction and equipment of the power house for the Hydro Electric development on the Madawaska River at that point.

Though the Brompton Pulp & Paper Company, Ltd., of East Angus, Que., expected to have its new unit of 50 tons daily in proportion some time this year, delays in receiving the machinery and excessive prices for material will probably delay the beginning of operation until April or May 1918.

"There is also the possibility of our putting this machine on wrapper, instead of news; it will depend entirely on conditions of the trade within the next few months," said Manager J. A. Bothwell.

In the meantime the Brompton plant is turning out about 50 tons of news print per day.

Of the 180 tons of news print expected to be available from the new Pacific Mills, at Ocean Falls, B. C., Canada,in 1917, the prospects are that only about 50 tons will be really produced around June 1.

The balance, 130 tons, will not be ready until about the first of 1918.

Proposed amendments to the Ontario Forest Fires Act will give the Provincial Forester very wide authority in the handling of the whole situation. One of the most important amendments provides for the adoption of the permit system of regulating settlers' clearing fires. This action should go far toward preventing a repetition of previous disastrous fires in the clay belt. Similar provisions are now in effect in other provinces.

The Remington Paper and Power Co., Watertown, N. Y., which heretofore have been producing news print paper to the extent of about 160 tons per day, will reduce the output of that particular grade to about 100 tons a day for the next twelve months, according to a statement credited to the Bermingham & Seaman Company, Inc., sales representative of the company.

The new news machine at the Ontario Paper Mills, Thorold, was started up on Friday, and outside of the few inevitable readjustments there was no hitch.

Mr. Harry Cowan has resigned his position with the Ontario Paper Co. at Thorold, to take up a more responsible position with the Maple Leaf Milling Co. at Thorold.

The medal which was given to the chemistry class of the Industrial Evening Classes at Thorold, was won by Miss Ruby Justice, of the Montrose Division of the Provincial Paper Mills. Mr. John Sims, of the Ontario Paper Co., was a close second. A public presentation of the medal was made by Mr. George Carruthers, chairman of the industrial advisory committee, on Monday evening, at the Thorold High School.

OTTAWA NOTES.

The Canadian Government, with a view of extension of Canada's trade relations—not the least of which is the demand for wood pulp, and pulpwood, as the Scandinavian market is closed—with Italy, has appointed Mr. Wendall McL. Clarke, of the Department of Trade and Commerce, to go to Italy as the Dominion's commercial representative.

The announcement was made from the Trade and Commerce Department late last week. Mr. Clarke will have his headquarters at Milan, but the territory which he will have jurisdiction over includes the whole of Italy, Sardinia and Sicily.

As it is important that a representative of the Canadian Government reach Italy in the shortest time possible—in order that a perfect grasp of the needs of the country may be made in time for the peace that is to come, Mr. Clarke will leave for his new post this (Editor's note from April 30th to May 5th) week.

The new trade representative is a young man who has made himself very popular with the staff of the Trade and Commerce Department, which department he entered the employ of two years ago, after he graduated from Toronto 'Varsity.

Since his governmental duties began, he has been assimilating trade methods under the supervision of Sir George Foster, and is now well versed in everything pertaining to Canadian industries.

The appointment of Mr. Clarke followed that of two other young men to go to Europe as Canadian trade representatives, made in 1916—L. B. Wilgress, now at Omsk, Siberia, and Norman Johnstone, in Bristol, England.

Sir Thomas White, in the House of Commons last week, said an Order in Council had been passed giving the Minister of Customs authority to fix the price of news print in Canada. This Order in Council will not become effective until it is officially gazetted.

Another Order in Council gave authority to an officer of the Government to take possession of newsprint paper manufactured in this country. As an agreement between the manufacturers of newsprint and the Canadian Publishers has been made fixing the price at $2.50, the order has not been gazetted.

Sir Wilfrid contended that the tariff had been practically amended by this order, and all the information should have been given to Parliament as soon as it reassembled.

Messrs. A. de Niverille and A. Chapdelaine, of the Government Stationery office, who left their positions last week for England to join the Royal Flying Corps, were the recipients of club bags and other presents presented by their confreres. The presentation address was read by Mr. J. O. Patenaud.

None of the major pulp and paper manufacturing plants in the Ottawa district, which turn out newsprint, have to date taken their machinery from newsprint manufacture and turned it to the production of other grades of paper—in view of the Government "set price"—2½ cents per pound.

Commenting on the new income tax on the manufacture of articles for war purposes, local pulp and paper mill owners state they have not "digested" the context of Hon. Mr. White's remarks, and are going to take a look around the corner before expressing a view as to what the new budget will mean to them.

THOROLD'S INDUSTRIAL EVENING CLASSES.

Mr. George Carruthers, chairman of the industrial advisory committee, called a meeting on Monday evening, April 23rd, to wind up the business of the classes for the season just closed. The following members were present, G. Carruthers, T. A. Weldon, D. Daverin, Jas. Battle, E. P. Foley, Mr. Burton, Dr. Campbell, J. H. Thompson, C. Howell, also the secretary and the four teachers, Mr. Bonis, Mr. Servos, Miss Munro and Miss Fraser.

Mr. Carruthers enquired very particularly into the working out of each class, and of each part of the work otherwise, building, equipment, conveniences, etc., with a view, as he announced, of using the information, possibly, to push the organization of similar classes at Mille Roches, Ont.; Georgetown, Ont., and Port Arthur, Ont.

The reports from the teachers as to the details of their work were considered on the whole satisfactory, though the falling off in attendance from what it had been at the start was marked. Mr. Bonis explained the difficulties under which he knew many of the students worked as to hours, distance, etc., and readily concluded that many of them had really undertaken too much. A young girl working ten hours in a mill, for instance, might easily overdo her strength by walking a mile or two, and spending the entire evening in close application studying a difficult science. This was only an illustration of what many would have to do who really desired the benefit of the classes. So that when the attendance had sifted down and reached a level, it had to be concluded the final result was satisfactory.

It was decided to issue certificates to all students, to show their standing or progress; some little adjustments of the length of the lessons were provided for, additional electrical apparatus was ordered, and Mr. Carruthers told of the medals which were to be used.

E. P. Foley proposed that actual demonstrations in some directions be given to students by making visits to factories at certain times. At the Peerless Pulp Mill at the present moment, for instance, they had a large dynamo down, and the students would be welcome to visit at such a time and receive a lecture on the spot as to the mechanism and working of the machine. Much, he thought, might be learned in this way. The proposition was very favorably received.

The medal won by Miss Ruby Justice was referred to, and on motion it was decided that Chairman Carruthers should make a public presentation of the medal Monday evening, April 30th, at the Thorold High School.

The two lady teachers present at the meeting took a lively interest, and made many and valuable suggestions along practical lines. They received the thanks of the chairman for their assistance.

The balances of salaries due the teachers were ordered paid, and the board adjourned.

THE NEW EXCESS PROFITS TAX.

The effect of the new war budget announced in the House of Commons last week by Sir Thomas White, Minister of Finance, may have a very large effect on the pulp and paper trade industries inasmuch as the "excess profits" covers a very wide field, and is not confined alone to the manufacture of munitions.

"I do not see that it makes much difference whether the business in question is making munitions or any other class. Munitions are needed and no discredit attaches to the enterprise which provides them. The steel company which engages in the production of munitions could in most cases make as much, if not more money, by selling its steel products in world markets," said Sir Thomas.

From this utterance it would appear that any firm in Canada, no matter what its line of business is or what trade it supplies, if it makes more than fifteen per cent. profit annually would be subject to the new government tax. Some pulp and paper manufacturers may be making more than fifteen per cent. profit annually since the war began. But, if they are under the new order of things they will have to give the government a share of everything they make above this figure.

Mr. C. Jackson Booth, head of the lumber sales and trade department of the J. R. Booth interests, when asked as to how the new budget would affect the pulp and paper men said, "The trade has not fully digested it yet."

He referred to the government fixing the price of newsprint at two and one half cents per pound, and said that newsprint could not—in view of the shortage of labor, and the high cost of material—be manufactured at this figure. He wanted to know why the newsprint manufacturer and paper man was singled out, and asked the question if the paper manufacturer must suffer for the protection of the publisher?

One of the best indications that the new budget may have on the pulp and paper trade was reflected the day after the budget was announced, when the stock of the Riordon Pulp and Paper Company sold down to 108, after closing the night before at 120 bid, 121 asked. At noon the next day the stock recovered four points, selling at 112.

Brevity punctuated the address of the Finance Minister in announcing the new budget, but the methods outlined nevertheless were so impressive that practically every trade or manufacturer in the Dominion can not help but be deeply interested in them and study them closely.

A summary of the new budget as announced by the Finance Minister is as follows:

"Then it has been frequently suggested that following the examples of Great Britain and the United States we should adopt an income tax upon all incomes beyond, say, a thousand or two thousand dollars. The comparison in this regard, however, of Canada with either of these countries is fallacious. We are not a country of large accumulated wealth, and of incomes derived from investment. Canadian incomes are mostly derived from personal earnings. So far as I am aware the incomes of the professional and salaried classes throughout Canada have not materially increased since the outbreak of the war.

In the case of many they have actually declined This being so, it does not seem equitable to impose upon those the burden of an additional income tax — for they are taxed now upon their incomes by municipalities and provinces—at a time when owing to the war the cost of living has so greatly increased.

"In accordance with the principle which I have enunciated, the government last year imposed the Business Profits War Tax. Under that legislation profits in excess of a certain percentage upon capital invested were taxed to the extent of 25 per cent. of such excess. This measure has proved quite successful. Not the least of its merits being the small cost of its administration which will probably not exceed one half of one per cent. upon the amount collected.

In view of the increasing interest and pension charges due to the war, and believing this to be the true source to which recourse should be had for further revenue we propose to extend this tax by taxing an increased share of profits.

"We propose to take from persons, firms and companies liable to the Business Profits War Tax Act, 1916, 50 per cent. of all profits in excess of 15 per cent., but not exceeding 20 per cent. per annum, and 75 per cent. of all profits in excess of 20 per cent. per annum upon capital. That is to say, up to 15 per cent. they will be liable to the existing legislation, and in addition we shall take one-half of their profits between 15 per cent. and 20 per cent., and three-fourths of their profits above 20 per cent.

"The increased tax will chiefly affect manufacturers of munitions and other war supplies. While the percentage of excess profits which are taken is large —sufficient is left to provide incentive to effort on the part of all subject to the tax.

"The new legislation will apply to the last accounting period of the three year term, provided for in the Business Profits War Tax, 1916, namely, to all accounting periods ending after December 31, 1916.

The following table shows how the government will divide profits with those taxed:

Profit.	Company.	Govt.
P.C.	P.C.	P.C.
10	9¼	¾
15	13	2
20	15½	4½
25	16¾	8¼
30	18	12
50	23	27
100	35½	64¼
200	60½	139½

FIRE AT NICOLET FALLS—WOOD PILE SAVED.

Nicolet Falls, Que., April 30.—Late last night the pulp mill and sash and door factory here, of the Lotbiniere Lumber Co., were completely destroyed by fire. The fire was observed in the barker room shortly after eight o'clock, and the alarm was immediately given. The flames soon spread through the whole plant. Efforts were directed towards saving the lumber and pulpwood in the yard, and, with the combined help of the Danville fire brigade, which had been summoned, about 1,500 cords of pulpwood were saved.

The buildings and machinery are a total loss. The properly belongs to Mr. F. N. McCrea, M.P., and Mr. E. W. Tobin. The damage is placed at $80,000, with but $40,000 insurance. A large number of men will be thrown out of employment.

SALESMEN WANTED.—"Wanted Salesmen calling upon Pulp and Paper Mills to sell Babbitt Metals as side line. Good commission. Give full particulars in confidence as to firms represented and territory covered. Box 148. Pulp & Paper Magazine, Montreal."

The Markets

CANADIAN MARKETS.

Toronto, April 30, 1917.

"Newsprint will be higher by next fall, and no government will be able to regulate the price," was the remark of a leading mill man this week. "The reason," he continued, "that Sir Thomas White appointed R. A. Pringle, K.C., as an investigator of news print conditions is that the question is such a large one, and has assumed such vast proportions and entanglements that the Minister of Finance has not the time to look after matter himself, and, therefore, has called Mr. Pringle to his aid. The demand for news print is growing all the time, and the production is not keeping pace with the increasing consumption. It is rumored that the Beaver Board Companies, who have a board mill at Thorold, Ont., will install two Fourdriniers and make news print for a leading Buffalo journal, the same as the Ontario Paper Co. of Thorold, is turning out newsprint for the Chicago Tribune.

The dailies of both the United States and Canada have not been carrying as much advertising matter since the outbreak of the war as they have this spring, which makes the number of reading pages greater. The Saturday editions are larger than they have been for months, while circulations continue to climb on both sides of the line, owing to the fierce fighting at the front, and the heroic part played by the Canadian boys. As time passes there would seem to be no indication of any let-up in the requisitions for news, and publishers should be thankful that they can get a supply rather than try to force the hands of the manufacturers in the matter of piece. The latter are lying low and saying little, believing, that while the publishers may have gained a temporary advantage by the fixed figure situation in the end they will be the losers, and "he laughs best who laughs last."

At the recent meeting of the American Newspaper Publishers' Association it was reported by the Paper Committee that a big increase in the output was assured by this fall, and that an ever greater store would be on hand in 1918. The establishment of paper mills under the ownership or control of newspapers, was urged as a factor in maintaining the competitive conditions that would thus be brought about. In the meantime, manufacturers are not worrying over federal investigations, and indictments and believe that they can have a clear case demonstrating how steadily advancing costs of production justify higher rates. As for the threatened establishment of paper plants by publishers, they know that such a course is practically impossible for the reason that financing such enormous propositions is a thing practically out of the question in war time, and the building of Fourdrinier machines would require such a long period that the future is altogether too uncertain.

No matter what the outcome of these investigations and indictments may be, the natural law of supply and demand cannot be permanently overcome. If the war continues for any protracted period, the shortage in news print will be more and more brought home. Ground wood is increasing in price all the time, labor is growing scarcer by reason of the recruiting of several more forestry battalions in Canada, while coal, wire, dryer felts and jackets are constantly ascending.

Pulp and paper mills are busy all along the line, but general market conditions are unsettled. There is a feeling of uneasiness prevalent, and jobbers are not placing big business. Orders are coming in fairly well, but not in any great volume.

The price of bond, writing and book papers keeps up well, and all the plants have enough business to carry them along for a considerable period. There is complaint of the scarcity of manila and grey browns, and deliveries are many months behind. Some cars, which were ordered by a Toronto firm to be delivered in January, only reached the warehouse this week. The past week witnessed a slight increase in the cost of paper towels, but other lines in tissue and toilet are unchanged in quotations Coated paper plants are well employed, and are getting raw stock now in much larger quantities than in the past. There is no dullness looked for in the trade during the coming summer ,and all concerns are expecting a big season's business.

A representative of a leading Canadian pulp firm, who has returned from an extended tour of the United States, and is also familiar with conditions in Canada, gives his opinion that the expected extreme shortage of wood is likely to be as acute and even more so than many persons think. One Ontario concern bought up several thousand cords of rough wood in February last, for which they are paying sixteen dollars delivered at their mill. They recently secured another large consignment, in order to be assured of a full supply next fall. Prices in sulphite pulp remain about the same, although there has been a little easing off, but it is thought that this is only temporary, and due to the transitory state of affairs engendered by the war. Very little is coming in from Europe, and whereas the regular normal supply from foreign ports reaching America was from twenty to twenty-five thousand tons a month, the importations during March were only nine thousand tons, and April will show less receipts owing to the submarine campaign. One vessel laden with three thousand five hundred tons was sunk recently. It is said that Sweden has shut down one-third of her production owing to shortage in coal, sulphur and other supplies. Stocks on hand in Canadian mills are very small, and manufacturers have no fear that there will be any recession in values.

In ground wood pulp, there was an advance of two and a half dollars per ton last week in the Thorold district, and forty-seven to fifty is now being asked at the mill. Some of the plants in Quebec are getting from fifty to fifty-two dollars, and certain mills, which had contracts, have voluntarily given those producing ground wood pulp for them a considerable increase, owing to the gravity of the situation. Everywhere the shortage of spruce wood is being commented upon, and Wisconsin plants are resorting to hemlock, for which they are paying double the price that they formerly did. The chief difficulty is in getting cars to bring out what wood has been cut, and in Northern Ontario

great piles are along the tracks awaiting the action of the railways.

Box Board mills are catching up with their orders, and are not buying as much raw stock as formerly. These plants and book mills have large quantities of raw paper stock on hand, and are now making successful attempts to buck prices, with the result that book and magazine stocks are down to normal values, with most of the mills out of the market altogether. There has been a drop in No. 1 mixed papers, and there is very little demand for news. The entire waste paper market shows a weakness against the continued strength exhibited during the past few months. The demand for all grades of cotton, new and old, has fallen off considerably, bringing prices down. There is a better requisition from plants for roofing stock during the past few weeks.

Book Paper Conference Held at Ottawa.

On the invitation of Sir Thomas White, Minister of Finance, an important conference was held at Ottawa last week, when the representatives of the book and writing mills were asked to meet the school book publishers and members of the trade and class section of the Canadian Press Association. There was good attendance of all concerned and the matter of price, supply and future outlook were gone into fully. The views of the book publishers and the interests of the trade and class journals were heard and a free discussion of all matters touching present relations resulted. A friendly spirit was manifested on both sides. The manufacturers pointed out that they were doing their utmost to take care of the demands of the publishers. The welfare of the manufacturers depended on the prosperity and progress of their customers as the interests of the latter and the mills were mutual. One could not get along without the other. They pointed out that, in view of the scarcity and high price of labor, raw materials, especially pulp, and the up-keep of mills, advancing cost for coal, chemicals, felts, wire, etc., they could not furnish paper at the price and of the same quality as formerly and, if the publishers expected to pay only the same figure they would have to accept an inferior texture, and lighter weights.

Sir Thomas White suggested that the publishers should increase the price of their publications, but they feared that such a step could not be taken. In his summing up of matters the Minister of Finance declared that in regard to the request to have the paper investigation widened he could not grant it.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (car load), No. 3	$7.75
xBook papers, (ton lots), No. 3	$8.00 to $8.75
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.75 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots, No. 1)	$10.25 to $11.00
Ledgers	15c up
Sulphite bonds	13c. to 15c.
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$47.50 to $52.50
Easy bleaching sulphite	$110
Sulphite, news grade	$90.00 to $95.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

Rag and Paper Stock.

No. 1 Hard White Shavings	$5.00 to $5.25
No. 1 Soft White Shavings	$4.00 to $4.50
Mixed Shavings	$1.00
White Blanks	$2.00
Heavy Ledger Stock	$2.50
Ledger and Writings	$2.05
No. 1 Magazine	$1.25 to$ 1.30
No. 1 Book Stock	$1.15 to $1.20
No. 1 Manila Envelope Cuttings	$2.75
No. 1 Printed Manila	$1.40
Folded News	.90
Over Issues	$1.10
Kraft	$3.50
No. 1 Clean Mixed Papers	.75
No. 1 White Shirt Cuttings	$7.35
No. 1 Unbleached Cotton Cuttings	$7.35
No. 1 Fancy Shirt Cuttings	$5.25
No. 1 Blue Overalls Cuttings	$5.25
Bleached Shoe Clip	$6.00
Unbleached Shoe Clip	$5.50
White Cotton Hosiery Cuttings	$8.25 to $8.50
Light Colored Hosiery Cuttings	$7.25 to $7.50
New Light Flannellette Cuttings	$5.25
No. 2 White Shirt Cuttings	$5.25
No. 2 Unbleached Cotton Cuttings	$5.25
City Thirds and Blues	$1.90
Flock and Satinettes	$1.60
Tailor Rags	$1.60

Canadian Chemical Market.

The only important change in the Chemical Market is in connection with the Brimstone situation. New York quotations on this commodity have been withdrawn, on account of transportation difficulties and dangers. The new prices on Brimstone are now quoted f.o.b. mines and run from $25 to $35 per long ton, depending on quantity and terms of contract.

The market continues firm, with no further relief in regard to transportation conditions.

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CHEAPEST INSURANCE
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Spielmann Agencies REG'D.
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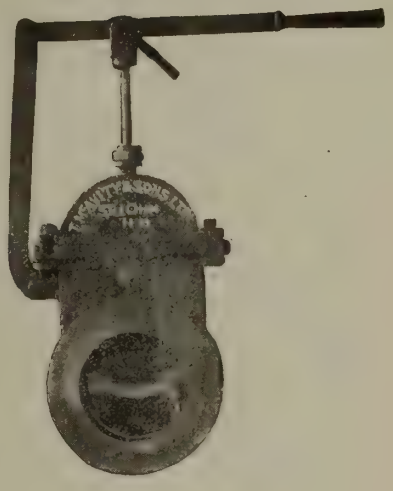
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Kalamazoo, Michigan.
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NEW YORK MARKETS.

By R. W. JOLLY.

New York, N.Y., April 28, 1917.

One of the interesting features of this week's market, was the financial report rendered by the International Paper Company, which showed that this large concern had just concluded the most prosperous year in its existence. In his report to the stockholders, President Philip T. Dodge, of the company, discussed conditions during the year. He said: "All manufacturers operated their mills to full capacity and the prices established by different manufacturers varied greatly. The base price established by the International Paper Company for the present year of $3.10 per 100 pounds at the mills is, with perhaps two exceptions, the lowest price established by any large manufacturer within the United States, and is materially less than the prices established by some of the foreign manufacturers. A number of the leading paper manufacturers, hoping to see a solution of the troubles and to benefit the small publishers, consented to let the Government fix the price of news print paper for a limited time, upon the condition that the publishers, with whom they had written contracts for a definite tonnage at a fixed price, should surrender a part of the tonnage contracted for, to be used for the relief of small publishers, but the Government has not yet been able to arrange the surrender and distribution features of its plan. At the present time, the production of the International Paper Company will average 1,800 tons of paper per day, of which amount about two-thirds is news print, and the balances pecial papers of many varieties. It is the owner of many mills, large and small, etc. . . . The company is the owner of very extensive woodlands, both in the United States and Canada, and is also the possessor of extensive Canadian Crown lands, carrying the right to cut wood in Canada. The woodlands are of great and increasing value, and in the years to come will be found a great protection in assuring a supply of pulpwood to the mills of the company. The available woodlands of the country are steadily diminishing and the value of wood increasing. It is believed that the timberland holdings of the company will protect its mills. In the days to come, many competitors will be compelled to obtain wood, if it is to be had at all, at almost prohibitive prices."

Because of the many pertinent features in this report, it was the subject of some discussion in the New York market during the week. The comment on the matter of wood supply is especially interesting because of the acute conditions now known to be existing. For some time, we have been stating in these columns the fears of many of the leading pulp manufacturers of the country because of the certainty that the coming wood cut would be less than normal and far less than will be needed to take care of the nation's needs. A wave of economy is spreading over the country, which may have a material effect on the sale of fine writing papers. It seems that considerable preaching has been going on regarding the necesstiy of economizing on everything. Already this campaign is beginning to hurt several lines of business. However, there is a staunch fight being made by the merchants of the country to steer the people in the right direction and to make them realize that dramatic economy will mean ruin to the country's industries—the worst thing that could happen at the present time. Many of the mills continue to complain about freight difficulties, and it is most likely that they will have some trouble of this nature as long as the war lasts.

Perhaps the best thing that has happened in some time to cheer everything up is the fact that the Congress has voted to appropriate the sum of $7,000,000,000 for the carrying on of the war, **all of which will be spent in the United States.** Business men everywhere are laying stress on this particular fact, and are pointing out that it is inevitable that there must be a great revival in business. It was the first $50,000,000 spent by the Allies in this country that woke business from a deplorable state into a situation where everyone found difficulty in keeping up with things. And now, there is to be put into circulation here in this country $7,000,000,000.

New York quotations for ground wood seem to be holding about the same as we reported them last week. However, there seems to be comparatively little stock to be had for immediate shipment, for all of the grinders report working to take care of old obligations. Prospects for the future remain unchanged. The chief problem is still regarded as the wood question. Wood is bound to go up considerably in price. This, however, is not the big source of worry, for grinders will pay the price if they can get the stock. However, the fear is that it will be very difficult to get enough wood to keep the mills in continuous operation. The situation, for the present, has been slightly improved by favorable weather conditions, which have helped the water supply enough to increase production. If the heavy amount of advertising being carried by the newspapers continues, as it most likely will and, with war news calling for extra editions daily, the demand for ground wood must keep on at a high mark—and prices will be inclined accordingly.

In chemical pulps, a firm condition reigns, yet interest seems to be at a very low ebb, with practically very little inquiry from the consumers. Apparently the mills are using substitutes wherever they can, and are keeping out of the market to the best of their ability in the hope that lower prices will prevail. But quotations remain unchanged—firm and high. According to the pulp men, they realize that the supplies available for shipment within a short time are very limited, and not enough to last for any considerable period. They calculate that interest in the market must awaken in the very near future, at which time values are expected to take further steps upward. The quantity of stock coming in from abroad is of little or no consequence. No real advices have been received to tell what may be expected toward the end of next month, the usual time when shipments would commence to arrive, after the opening of the Baltic Sea. It may be that several foreign producers will take the risk incumbent on sending pulp to this country, but it is not possible that anything near to normal quantities will come over. In the meantime, talk about the new mills expected to be ready for operation some time in the future, has ceased somewhat. This may be due to the lull in interest in the market just now.

Quotations are still nominal. Foreign bleached is quoted in the neighborhood of 10c., ranging above and below, but mostly above. Figures for domestic bleached are said to be a little easier, at around 8c., but it is not likely one could get unlimited lots for immediate shipment at this figure. Easy bleaching is somewhat scarce at around 6c. Foreign unbleached is reported at about 5½c. to 5¾c. ex-dock, New York, while domestic stock is said to be available in some quantities at

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WOOD PULP

of every description

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5c. to 5¼c. f.o.b. pulp mill. Krafts are perhaps the most active, so far as interest is concerned, of the chemical pulps, ranging up to 6¾c.

The rag market has experienced no special change in conditions during the week. Dealers are holding firm, but to no real avail, for buying is said to be comparatively small, the mills continuing to keep away from the market. The big hope of the rag dealers is that the consumers will realize the handicaps which will be placed on the market by the coming selective draft, which it is now believed is inevitable. As a matter of fact, it is said that collections of rags have some time ago ceased to be up to normal because of the fact that labor more more luring in other fields. Actual conditions have not been noted because of the lack of interest shown by the mills. But, claim the rag men, a run on the market, which is not at all unlikely at any period in the near future, will reveal surprising conditions with regard to shortage of supply. New white shirt cuttings are being held up to 9c.; old white rags range as high as about 5¼c.; house soiled whites, to 3¼c.; street soiled whites, to 2¾c.; thirds and blues, to 2½c., and black stockings over 2¼c. Roofing stock ranges up to 1¾c. Bagging is in fair demand, although it is far from meeting the expectations of the trade. Gunny is to-day held for 3¼c. to 3½c.; bright bagging at 3c. to 3¼c.; sound bagging, at 2½c. to 2¾c.; mixed bagging at 2¼c. to 2½c. Manila rope is held firmly up to 6c.

Activity in the paper stock market continues, with bright prospects. Especially in the lower grades, the demand seems to be very good. This is indicative that the practice of reclaiming the ground wood pulp from the old manilas and the old newspapers is becoming more and more prevalent all the time—and it will continue so, as ground wood goes higher in price— and as ground wood becomes more and more difficult to obtain. Old manila cuttings are going well to-day up to 1½c. and it seems that this price is destined to last for some time to come. Strictly overissue newspapers are still hovering up to near 1½c.; strictly folded news is around 1¼c.; slight concessions seem to have been made on mixed papers in order to keep them moving a little faster. However, this market is considered satisfactory. The demand for old krafts is good, with the price still up to 4c. Shavings are not so active, having taken a temporary relapse, but firm prices are reported—up to 5¼c. for hard white, and about 4¼c. to 4½c. for soft white. Magazine stock is still near 2c., with ledger stock at 2½c. to 2¾c.

The attitude to be cautious in buying still prevails in the paper market, but this has, however, not affected its firm status. It is apparent that most of the manufacturers have curtailed their production to meet the present exigency. In news print prices are as peculiar as ever, the price depending entirely upon where one buys his stock. It is evident that few, if any mills, will live up to the 2½c. price, and that all realize that anything below 3c. is not practical, and will be bound to reflect financially against them. Predictions have been made that the demand for news will continue just as active as it is now, right through the summer season, as was the case last year. The other papers are being held fairly firmly, with buying generally below normal. Boards are active.

New York Quotations.

Ground Wood, f.o.b., mill ..... $50. to $55
Foreign bleached sulphite, ex-dock, New York ..... 10c. and higher
Foreign easy bleaching sulphite, ex-dock, New York ..... 6c. and higher
Domestic bleached sulphite, f.o.b. pulp mill ..... 8c. and higher
Foreign unbleached sulphite, ex-dock, New York ..... 6c and higher
Foreign unbleached sulphite, No. 2, ex-dock, New York ..... 5¾c and up
Domestic unbleached sulphite, f.o.b. pulp mill ..... 5¼c to 5½c
Eeasy bleaching, f.o.b. pulp mill ..... 6c and higher
Kraft pulp, f.o.b. pulp mill ..... 6½c and higher
Foreign unbleached soda pulp, ex-dock, New York ..... 6c to 6½c
Foreign easy bleaching soda pulp, ex-York ..... 6½c to 7c
Bleached soda pulp, f.o.b. pulp mill . 6c and higher
Foreign kraft pulp, f.o.b., ex-dock, New dock, New York. ..... 6½c to 7c
Bond papers, sulphite ..... 12c and way up
Best grade writings ..... 20c and higher
Regular superfine ..... 19c and higher
Ledgers papers ..... 13c and way up
News, contracts, f.o.b. mill ..... $2.50 to $4.25
News, spot lots ..... up to 5c
Book, super ..... 9c and higher
Book, coated ..... 8½c and higher
Tissues, good sulphite, bleached, per ream ..... $1.30 and higher
Tissue, ground wood, manila, per ream ..... $1.30 and higher
Kraft ..... 9c and higher
Manila ..... 7¾cand higher
News board, per ton f.o.b. New York $70.00
Strawboard, per ton, f.o.b. New York . $6.00 higher
Chip board, per ton, f.o.b. New York $65.00

NEWSPAPER PUBLISHERS URGED GOVERNMENT-OWNED PAPER MILL.

(Continued from Page 442.)

with the papers pounding away and adding more force all of the time, it is feared that something may materialize. Then again, it is known that the Department of Agriculture is in favor of the plan for building a paper mill to be operated by the government.

In Washington, there are rumors to the effect that the news print manufacturers were trying to make some kind of an agreement on price with the publishers, without inviting the Federal Trade Commission to take any part in the proceedings. It has not been possible to verify these rumors, although they have been given credence in several circles. It is understood that the Federal Trade Commission has not had any definite word from the manufacturers, and that the Commission will not interfere if they attempt to make some sort of arrangement with the publishers. It is still not known what the effect of the indictments will be with reference to the price of news print as fixed by the Commission. It is believed by some that the price of 2½c. will not prevail, but that the old figure of 3.10c. and upwards will be the price charged in the future. Still others assert that they firmly believe that the manufacturers who signed with the Commission will stick to their agreement, and that at the time they signed there were no strings attached to their promises. There is nothing definite to tell which view is correct.

With the war now in progress, it is possible that the Commission may get full power with regard to fixing prices. This, it is expected, will be one of the many war measures that are to be put into effect within the next few months.

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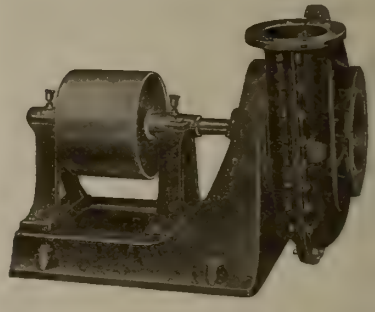


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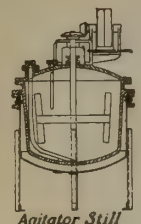
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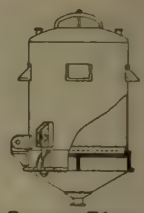
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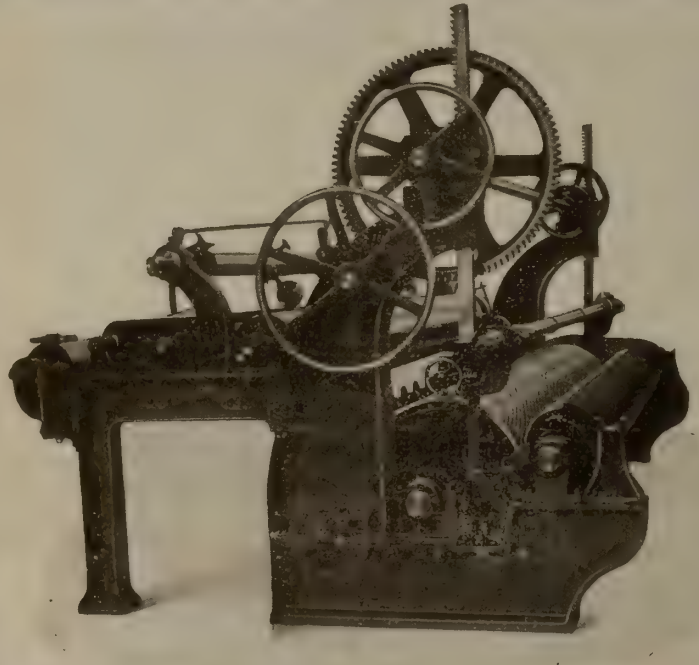
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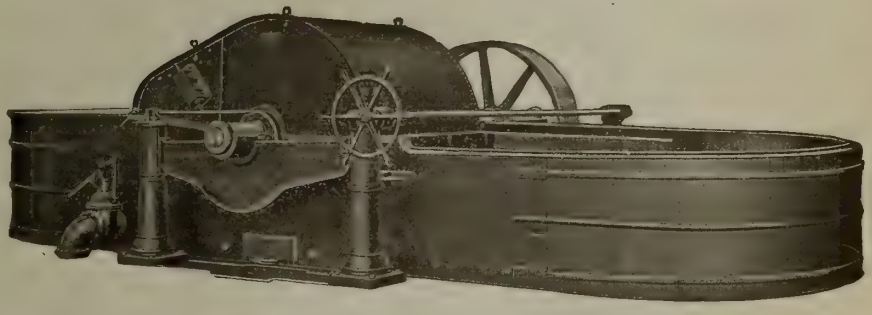
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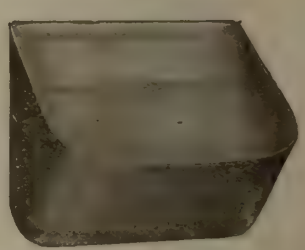
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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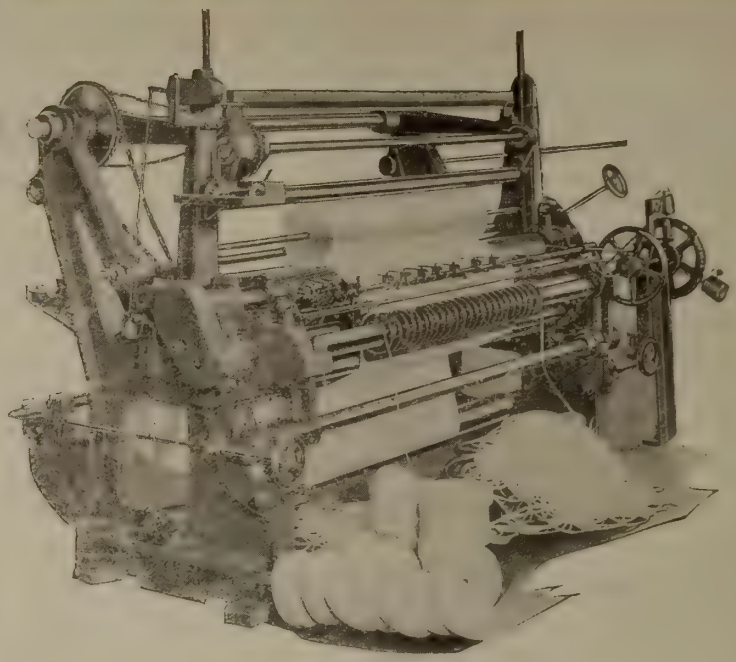
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EDITORIAL

DO IT NOW!

But for the Gallant Defence put up by Belgium, it is admitted that the French Army would have been swamped, Paris taken, the French Western Coast occupied, England unable to send any army to the continent and Germany thus in possession of extensive submarine basis would have threatened British shipping even more so than to-day. Thus we owe our very life to Belgium. Have we done enough for this gallant Ally?

Channels of assistance are still open.

"Unless we get more assistance, hundreds of thousands of the seven million people still in Belgium will actually starve." H. Hoover, President, Commission for Relief in Belgium.

Remember, "A bag of flour supports a Belgian family a month."

Please make cheques payable either to local committees or direct to "Treasurer, Belgian Relief, Montreal."

Do it Now!

KEEP ON LEARNING.

The only way to keep abreast of these swiftly moving times is to keep on learning. This is especially true of the technical side of the pulp and paper industry. The chemists and engineers in this business have a liberal handicap but must keep going if they would win out.

Perhaps the principal reason why a college man studies is because the other fellows are doing the same. The "enthusing" influence of a class room is great. This valuable influence is projected into business life by conventions and other meetings where men gather and concentrate their attention on problems of their work. The aggregate of ideas, the enthusiasm of fellowship and the informing discussions make the occasional gatherings of the technical men of the industry of primary importance.

It seems almost superfluous to urge the pulp and paper mills to take advantage of such an opportunity as is offered by the spring meeting of the Technical Association of the Pulp and Paper Industry at Neenah, Wis., the 24th and 25th of this month. The relations between the Technical Association and the Technical Section of the Canadian Pulp and Paper Society are most cordial. In fact their aims and objects are one and in every possible way, co-operation is encouraged. Canadians are not only welcome, but they are urged to attend. The full program is printed on page 471. One of the best things a mill can do for itself this month is to send a representative to Neenah. Send a chemist, engineer, superintendent. Let him get in contact with the current and he will come back a live wire, to put new energy into your plant. Send the names (or number) of your representatives at once to the secretary, Mr. T. J. Keenan, 117 East 24th St., New York City, so that accommodations may be reserved.

A SQUARE PEG AND A ROUND HOLE.

This suggests a misfit, does it not? But one can whittle the peg a little.

That is about the situation to be developed if the Newspaper Publishers' Association adopts the recommendation to standardize the size of newspapers. The effort to standardize the size of newspapers so as to use a uniform width of roll is a very commendable one and will in time be an advantage to the mill. The suggested size is 72-in. or 72½-in. rolls The effect on the publishers will be a saving of 2 per cent, it is said. To accomplish the change would mean the scrapping or rebuilding of scores of printing presses, or their gradual replacement with standard machines.

In the paper industry it would mean the scrapping of many machines, replacement gradually by those which could make the standard width to advantage or the running of present machines with a more or less uneconomical width of deckle.

The whole scheme is of course a beautiful dream, but some who have believed in a "dream" were sorry they married it. The reason is that human nature wants something different. The changeableness of men —not women only—would make it almost certain that when the standard roll is rolling along, then some powerful and wealthy paper would get tired of the sameness of things and make a break. This fickleness has been manifested on several occasions recently where publishers have changed the form of their papers and ordered rolls to match. After a brief trial, with the mill running on the new deckle, telegraphic orders were sent to change back to the old size.

These flip-floppings in the notions of customers means often a big difference in manufacturing cost. When a mill puts in a machine with the expectation

of catering to a customer who uses 76 inch rolls his trimmed sheet of 152 inches will just cover his wire. If a change is made to a 72 inch roll it means pushing in the deckles and 8 inches of wire is lost. The same expenses, except raw material, go on, but the income bearing production is decreased 5 per cent.

If on the other hand, a mill is equipped for 67 inch rolls, a change of orders to 72 inch would put it out of business. Fortunately any such change would of necessity be gradual. Present presses using 66 and 67 inch rolls would be sold second-hand, and until discarded would continue to demand narrow rolls thus keeping narrow machines going. Where the demand for standard rolls becomes a reality, suitable machines will be installed.

The assurance that in the future, the preponderance of newsprint is to be 72 or 72½ inches wide would greatly simplify the design of mills, the building of machinery (both for paper making and printing), and the making of the paper. We look forward hopefully to the consummation of this ideal situation. In the meantime, the paper mills will give the publishers "what they think they want."

PROHIBITION PROGRESSES.

We note with great satisfaction the recent reports of successful efforts for the betterment of Canadian citizenship and the improvement of industrial conditions. Anyone who has been through a license campaign and election, or even an ordinary election where liquor is sold, is aware of the degrading influence of the stuff on citizenship. The harmful influence of liquor on industrial production and individual productiveness and reliability is too well known to need comment. The large amounts of grain supplies wasted in its manufacture not only destroys that much food, but boosts the price of grain because the liquor men can afford to bid high for it.

The decisive victory of the decent element in Hull removes one more rotten spot from our country. Action just taken in New Brunswick and Nova Scotia are further steps in advance. The Chatham, N.B. "World" says:

> "Our liquor dealers will probably find it harder to get supplies now that the Prohibitory Act is in force in part of the province. St. John, which was the source of supply, can supply no more, and it is said that the Government will not bring liquors on the railway from Quebec to New Brunswick. This if true, will mean homemade liquors in drinking places, and one drink of such stuff ought to make any man swear off."

It is a false philosophy that reckons on the booze business as a **source** of revenue. It is merely an instrument for **distributing** the tax and placing it in large measure on those least able to pay it. By **reducing** liquor consumption, production is increased, accident and sickness expenses are decreased, so that there is more money available for taxes. Certain important public expenses are decreased and the citizen gets a net profit on the prohibition vote. We hope soon to see Canada dry and clean—after long and careful investigation and experiment, water has been found eminently satisfactory for laying the dust.

NORTHCLIFFE—AHOY!

We are not aware whether the hail went up first from the publishers in a cry for help or in an offer from his Lordship. At any rate the newspapers of the United States seem pleased with the prospect of getting some 150 tons of newsprint a day. If the Newfoundland mills can supply that much and get it to the small publisher, as its destination is said to be, a troublesome situation will be greatly relieved.

While we would in no wise disparage the benevolent action of Lord Northcliffe, it occurs to us that it is impossible at this time to transport the product of his mills in Newfoundland to his pressrooms in England. The Federal Trade Commission is said to have a hand in the scheme, if it did not originate the idea. Even so, the ocean is just as deep between New York and Newfoundland and about one-half as far, as between Newfoundland and England.

There still remains the difficulty of obtaining shipping. We hope it will be overcome and that the big mills on the island will not be shut down. A temporary difficulty will thus be relieved and the resumption of normal shipping will leave the situation in nearly its ordinary conditions. There is not likely to be any effect on prices.

OUR NEW SCHEME.

Following the suggestion of several of our readers, we started a new scheme last week, that is, it is new with the Pulp and Paper Magazine. From now on, we shall endeavor to include in the Table of Contents an indication of the scope of the principal articles. Titles of articles of less than two columns will ordinary not receive further elaboration.

We trust that this effort will make the Magazine more serviceable.

A QUESTIONABLE ADVANTAGE.

When a government goes after a corporation with an axe the corporation is likely to lose some of its autocracy. I understand that the government is in charge of the letter files, records and papers of some important people in the newsprint trade, and looking for that pulp conspiracy.

There is, however, a possibly dangerous alliance here between the newspaper publishers and the government. The newspapers have been robbing the paper makers and now that the paper makers have been robbing the publishers the government is called in on the side of the publishers. This is a dangerous alliance, dangerous alike to public interest and to the paper makers. — Adams, in Boston News Bureau.

Economical Operation of Pulp and Paper Mills

By L. WIMMER, Muskegon, Mich.

If a manufacturer wants to operate his mill at lowest possible cost he must first of all bear in mind that mechanical power is cheaper than human flesh and muscles. The place to start to cut down labor is in the wood yard where the railroad switch engine leaves the wood or if wood is floated in by water where it stops and is ready for the process of manufacture.

If the wood is shipped by rail it naturally arrives most of it in the winter and early spring. To save handling, whether the wood is hemlock or spruce, it should be sawed in two foot lengths as soon as it reaches the yard. The most economical arrangement is a slasher outfit of a capacity to keep same in continuous operation during the period the wood is coming in. This should be a separate equipment from the woodroom and whatever wood is required for operating this mill while cutting season is on if same is not used from a dry pile arrangement and made to feed woodroom from the slashers during operation and balance is carried out to the storage pile by means of a high conveyor. Of course arrangements can be easily made in case the slashers are shut down to feed the woodroom from a large wood pile already sawed in convenient lengths. This is generally done by floating the wood from storage pile to woodroom or by means of a low conveyer.

About the same rule applies to wood that comes in by water. In this case the slashers are operated in the summer time while in the former case the slashers are operated in the winter. Wood piles are conveyers are so arranged that green and wet wood can be stored into separate piles and at the same time wood from a dry pile is used for operating the mill. Hardly anyone realizes the amount of money and labor saved in handling wood that way not only in unloading but also in the operation, especially in Sulphite Pulp mills. By using dry wood for making sulphite the yield per cord is higher, considerably less chemicals such as sulphur and bleaching powder and a larger production is obtained, with less chances for raw stock.

In case of ground wood pulp mills piling or storing for drying is not required, fresh wood is used to better advantage regarding fibre and production.

Woodroom.

To get the best results in woodroom especially when machine barkers are used a water spout or a canal is arranged for alongside of barkers and wood is brought to barkers by means of water, this water is kept warm in the winter time so as to throw the ice and frost off the wood. This enables the barkers to run at even capacity the year round, also saves dust and wood is barked more economically. Another good arrangement is to have holes cut in the floor at convenient places near barkers, etc. with refuse conveyer underneath so as to enable a quick cleaning.

By using these methods, the writer decreased by 12 men the labour force in a woodroom of 100 cords per yard day capacity.

All refuse from the woodroom should be carried directly to the boiler house. Boilers are provided with a Dutch oven front and shavings, etc., are fed directly into the fire-place. It is also of great importance to have all barker and chipper knives well balanced before using and set exactly alike. If Green Bay barkers are used knives should be balanced and ground by a machine, otherwise they soon become uneven in curve and the result is not only a waste of wood but wear in machine resulting from uneven and unbalanced cutting.

Acid Towers.

Acid towers should so arranged to allow cleaning and refilling during the week without reducing the capacity thereof as Sunday work is expensive.

Boiler House.

Where lump coal is used it should be unloaded directly into the crusher and carried up into coal bin which is located over boilers. This is provided with feed spout to stokers and feed should be automatical. The coal bin should be large enough for several days' supply, also extra reserve pile can be kept in the yard for emergencies.

About the same rule prevails where the coal is fine only it need not be crushed. It is unloaded directly into the conveyer and carried into the coal bin.

Waste heat from the boilers should be utilized to heat feed water or for other economical purposes. All exhaust steam should be used for drying paper or pulp and condensation used over again after separating from oils, etc.

Screen Room and Wet Machines.

After a thorough washing of Pulp (chemical) as much white water as possible should be used over again and balance run through a save all to save possible waste and same pumped back into a stock tank.

Screenings and knots should be refined and put up in laps for sale or a special grade of paper made. Grinding should be done as follows. Where the production of screenings and knots is not large enough to keep a refiner in continuous operation screenings should be piled near the refiner until amount is large enough to keep refiner and one wet machine or more in continuous operation for 24 hours. Screenings, etc. are then fed into the refiner automatically by means of conveyer and water. Much wear and power as well as waste is saved this way. Refiner is shut down again after screen pile is ground up.

Bleach Room.

Sulphite pulp made for bleaching should receive a special treatment in acid and cooking. Stock in process of bleaching should be as thick as possible and circulation good. The best arrangement for economically bleaching sulphite or other chemical pulps is an arrangement put together and improved by the writer, which is as follows. A continuous system is used which consists of a battery of long concrete beaters, which range from five to fifteeen according to capacity of the mill. They are not over seven feet high.

Operation is as follows: The stock is pumped or dumped into beater No. I from storage tank or directly from deckers. Each beater is provided with a circulating pump or propeller at the end, the stock is heated generally before it is dropped into the beaters and bleach liquor added also. Kept in continuous circu-

lation, the pressure of stock from deckers or pumps will cause the stock in process of bleaching to run from one beater to the other and when it reaches the last one, bleaching is complete. The stock then runs continuously through a set of washers where cold water is added and thoroughly washed.

From the washers the bleached pulp drops in a heavy mass into a storage tank and from there it is either pumped directly into the beaters for paper-making or over the wet machines for shipping. Bleached pulp in thick form after leaving the washers can also be directly carried by means of a screw conveyer or bucket conveyer into a tank located over the beaters and dropped into the paper making beaters by means of a slide valve located over head of beaters.

The warm water washed out from bleached pulp is reclaimed, that is stored, and used over for making bleach liquor. By this any bleach liquor wasted in bleaching is used over again. Also a good amount of steam is saved.

The advantages of operating this battery beater system for bleaching are: saving of power, pulp can be used as heavy as possible, saving of labor and handling, also considerable less bleach liquor or powder is used.

Until recent times, continuous bleaching was only possible in large concrete or wooden tanks provided with agitators. Where a gravity system was used, the stock could not be bleached thick enough, therefore decreasing the capacity of the tank and using more power and bleach liquor. Some continuous tank systems are operated by a circulating pump or pumps. This operation requires an immense amount of power as the pulp is lifted about from 20 to 30 feet. While in the system described, the lift is only from 6 to 7 feet, the circulation better and the stock can be bleached heavier.

Liquor for bleaching.

Where bleached powder is used, a system used and improved by the writer, has proven the most economical. Operation is as follows:

The powder is mixed in a concrete or iron tank provided with baffle plates and circulating pump. A whole cask of powder is dumped into the mixing tank first filled with water about a foot over the baffle plate circulating pump started and allowed to circulate for about 20 to 30 minutes and mixture is then pumped into concrete selling tanks. After liquor is settled the clear liquor is drawn by means of a syphon pipe into a storage tank located underneath the settling tanks, and sludge is washed into a sludge tank. After enough sludge has accumulated, same is washed over by the circulating pump to the original mixing tank with the addition of a large amount of fresh water. This weak liquor is pumped into the wash liquor setting tank located on top of storage basin and allowed to settle. The clear liquid is drawn directly by means of a syphon pipe into the storage tank and mixed with the strong liquor. The sludge generally in this tank is free of available chlorine and is washed into the sewer. Should it be found to contain available chlorine it can be washed over again as described.

In this operation of making a bleached liquor as described, the first liquor is made a little stronger, from 6 deg. to 7 deg. Baume and the second liquor from about 1 deg. to 2 deg. Baume. By mixing same, the liquor will test for bleaching about 4.5 deg. Baume to 5 deg. Baume. In operating this system the writer has made from one pound of ordinary bleaching powder from 2¼ to 2½ gallons of bleach liquor at a test of 4.2 deg. to 4.5 deg. Be and by treating wood specially for bleaching, also using bleach beaters as described, has bleached hemlock pulp with 250 lbs. and spruce with 220 lbs. per ton dry weight.

Under the present conditions of prices and market of bleaching powder and future outlook, it is hard to know whether an electric bleach liquor system would be more economical than a powder system. However when the market price of bleaching powder comes down to 1.25c per lb. there is no doubt that a powder system operated as above is as economical as an electric system ever will be. Furthermore a powder system is more simple and installation or construction is low, or nothing compared with the cost of an electric system, which always counts.

Beating and Handling of Pulp for Paper Making.

The old method of running pulp over the wet machines into laps and throwing same into the beaters is rapidly becoming a thing of the past with the exception of mills that have to buy their pulp.

In paper making if beaters are used a large amount of labor, felts, power, etc. is saved by running pulp over deckers and storing same in thick form either in concrete tanks and pumping into the beaters as required or in tanks located overhead and dropping into the beaters by means of opening a valve.

Where mixing tanks are used, all pulp is measured into them for paper making. Percentage of water contents are known and kept even in each kind of pulp used, capacity of mixing tank per inch of depth. is known and same provided with a gauge board, the percentage of each kind of pulp required for certain grades of paper is known, hence the operation is not difficult. Of coure intelligent operation and close supervision is necessary for satisfactory operation.

Where beaters are used and both kinds of pulp are pumped or dropped into the beater it is necessary to provide beater with gauge board and to determine contents of beater per inch. The percentage of water in each kind of pulp must also be known and number of pounds of dry pulp per inch in beater, all pulp kept uniform and beater engineer provided with table showing percentage of dry pulp in lbs. of each kind per inch of beater contents, the percentage of each kind of pulp for different grades of paper required is known and economical operation of this system is not difficult by intelligent operation and close supervision.

Management of Repairs and Supplies.

The management of repairs and supplies differs with the size of the plant. In large plants a master mechanic is necessary who has full charge of repair crew and repairs also supplies. He is subject to consultation with the different department superintendents or foreman, and under the supervision of general superintendent or manager.

To save a mill from unexpected shut or break downs as much as possible a supply of duplicate parts, especially smaller ones such as small gears, pinions, fittings and shafting, also sprocket wheels and beltings of all kinds is kept on hand. The mills where everything possible is done to have supplies in all cases, duplicate parts of large shafting, gears, etc., are also kept on hand.

The oilers and different foremen should be taught to watch all machinery carefully and any sign of wear, etc., should be reported to the master mechanic or superintendent to replace same should be made before a break down occurs. At such times a temporary shut down will not decrease production. After

such men who are watching machinery are taught and followed up in watching machinery and looking for defective parts it will soon become a habit with them and it will surprise anyone how easy it is to reduce break downs.

A system of supply keeping in storeroom is also necessary and cards should be kept for each part to know at all times without expending much time in looking up all parts on hand to find out what material there is on hand. Of course each part on hand should have its special place assigned to and kept there.

A good plan is to have patterns made of machine parts, blow pipes, fittings, etc., which are more apt to break, specification and drawings kept on file also numbered, and parts are ordered by numbers of different material.

A good sum of money can be saved by having patterns kept in a foundry, and rough parts ordered and finished in the mill's own shop. Of course all supplies going out of the storeroom to different departments, in the mill are charged at cost, which should be determined by cost of rough part, labor and hours of machine work done generally by a tag attached to each part. This will enable the cost clerk to determine the cost of repairs in each department and statement is issued each week or month to each department head or superintendent. This will soon reduce the repair bill as each foreman or superintendent naturally wants to make the best showing.

Delays and Remedies.

A machine made for paper or pulp mill work is made to run 24 hours per day and the idea is foolish that a man can get around this machine with oil can or greaspot and notice all parts without the use of a candle or lantern.

In barking, wet machines, pumps, etc., that are run by belts, the wear on belts can be noticed and fixed before they actually break. This is also the case with machine parts. A report should be kept each day and a chart system introduced as to operation, delays, production. etc. The report should show each machine operated and shut down, length of time and cause. A statement should be insured each week or month to formean showing time lost through delays, etc., by doing this, it will soon be noticed that delays, etc. decrease until they actually disappear.

The old method of keeping different foremen in ignorance as to delays, operating cost of all kinds of material used. labor cost. etc. is soon becoming a thing of the past. How can a foreman, etc. become interested in reducing expenses of he does not know each month or week what he has accomplished, not only in production but also in efficiency and scientific operation?

A good many troubles will disappear by stimulating the ambition of department foremen so as to get the best results.

To get the most out of digesters it is necessary to arrange cooking time by the production and quality required for certain kinds of papers.

Pulp cooked eight hours is not as good as pulp cooked nine. ten. eleven or more hours. The yield is not as high fibres are not as strong and more bleaching powder is used to bleach same. All time possible should be spent in actually cooking and no digester should stay idle for any cause except when repairs are made in lining.

Different cooking schedules should be made for eight, nine, ten, eleven hours and so forth, time decided on and carried out.

In one large mill there were three 14 ton digesters when the writer got supervision. The time lost in delays was from 8 to 10%, sometimes more, caused by repairs and other unnecessary waiting. I decided on a cooking time of a certain length according to production wanted, and made out cooking schedules accordingly. These were followed closely and in course of two weeks the percentage of delays disappeared. We got more yield per cord, the pulp was cleaner and stronger and consumption of bleaching powder decreased 50 lbs. per ton.

Raw Stocks, Sulphite.

If a man had all the money that has been wasted and is wasted now in cooking sulphite pulp, he and his grand children and several others would never have to work another stroke and live in luxury ever after. Stock is spoiled in most cases not in carelessness but in misunderstanding in the principal part of cooking sulphite pulp.

I have cooked a good many digesters in some of the best mills and my experience has been that it is almost impossible to spoil digester if the acid is right, wood is not mixed and circulation is good at the start in the ordinary way of cooking, unless something out of the ordinary happens. Of course there are special ways of cooking different grades of pulps. This requires special knowledge. In one mill where I was superintendent, we were always careful to get the right start and I made it my daily routine work, amongst other things, to keep asking the cooks how digesters started. etc. and it soon became a habit to them to tell me when they had trouble. They were never afraid to tell me when they had trouble, the result was that we made 900 cooks in succession of the very best stock without one hard one.

Cooking is one of the most particular jobs in a sulphite mill and so are cooks. The better the cook the worse he feels sometimes and there are few who know why. The reason generally is that he wanted to make special good pulp or cook a little faster, usually to make a good showing and he could not get the digester to work as he wanted it to. And as it happens sometimes just at this particular moment someone inexperienced in the line of cooking comes along and gives him a calling down and the result is that a good man feels that he is abused and misunderstood, while on the other hand someone who has confidence in him and who understands cooking comes along and talks to him, learns his troubles, offers suggestions, etc. The results are more gratifying and a better feeling is the result. A good many of the very best cooks lose their jobs because they are abused and misunderstood. Naturally a cook is not a great diplomat and he does not feel like taking abuse from anyone who does not understand cooking. In a mill where the superintendent or manager is a man who understands the main features of cooking, he lays out a schedule, decides on the cooking time, introduces a system, charts, etc. All cooks follow this and results are the best. Should anything turn out wrong he takes the blame and does not jump on anyone unless negligence of a certain man has been proven.

It has been a common excuse and is now in a good many mills that where the men higher up did not understand their business to blame everything on the cooks with the results that changing of cooks did not remedy things until other changes ere made.

A good chemist should be employed in all up-to-date mills, not only because he sometimes saves a considerable amount of money, but also for efficiency and scientific control.

Sulphur Consumption.

By using large digesters not larger than 10 ton capacity and the right reclaiming and acid system, in making sulphite for news, bags or cheaper grade of paper,the sulphur consumption can be reduced to from 200 to 220 lbs per ton of air dry pulp. In making high grade sulphite either bleached or unbleached for the market, the sulphur consumption seldom is brought below 240 lbs. per ton when using spruce. When using hemlock the sulphur consumption is generally a little higher.

The smaller the digester the higher the sulphur consumption is per ton. The reason probably is due to the past that there is more circulation in digesters and liquor and gases do not separate as well in digesters during the cooking time. Or in other words, the smaller the digester the smaller is the quantity of dry gas relieved from top because after all it is the dry gas or amount reclaimed that reduces the sulphur consumption, besides the proper absorption of gases in the acid system and the proper burning and oxidation of sulphur.

Theoretically a sulphur consumption of 180 to 190 lbs. per ton should be sufficient, but in practice this figure has not been obtained except in half stocks. Of course this is not sulphite making.

Actual experience has shown and is now showing that by using a reclaiming system improved by the writer a sulphur consumption of 220 lbs. per ton is obtained. All liquor from the digesters is wasted that is run into the sewer. This liquor tests on an average of 1.20% of free SO_2. The saving of gases from this liquor without using the liquor would amount to at least 30 lbs. of sulphur per ton. Without using the liquor this would mean a sulphur consumption of 180 to 190 lbs. per ton. It is the writer's opinion that this result will be accomplished in time.

Pitch in Sulphite Pulp.

A good many mills, especially news mills using spruce sulphite are bothered by pitch. There are several ways to get rid of pitch. A sure method is to allow spruce to dry completely in the yard before using it and using hot water to wash the stock in blow pits. However, most mills think it is to expensive and other ways are looked for. A proven fact is that excessive heat in cooking destroys the pitch entirely.

The following method used by the writer proved entirely satisfactory. When I had green or half dry wood (spruce), I arranged for a different acid that is higher free SO_2 and less combined. I also was particularly careful in arranging for a lime or a limestone containing a large or high percentage of magnesium. Next all liquors from digester during cooking time were wasted. Next I arranged for special cooking whereby the digester temperature was brought up before blowing off to nearly 160 deg. centigrade without injuring the fibre. The cooking, especially at the last point, was carried out with as much steam as possible.

Riffler boards were covered with felts and watched, also changed often, and we had no trouble with pitch.

Special Knowledge.

Most all manufacturers are aware of the fact that manufacturing, especially chemicals and other products such as leather, pulp, paper and other articles is more or less specialized and special knowledge is looked for by the up-to-date manufacturer.

In paper making you find men who are experts in making news, colored, book paper, etc. but as soon as they take hold of another grade they fail. The same is the case with different chemical pulp and ground wood men.

The ordinary pulp or paper manufacturer who does not recognize special knowledge is behind the times and sooner or later he will find out that others have passed him in all ways.

If there was no special knowledge in pulp and paper manufacturing, high grade men would soon be replaced by cheaper ones and the men who have made a special study of certain pulps and papers would find that they have wasted their time and best years in perfecting methods they can never use. However, special knowledge is becoming more and more recognized. Special knowledge is only obtained by intelligent men who have started young in certain lines, have made a study and have worked their way up without any pull or friendship from men higher up. They were always looking for better ways and results coupled with experience from different mills, not only new ones, but also old ones where things were going bad and improvements made.

There are men today that can go into a pulp or paper mill where there is trouble and remedy it in a short time. For every trouble there is a reason and some men who have had experience and know their businss will soon find the remedy.

COST OR REPLACEMENT VALUE.

Much interest has been shown recently in the matter of inventory values of stocks on hand.

With prices of commodities constantly rising, it has been a question as to what would be a fair financial statement by a concern that seeks credit on the strength of its assets. Judging from the low prices at which some of the retail establishments—and even jobbers at times—have been selling their goods, their standardshave been the getting of a profit on the cost of the merchandise, no matter when purchased.

When seeking credit, however, many concerns have put down the stock on hand at replacement values. What is the fairest way of making a statement of assets has come up often lately in the discussions of credit men. No conclusion which is generally accepted seems to have been reached in the matter. Yet perhaps the best way of acting would be to follow the example of the big financial institutions which in their statements have two columns, one showing cost price and the other market, or replacement, value.

Sucha statement, says the New York Times, by a mercantile concern would have manifest advantages, not the least, being that of enabling a credit man to checy up the accuracy of the items, and so determining whether the debtor was disposer to be fair.

AFTER THE WAR PAPER PREDICTION.

It is alleged, one thing the paper makers can be sure of is that the producers who get the biggest possible prices in the present temporary exigency won't get the bigest possible business when the war is over and the paper buyer again has his innings.

Some Valuable "Dont's" for Users of Belts

By ALEXANDER T. DEINZER, Chemical Engineer.

The old saying that "Advice is more easily given than taken" applies to the use of belts with a big "A". It is a case in which we are confronted with the curious anomaly that there are times when it is more profitable to ignore good advice than to take it. There are many valuable "dont's" for users of belts, but quite often we "do" some of them, and at times when there is no excuse for it.

Foolish Use of Shellac.

I recently visited a mill and was surprised to observe a machine helper apply shellac on the belts. Asked why he did so, he replied, "So as to make the belt pull." The writer proved to the superintendent of this mill that some of his belts were overloaded, proper widths were suggested and after applying the right kind of belts their belting troubles were eliminated.

Again, a belt may become too slack to carry the load, and a number of machines and men may be depending on this machine for material, or several machines may be depending on this belt for power. Or, perchance it is an endless belt and could not be taken up until the end of the day, or possibly on Saturday night or Sunday. It is not uncommon to find employes using soaps and rosins in cases of this kind; or, some may use what they call a "home-made" belt preparation. These dopes will usually do more harm than good. There are, I am glad to say, a few good belt preparations. When such preparations are not handy, I recommend the use of castor or neatsfoot oil for leather belts and boiled linseed oil may be used for rubber belts. However, always have an ample supply of good belt dressing on hand.

Don't Use Too Much Dressing.

Do not use too much dressing. Dressing usually forms a gum and collects into lumps on both belt and pulley, making the surface uneven into lumps on both belt and pulley, making the surface uneven and destroying the contact. In such cases nothing should be put on the belt for either temporary or permanent aid until the surface is clean.

You would not think of operating your engines or paper machines without lubrication. You should also lubricate your belts. A belt properly lubricated bends easily, hence an enormous amount of power is saved. This should be evident. Again, a belt properly lubricated will last two or three times as long as one that has been neglected in this respect.

How Moisture Causes Trouble.

One very common cause of trouble with engine belts is the fact that such belts usually run under the floor, where there is considerable moisture. Then the oil table under the average Corliss engine will leak around dash-pots and rocker-arms shafts, and some oil will fly from the eccentric oil cups, get into the wheel, run around the rim and get to the belt. If the belt is not filled, a very few drops of oil will make a large spot on it. Then, if an engine does not run the whole twenty-four hours, while it is **off watch a few drops of water** from a leaky valve stem whose bonnet drain is sotpped up, as it will sometimes be, has a way of getting through the floor and falling on the belt and running down the inclined inside of it finally comes to the flywheel, which, with the assistance of its crowning face, very kindly makes a nice pocket for said water and proceeds to drink it up. It is unnecessary to state results. You want to eliminate this trouble? You certainly can, box up that flywheel and put a tight roof over the belt. The small cost of so doing will pay excellent dividends.

Almost every efficiency engineer, in attempting to bring up the speed of his machines to what he knows is posible, has found that such attempts usually result in the belts slipping and breaking or the lacings giving out, and he knows that where the care of belts is left to the man on the machine, in only a very few cases can the belts be depended on to do the maximum amount of work.

Proper Tension and Inspection Necessary.

Belts of the best quality must be used at proper tension, and they must be kept in first-class condition and inspected outside of working hours. Very few paper mill millwrights, machanists or even foremen know how to tighten a belt properly, the amount to be taken out being guessed at, and much time is lost through the machine standing idle while the cutting and trying is going on. It is not uncommon to find belts, which have been made too tight on "cross cones", i.e., on slips not in line with each other, the result being that the belt twisted itself up like a corkscrew and was practically ruined.

So many make the mistake of running the flesh side of the belt next to the pulley. It is certainly an absolute fact that if the flesh side would give as good service as the tanned side, the tanner would have no need of devoting so much time and care to getting a good face on the belt.

Pulley Coverings.

Pulley coverings have become very popular within the past few years, and they do really assist very much, for the reason that the belt can be run slack; hence gives more durability and one gets more power from the belt. Pulleys covered with leather will enable one to operate with slacker belts than would ordinarily give efficient results.

Anyone having made a study of transmission cannot help but be impressed with the folly of intensely tight belts, especially as they are unnecessary. Imagine the much longer life of a belt stressed only 215 lbs., as compared with being stressed 1,345 lbs. Rather than buy new and larger belts in installations that are being enlarged, I recommend increasing the stress in slack belts, so long as they pull easily, without slip. It may even be a good plan to install an idler pulley to prevent slip in extreme cases.—Paper Trade Journal.

COMMERCE DEPARTMENT HELPS PAPER MILLS

The Department of Trade and Commerce has received many enquiries from abroad during the past year for pulp and paper, especially paper. The Commercial Intelligence Branch communicated with all the leading pulp and paper manufacturers of Canada in reference to them, but have found it impossible to get any of them to accept new orders for export. In Australia, New Zealand, South Africa, South America and the West Indies paper is urgently required, but the Canadian manufacturers are so busy with home orders and orders from the United States that they are not interested in enquiries from overseas. On file in the office at Ottawa are samples of paper required in different countries, and many samples have been sent out to Canadian paper manufacturers.

Coal Situation Before Parliament

The question of commandeering coal was discussed in Parliament last week by the special committee dealing with the consolidation of railroad legislation, Hon. Rodolphe Lemieux and Mr. Francis McCrea, of Sherbrooke, argued that when railways commandeered coal invoiced to other parties, the railroads should pay damages not only on the invoice, but any other damages which might result.

No decision was reached in the House, but the matter will come up again when the clause in the bill dealing with the penalties is reached. The coal situation to local pulp and paper making mills, though showing an improvement over a few months ago, is still not all that could be desired, and plants manufacturing pulp and paper trade products would welcome the opportunity to augment their supply for present use or of storage purposes.

The question of whether or not railways will be held liable for damages beyond the invoice price of the coal, is one that will be of considerable moment of pulp and paper manufacturers in Sanada. As matters stand, if a railway commandeers coal invoiced to a consignee, it pays the invoiced price. Under the proposed new order of things, if a mill owner has his supply of coal commandeered by the railroad, he shall not only be entitled to receive the invoiced value of the fuel, but, in addition, will also receive payment for any such just damages or losses that he may incur, caused through the commandeering of said fuel.

"The fuel situation has improved over a month or so ago, but, we are still willing to purchase coal even though we have to pay from two to four dollars a ton over the price of other years, if we can get it," said one of the leading pulp and paper manufacturers here last week.

In a nutshell, the situation of the local mill owners and pulp and paper manufacturers is that they are willing and ready to purchase coal on delivery at their plants, and pay from $2 to $4 per ton more than they did eighteen months ago—if they can get it—delivery guaranteed.

They not only want to have enough to operate their plants on for the present, but wish to ensure themselves of an adequate supply for operation of their plants, for some considerable time in the future. Candidly they are eagerly awaiting an opportunity to lay in a "storage" supply, which will stand them in good stead during the "lean times," which they prophesy may come in the near future.

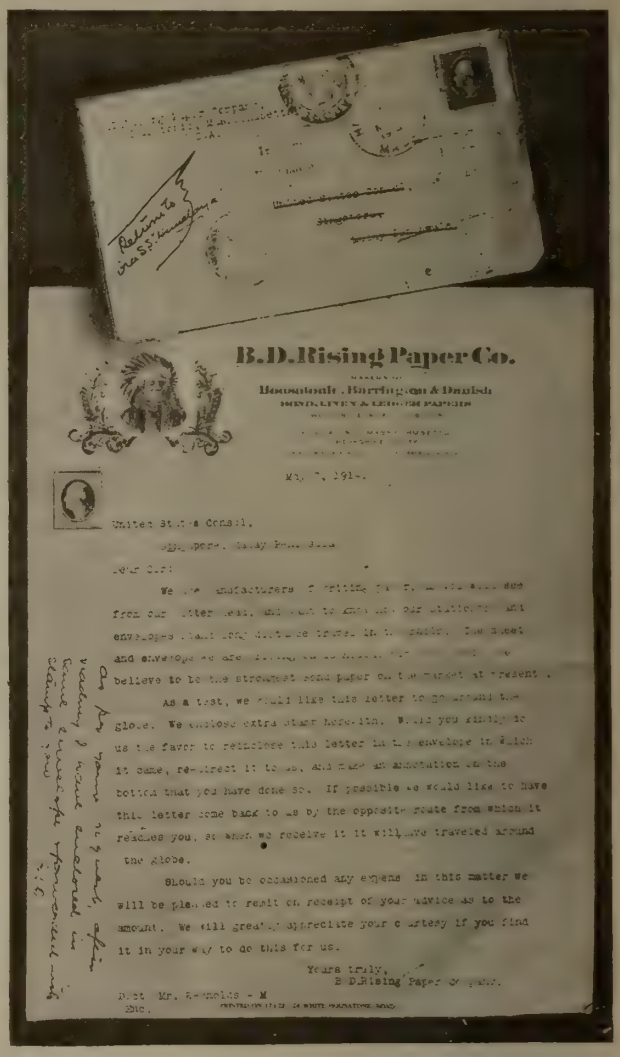
Locally at least, the experiences relative to the difficulty in securing fuel has opened the eyes of pulp wood and pulp wood product manufacturers, to a greater extent than they had been opened before.

The "hand to mouth system" that they had to operate on last winter and this spring has satisfied the far-sighted Canadian mill owner than an indefinite supply of fuel is not a sound business principle, and to guard against a recurrence of similar or possibly worse conditions next winter and spring—he is setting himself about to lay in such a supply of coal that no matter what comes or goes he will feel sale in operating his plant in the "stress" period.

An idea of the vast amount of shipping that is borne by the Great Lakes can be gained from the fact that the normal tonnage through the canal at Sault Ste. Marie is 80,000,000 tons.

Letter Went Round the World

Some time ago, the B. D. Rising Paper Co. thought that a practical test of wearing qualities of business correspondence paper would be to see how a letter would endure a journey around the world. They started out letters on Housatonic Bond to the United States Consuls in Hong Kong, China, and Singapore, Malay Peninsula respectively, asking them on receipt of these letters to re-enclose and re-direct them, so that when received by us, they would have been around the globe. This was done. Several months afterward the letters came back, one of them some weeks ahead of the other. Both of them showed the signs of wear. The envelopes and paper were very much creased,



rumpled and soiled, but the paper was intact, there were no tears or breaks except such as had been caused by opening the envelopes. This is the hardest test that could ever be applied to business correspondence in actual use.

The illustration shows one of these letters, just as it came back, together with the notations of the Consuls. The Consul at Hong Kong noted, "Both envelope and letter came in excellent order." The Consul at Singapore wrote, "As per your request, after reading, I have enclosed in same envelope and forwarded with stamp to you." The Singapore letter came back via the steamship Himalaya, and the Hong Kong letter via the steamship Siberia. Under the government regulations one is not allowed to reproduce stamps, but they have been indicated.

A New Test for Size-Fastness

Proposed Method for Determining the Sizing Qualities of Paper.

By STANLEY A. OKELL. F. C. S.

The methods for determining the sizing qualities, or water and ink-resistant properties, of paper that have been devised by Kollman, Teclu,Leonhardi, Schluttig and Nepmann, and which are described by Herzberg, Cross, Bevan and Sindall are no doubt familiar to all paper mill chemists. All will agree that these methods leave much to be desired in the way of accuracy, too much being left to the judgment of the operator's eye in gauging the depth of color produced after a given time by interacting test solutions applied to opposite sides of the sheet.

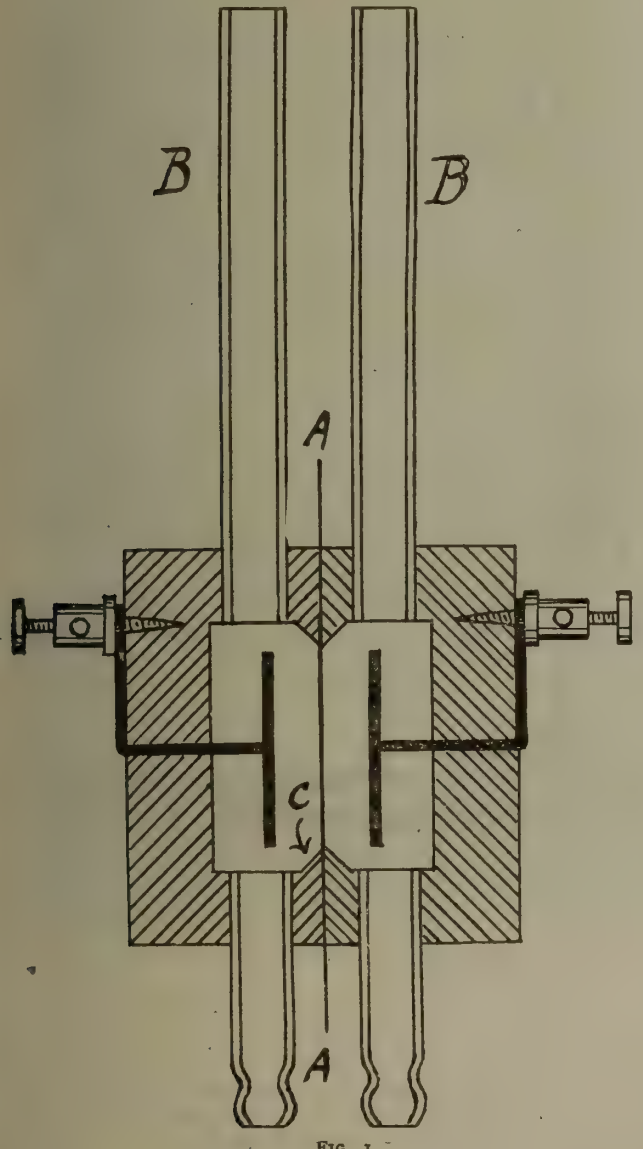


FIG. 1

In the method here described it is proposed to do away with this objection by applying a solution of an electrolyte, under constant slight pressure, to both sides of the sheet, a direct measurement of the gradual rise in conductivity through the sheet being made as it is gradually permeated, and finally saturated, by the solution. By taking readings of the conductivity at certain intervals of time and plotting out the resulting graphs, some very interesting curves are obtained.

The writer makes use of Kohlrausch's method of determining conductivities, in its simplest form.* A somewhat peculiar type of conductivity cell (Fig. 1) is used to hold the piece of paper A, A, which is to be tested. The two halves of the cell are kept securely pressed together by a pair of springs fixed to the brass mounting. When the paper test piece is in position it divides the cell into two compartments, each containing one of the electrodes. Two glass tubes are fixed in a wooden holder which is capable of being moved up and down on a separate stand (see photograph Fig. 4). These two tubes are containers for the solution when the cell is empty, and they are connected by rubber tubing to the two nipples on the under side of the cell so that on raising the tubes the solution is caused to flow into the two halves of the cell and come to a level at a certain mark in the tubes, B, B, Fig 1, thereby assuring that the pressure on both surfaces of the paper is the same for every experiment. The sloping surface at C is in order to cause any remaining drops of liquid in the cell to flow back through the tubes instead of leaking out when the cell is sprung apart in order to insert, or take out the paper.

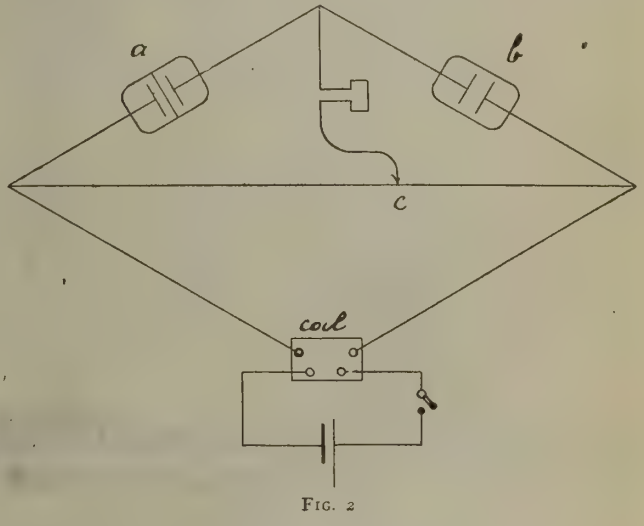


FIG. 2

The whole apparatus is in effect a Wheatstone bridge in which an alternating current from an induction coil is used in order to avoid electrolysis of the fluid in the cell and polarization of the electrodes, which would of course give trouble if a direct current were employed. A telephone receiver takes the place of the usual galvanometer, and the readings are obtained by observing which position of the slider on the German silver resistance wire gives the minimum sound in the receiver, at any given time (Fig. 2). The sharpness with which this point can be distinguished is greatly augmented by depositing a film of platinum black on the platinum electrodes of the cell. This is easily effected by electrolysing a solution of platinic

(*)—For details of Kohlrausch's method, consult Jones's "Element of Physical Chemistry" (Macmillan).

chloride in the cell, first in one direction and then in the other, for a short time with a direct current from a battery.

The best solution to use in the divided cell is normal potassium chloride containing 20 per cent of glycerin. If KCl solution is used alone the fall in resistance of the cell is so rapid as to make the taking of readings a matter of considerable difficulty. By increasing the quantity of glycerin in the solution, the rate can be regulated within wide limits, and this further has the advantage of making the character of the liquid more nearly approach that of an ink. The balancing resistance b (Fig. 2) is a simple conductivity cell charged with KCl solution.

Before using the apparatus the divided cell, without any paper in between, is charged with the proper quantity of KCl and glycerin solution, by raising the

The results of tests on some samples of paper are given in the chart (Fig. 3). It is significant that if the tests are carefully carried out all the points are in the direct path of the complete curve and no averaging is necessary in joining up the points, which shows that the surface of the sheet exposed to the liquid (about one square inch) is ample to regulate automatically the effect of any slight difference in penetrability at different points.

It will be noted that the first part of the curve shows a comparatively slow rate of increase in the conductivity of the cell, then a more or less quick drop, varying with different papers, followed by a gradual slowing up until the line finally becomes horizontal, when the paper is saturated.

The first part of the curve is somewhat anomalous, as it is absurd to suppose that the rate of penetration

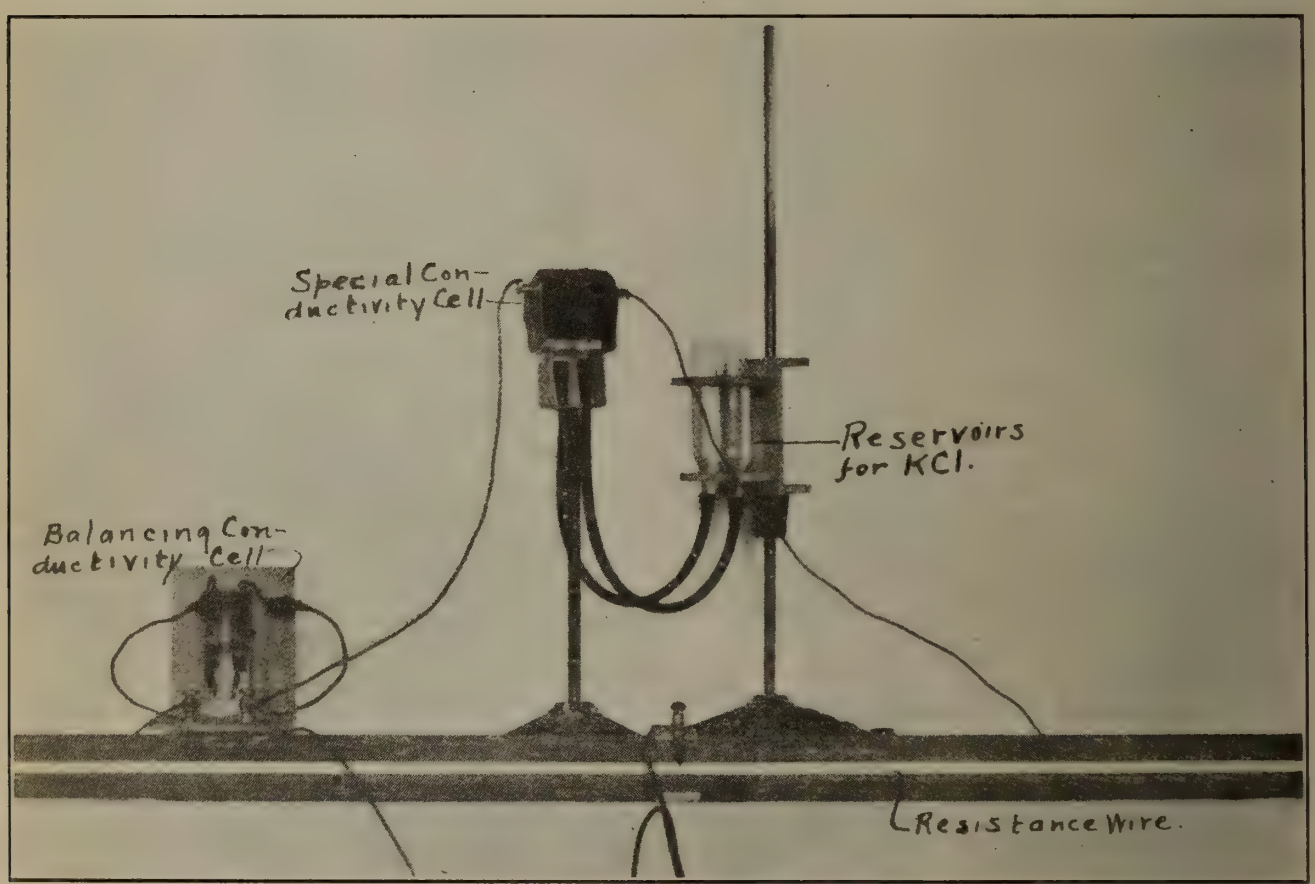


Fig. 4.

containers, the slider is set at 100 on the scale, and the concentration of the solution in the balancing cell is adjusted until there is no sound in the telephone. The 100 mark then corresponds to the maximum conductivity which the divided cell can manifest. To make a test, a piece of paper is inserted in the cell and the slider is returned to zero. The two containers, are quickly raised so as to allow the solution to fill both compartments of the cell, and the stop watch is started simultaneously. Readings are then taken every fifteen seconds or so until toward the end of the curve, when one-minute to two-minute intervals will suffice owing to the rate of penetration slowing up.

of the solution is any slower at this stage, whatever the change in resistance may indicate. The explanation lies in the thickness of the sheet and may be understood by making the natural supposition that the liquid, in penetrating the surface, presents not a uniform wall of liquid, but is rather broken up by the fibers, etc., of the sheet into numerous small streams, most of which have as yet not met in the middle. When the meeting does take place it is pretty general all over the system, hence the more or less sudden drop in resistance. The reason for the shape of the curve from this stage to the point of complete saturation is too obvious to need any explanation.

Particulars of the furnish for the samples which give the results in Fig. 3 are as follows:

No.	Thickness.	Lb. per 1,000 lb. pulp Rosin.	Clay.	Alum.
1	.0065 in.	4.0	50	20.0
2	.0030 "	5.g	182	22.7
3	.0057 "	16.0	none	40.0

The photograph (Fig. 4) shows the hard rubber divided cell, the electrolyte containers, the balancing conductivity cell and part of the graduated German silver wire with the slider. The telephone, battery and coil are not shown.—From Paper, April 11, 1917.

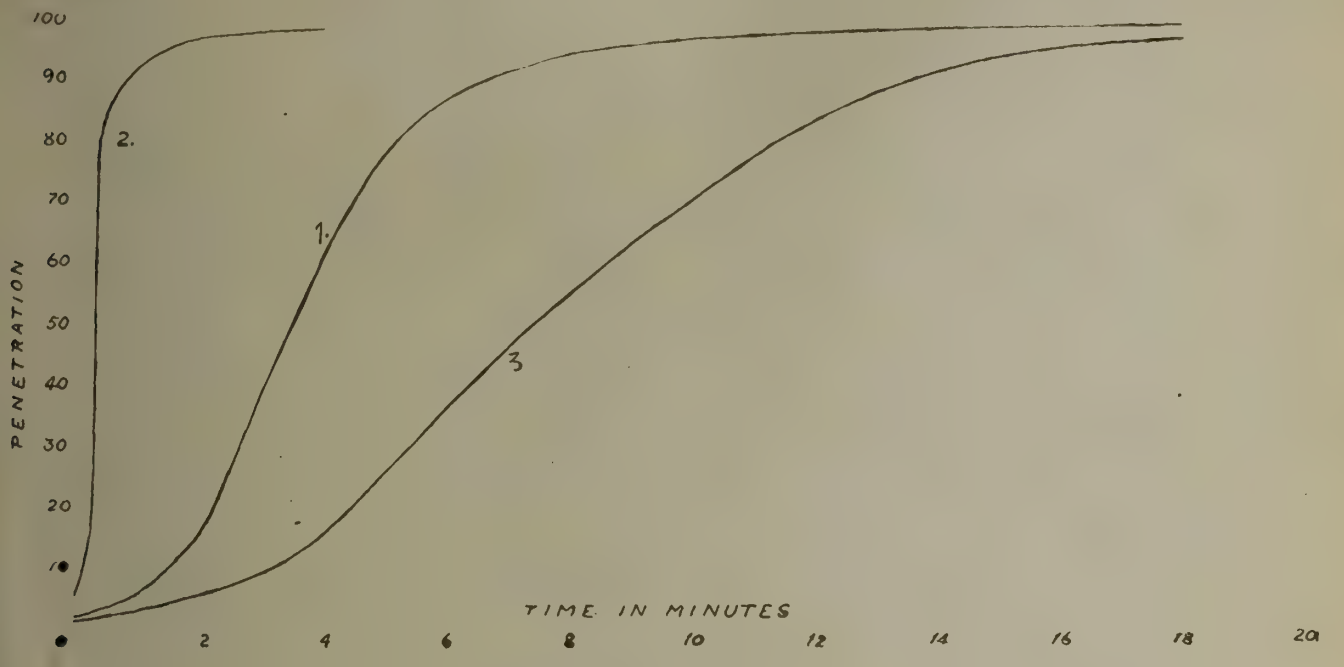


Fig. 3

Recent Annual Statements

Union Bag and Paper Reports Profits.

The unusual demand for paper bags last year enabled the Union Bag & Paper Corporation to have the best year in its history. In the fiscal period ended Jan. 31, last, the net income amounted to $2,832,277, a total nearly eight times as large as the return of the preceding year. The final balance for dividends after deducting $240,198.79 for depreciation, $187,523.27 for bond interest, and $821,763.12 applied in reduction of property account, was $1,582,792, compared with a deficit of $84,480 in 1915, and the equivalent of 16.89 per cent on the company's present stock. The amount carried to surplus after paying dividends of $350,000 is $1,232,792.06.

The income stated includes the earnings of the Chepygan Paper Company from November 1, 1916, and Badger Bag & Paper Company from November 16, 1916.

"During the last quarter the stock of the Company was put on a 6 per cent. dividend basis, and an extra dividend of 2 per cent. was declared.

"The news mill of the St. Maurice Paper Company, Limited, (three-quarters of the stock of which Company is owned by us) is nearing completion. One of the paper machines is now operating, and the second machine will be started in the near future.

"The St. Maurice Paper Company, Limited, earned during its fiscal year, which ended December 31, 1916, from its pulp and lumber operations only (the paper mill not having been compppleted at that date) $306,767.01. No parts of these profits have been included in our income, because no dividends have as yet been declared by that Company."

International Paper Company.

The net surplus profit of the International Paper Co. of New York in 1916, after providing for reserve funds, bond interest, etc., was $4,620,728, or almost four times the amount available for distribution in dividends in 1915, when the surplus after charges was $1,219,516. After allowing for a year's preferred dividend at the full rate of 6 per cent. the balance would represent a little less than 19 per cent. earned on the common shares.

But from the frank statement of President Philip T. Dodge it is quite evident that holders of common stock of the International Paper Company will receive no dividends for the next two years at least. Mr. Dodge said:

"All the surplus earnings of the last year, as well as of this year, will be required to meet maturing bonds, and for the cash distribution to stockholders, if the dividend adjustment plan is carried out."

International Paper six per cent. bonds, maturing in 1918, approximate $10,000,000. Holders of these bonds have the privilege of exchanging their bonds, par for par, for the new 5 per cent. bonds, and will receive 1½ per cent. cash commission on the par amount of their bonds for exchange and adjustment of difference on interest receivable.

The company plans at this time to issue only $7,500,000 new bonds. This will leave approximately $2,500,000 the company may have to take care of in cash

at par and accrued interest, together with a premium at the rate of 1 per cent. per annum from time of payment to the date of maturity of such bonds. Allowing that approximately all bondholders come in under the plan, it will mean a cash distribution of over $2,000,000, in addition to about $112.500 cash commission on the $7,500,000 bonds exchanged for the new 5's.

There is also to be taken into consideration the $4,346,000 consolidated 5's, maturing in 1935, that may be exchanged for new bonds, par for par, with a cash commission of 1½ per cent. for exchange. Although this cash commission will only approximate $50,000, it must be borne in mind that should all these bonds come in under the plan it will leave only $3.200 000 new six per cent. bonds to take care of $10.000.000 bonds maturing in 1918. The company states it is its intention to buy all bonds tendered, but not accepted, at par and accrued interest, so that if all the $10.000.000 come in under the plan, approximately $7.500,000 would have to be taken care of in cash.

General advance in wages has been granted to all employees at International Paper Co 's mills at Watertown, N.Y. Increases are voluntary by the company and add two cents an hour to existing rates of all men working by the hour, and $1 to weekly salaries of those paid by the week. Increases are given in addition to regular 10 per cent bonus which has been in effect since last November. About 500 men in the Watertown district are affected, and increase will call for additional outlay of about $25,000 per annum.

Price Brothers & Company.

Net surplus of $805.218 is reported by Price Bros. & Co., Limited, for the year ending February 28 inst. This is after all charges, except the Dominion profits tax, and is more than double that of the last statement, which covered a period of fifteen months.

Comparisons of profit and loss figures for three years follow, the item bond interest, etc., including sinking fund provision, and also for 1916-17 $15,578 interest on the new notes.

	1916-17.	*1915-16.	1914
Profits	$1,240.485	$1,032.185	$ 692,830
Bank interest	.....	119,172	98,819
Balance	$1,240.485*	$ 913.013	$ 594 010
Bond int., etc.	435.267	519,474	360.230
Balance	$ 805.218*	$ 393.538	$ 233,779
Dividend	300,000	.....	.....
Balance	$ 505.218	$ 393.538	$ 233.779
Previous balance	1.403.569	1.010.031	1,026,251
Total P. & L.	$1,908.787	$1.403,569	$1.260,031
Dep. res.	.....	.....	250,000

(*)—Fifteen month period.

Earnings are equal to 16.1 per cent., so that after providing for the six per cent. dividend paid during the year a substantial balance of $505.218 remained to be added to profit and loss account. That account now stands at $1,908,787, equal to $38 per share on the capital stock.

The statement is even more favorable than would appear to the comparative figures presented below. The directors' report states that $281,899 had been charged to revenue in respect of repairs and improvements—against $251,292 the previous year — while $290,000 had also been appropriated from revenue for depreciation at the plants. The latter is a new item. The sum of $153,689 was transferred to general reserve from sinking fund. Total reserves, covering depreciation, insurance and sinking fund rose to $1,146,764 against $696,671 a year ago.

Riordon Pulp and Paper Company, Limited.

The following notice has been issued by F. B. Whittet, Secretary-Treasurer of the company:

"Notice is hereby given that a quarterly dividend of 1½%, being at the rate of 6% per annum, and a bonus dividend of 1% have been declared on the Common Stock of the Company for the first quarter of the year, payable May 15th, 1917, to shareholders of record at the close of business on May 8th, 1917."

Brompton Drops Extension Plans.

Directors of Brompton Pulp & Paper Co., Ltd., on Friday last issued the following statement:

" At a meeting of the board of directors of the Brompton Pulp & Paper Co., Ltd., it was resolved that owing to the new basis of taxation upon commercial corporations, recently determined upon by the Government, it is deemed inadvisable to continue the development work of this company at the present time.

The Brompton Company had made all arrangements for the development of one of its water powers and work to start shortly. The company owns five water powers, three of which have been developed. The plans drawn in connection with the development of a fourth, it is understood, called for the expenditure of $500.000 to $750.000, and the company had made financial provision for the outlay.

As a result of the abandonment of this expenditure it is likely the stock will be placed on a straight five per cent basis this summer.

PULP AND PAPER STOCK TRADINGS.

The speculative excesses of last autumn, the fixing of newsprint prices and the Canadian sur-taxes on profits have all entered as factors into the deadness and heaviness of the pulp and paper section of the stock exchange. Last month the turnover in Laurentide, the aristocrat of the group, was 17 shares and days went by without anybody being interested enough to enter either a selling or a buying quotation.

Riordon went through a brief period of selling pressure when the sur-taxes were announced. Now Wayagamack is being offered fairly freely. One theory in connection with the Wayagamack selling is that it is a not unnatural result of the contest for control that went on last summer and autumn. With control settled, the interests who proved to be the minority interests would not have the same reason for holding on to their stock as they did when the issue was uncertain. The stock is meeting good enough absorption considering the limp state of the market, upwards of a thousand shares having being taken in the past week at a recession of only two points.

Conditions affecting all the pulp and paper stocks are considered by the Street as temporary, as price regulation and new taxation will still leave the companies with larger earnings than ever before in their history.

SALE OF PULP MILLS.

The pulp mills of the D'Alma Peribonka Pulp Company at St. Joseph D'Alma, Lake St. John, has been sold to Messrs. R. W. Barclay of Montreal and V. N. Thériault, of Nicolet. The price paid runs about $100,000. The plant of the company will be improved immediately under the name of the Dominion Blank Book Company.

Review of Recent Articles of Interest to the Pulp and Paper Industry

N. G. Pulp and Other Ground Fibre Pulp.—By Chief Engineer Chr. Vig. (Translation from Papir-Journalen furnished by G. F. Steel), Paper-Maker and British Paper Trade J. Vol. 52; 1915-16; p. 82-83. Description of the process invented by Leopold Enge, Petersdorf, East Germany. Wood is packed into a horizontal boiler, having a capacity of 423 cu. ft., and filled with water. In later experiments the water is brought up to a temperature of 266° F. as quickly as possible, and the steam is shut off. The pressure is brought up to 176.36 lbs. per sq. in., by an injector. This pressure is maintained for 3 hours. The temperature will fall in this time to 59° F. The wood remains whiter than when steam is permitted to flow all the time, even if it is indirect. The fibres by the ordinary method of grinding are cut cross-wise, each sand grain acting as a little knife. Engineer Anderson, in Hellefos, has experimented for a long time with modified length-wise grinding. He places the logs at an angle of 10° against the stone, and gets a fibre of considerable length, which is fine and pliable. A combination of both methods of treatment, with hot water and angle grinding would perhaps prove ideal. Angle grinding has been in use for some time at Hellefos.—E. K. M.

See also digest of German and Austrian opinions of Enge process in Paper, Vol. 17, No. 18, pp. 11-15 (1916). Review in Chem. Abs. Vol. 10, pp. 1267-8 (1916).

Water and White Water Waste.—By F. H. Olmsted. Paper, Vol. 20; No. 5; April 11, 1917; p. 11-12. Water should be looked upon as a conveyor and be made to operate on a continuous principle. The ideal of efficiency in recovering and using wash water over again. —E. K. M.

Notes on Fillers and Loading Substances.— Paper, Vol. 20; No .5; April 11, 1917; p. 13-14. The conditions which affect the retention of fillers are outlined. The influence of fillers on machine wires and quality of paper. For equal thickness of paper, satinite shows 44 per cent. retention; pearl hardening 52 per cent ; asbestine, 74 per cent.; clay, 74, all depending upon the amount of clay used. No more than a certain amount of clay can be used, and still increase percentage of ash. With 10 lb. china clay per 100 of paper, retention is about 50 per cent.; with 15 lb. china clay per 100 of paper, retention is about 80 per cent.; with 20 lb. china clay per 100 of paper, retention is about 85 per cent.—E. K. M.

The Story of a Wire.—Paper. Vol. 20; No. 5; April 11, 1917, p. 15-16. Incidents in the life of a Fourdrinier wire that have a bearing on its longevity. Dos and Don'ts.—E. K. M.

The Classification of the Crown Lands of New Brunswick.—By P. Z. Caverhill, Pulp and Paper Magazine, Can. Vol. 15; No. 5; Feb. 1, 1917, p. 115-117.

The Manufacture of Lead Pipe and Sheet Lead.— By H. C. Crow Pulp and Paper Mag., Can. Vol. 15; No. 14; April 5, 1917, p. 337. Illustrated.

Wood as a Raw Material in Papermaking.—By Dr. Bjarne Johnsen, Pulpand Paper Mag. Can. Vol. 15; No. 14, Apr. 5, 1917, p. 333-336. The cellulose content of the common Canadian Pulpwoods and the results obtained from an investigation of the sulphite cooking process as regards the various factors influencing the penetration of chips by sulphite liquor. With curves.

The Paper Trade of the United Kingdom.—By Norman D. Johnston, Pulp and Paper Mag. Vol. 15, No. 16. Apr. 19, 1917, p. 387-391 and Trade and Commerce Weekly Bulletin. Statistics, suggestions to Canadian manufacturers.

What Conservation is Doing for the Future Pulpwood and Timber Supply in Canada.—From the report of the Commission on Conservation for 1916. Pulp and Paper Magazine, Can. Vol. 15; No. 5; Feb. 1, 1917; p .118-120 and 135.

Banquet of the Canadian Pulp and Paper Association. (Proceedings of annual meeting). Pulp and Paper Magazine, Can , Vol. 15; No. 6; Feb. 8, 1917; p. 146-162.

Some Problems for Canada When Peace Comes.— By the Rt. Hon. Sir George E. Foster, K.C.M.G., M.P. Speech delivered at the luncheon of the Canadian Pulp and Paper Association, Jan. 31, 1917. Pulp and Paper Magazine, Can., Vol. 15; No. 7; Feb. 15, 1917; p. 165-170.

Forestry and Forest Products for Pulp.—By Martin L. Griffin. Pulp and Paper Magazine, Can.; Vol. 15; No. 7; Feb. 15, 1917, p. 171-172. Discussion of systematic methods for handling the forests and their products.

Introduction of Ground Wood Pulp into Paper Manufacturing in the United States.—By Hon. Warner Miller. Pulp and Paper Magazine, Can.; Vol. 15; No. 8; Feb. 22, 1917. Historical paper read at the meeting of the American Pulp and Paper Association in New York, Feb. 8, 1917, p. 195-197.

Making Paper to Substance Numbers.—By Emmett H. Naylor, Pulp and Paper Magazine, Can.; Vol. 15; No. 8; Feb. 22, 1917; p. 198-200. From Paper, Dec. 6 and 20, 1916. Description of the system recently adopted by the manufacturers of writing paper with an accompanying table for finding the weight per ream in standard sizes of paper corresponding to nine common substance numbers.

The Sedimentation Test of Ground Wood Pulp.—By Snowshoe. Pulp and Paper Magazine, Can.; Vol. 15; No. 9; March 1, 1917; p. 217-219. Description of method and apparatus for determining the quality of ground wood pulp. Illustrated.

The Schoop Metal Spray Process of Plating.—By S. Stansfield Worthington. . Pulp and Paper Magazine, Can.; Vol. 15; No. 10; March 8, 1917; p. 239-241. Complete details of the process and data regarding cost. Illustrated.

Suggestions for Fibre Box Manufacturers. — Pulp and Paper Mag. Can. Vol. 15; No. 10; Mar 8, 1917, p. 243-246 also Fibre Containers, Dec. 1916. Notes from a paper read by N. F. Rehm at a meeting of the Nat'l Assn. of Corrugated Fibre Box Manufacturers.

The Barking Drum.—Its History and Development. —By Herbert Guettler Pulp and Paper Mag. Can. Vol. 15; No. 11, Mar. 15, 1917; p. 261-266. Detailed description of various types, operating costs and illustrations.

The Red Spruce.—Identification and Characteristics. —By P. L. Buttrick, Pulp and Paper Mag. Vol. 15; No. 12; Mar. 22, 1917, p. 285-286 and Am. For. Dec., 1916. Illustrated.

The Press Part of a Paper Machine.—By John W. Brassington Pulp and Paper Mag., Can. Vol. 15; No. 13, Mar. 29, 1917; p. 309-312. A discussion of the underlying principles and workings of the press part of a paper machine with description of non-deflecting roll. Illustrated.

UNITED STATES NOTES

The Technical Association of the Pulp and Paper Industry will hold its spring meeting at Neenah, Wis., on May 24 and 25. Proprietors of mills, mill chemists, Engineers, designers and constructors of paper and pulp machinery will attend to discuss problems of the industry and members of the News Print Manufacturers Association have been invited to attend in person or send technical representatives.

The Gerbrick Paper Company has been formed at Neenah, Wis. The concern is in touch with many of the Wisconsin mills and is prepared to quote prices to jobbers on straight or mixed cars of paper, toilet, towels, napkins, envelopes, etc.

Your correspondent several weeks ago told about the experiments being conducted at the Riverside Division No. 2 mill of the American Writing Paper Company, Holyoke, Mass., on the manufacture of de-inked news print paper, through the Japerson process. The first experiments were made at the Combined Locks Paper Company at Combined Locks, Wis. under the supervision and direction of Thomas Jasperson, who perfect this process. The experiments there were successful, and Mr. Jasperson, induced The American Writing Paper Company to establish an experimental station in the Riverside plant. The experiments which have been going on for six or eight weeks, have demonstrated the possibilities of the process, and the result of the tests have shown it to be successful. According to Mr. Jasperson the plans for the manufacture of de-inked news print paper will cause more than a little discussion in the paper circles.

The New England Paper Box Manufacturers' Association will hold its regular meeting in Boston, Mass. on Wednesday May 9. A business meeting is called for 2.30 o'clock at which reports of the committees will be heard and other business matters transacted. The meeting will be thrown open at 4.30 to associate members and friends and an address delivered by William H. Day, Jr., secretary of the Lynn Chamber of Commerce, on "Transportation."

With the ultimate purpose of erecting a business house which may cost in the neighborhood of $250,000 but which will be preceded by a temporary structure, the Carpenter Paper Company, 143 S. State Street, Salt Lake City, Utah, has purchased property immediately in the rear of and adjoining the Untarian Church property on the north, which has a depth of 167 feet an a width of 57 feet. It faces on Second East Street. Formerly it was the property of Eliza Sinder.

The Wilgus, Marsh & Headley Corporation is a new $150,000 Delaware corporation whose objects stipulate the manufacture of paper and paper products of all kinds. Wellington F. Headley, N. A. Taylor, T. E. Wilgus, New York are the incorporators.

The time given to the seven men indicted by the Federal Grand Jury for alleged violation of the Sherman Antitrust law, in conspiring to raise the price of newsprint paper to change their pleas of not guilty or to file objections to the proceedings, expired last week without any of the defendants of their counsel appearing in court. Later George Gordon Battle, counsel for the News Print Manufacturers' Association said that the issue would be fought out on the indictment. Bainbridge Colby, the Government prosecutor, said: The silence of the defendants indicates that in their opinion the situation could not be improved by the filing of the objections." Asked is he thought the trial would be deferred until Fall, he replied. "Not if I can hold it. I have agreed with Mark Hyman, who is associated with me in the case that we shall employ every means in our power to hurry the trial. If possible the case will be called late next month or early in June.

About 2,000 acres of land in Clatsop County, Ore. on which approximately $100,000,000 feet of spruce, fir and hemlock is standing, has been purchased by the Crown-Willamette Paper Company from M. J. Kinney. The purchase price is said to be about $175,000.

At the annual meeting of the Wrapping Paper Association of Chicago, held at the Bismark Hotel that city on April 24, the following members were elected to serve as directors for the ensuing year: Charles F. Thomas, of Thomas Brown Company, chairman, George Stoumpe, of Hanchett Paper Company; James S. Danehy, of S. L. Schwarz; John T. Daily, of Daily Bros., Fred. Rentz, of Fred Renta Paper Company, Walter Sippel, of Sippel-Tress Company; Albert Steindler, of S. Inlander & Company; H. E. Ehrman, of Peerless Paper Company; Joseph Weil. Following the election of the directors, the following officers were elected: Albert Steindler, president; Walter Sippel, first vice-president; James S. Danehy, second vice-president; John T. Daily secretary; George Stoumpe, treasurer.

A new organization to be known as the Chemco Club, was formed at a banquet and general get-together entertainment given by the officials of the Chemical Paper Manufacturing Company, at the Hotel Nonotuck, Holyoke, Mass. last week. The purpose of the club is to bring together the different department heads and officials for the general exchange of ideas in connection with their duties and the promotion of good fellowship. The Chemco Club will hold banquets frequently and according to present plans, a making industry will be brought here.

The Carthage Sulphite Pulp & Paper Co., of Cathage, N. Y. has advanced the wages of its employees of ten per cent. The decision was voluntarily on the part of the officials, and is granted in an effort to assist the high cost of living.

The National Bank Company of Holyoke, Mass. considered to be one of the largest manufactures of bank books and other loose leaf devices in the U. S. has purchased the property of the Papetric De Berthier at the Berthierville, P.Q. The new owners have renamed the property the Dominion Blank Book Company, Ltd., and it has organized with Frank B. Towne, president; Edward S. Towne, secretary, and George A. Savoy, treasurer.

J. A. Daviault, present manager, has been retained as resident manager, Mr. Savoy will be the directing force of the concern. Extensions and improvements are contemplated. The National company has very large trade in Canada, and the purchase of a mill in that locality has been under consideration for some time.

According to an authoritative report from Watertown, the Hinde & Dauch Company has purchased the mill which the J. H. Hahn Company bought from the Cylinder Paper Company on Sewells Island about a year ago. The Hinde & Dauch Company is considered one of the largest paper box and container concerns in the country with its largest plant located in Toronto. The Watertown mill has been manufacturing corrugated board, and it is understood that the same grade will be continued. When the mill was owned by the Cylinder Paper Company it had one machine with a capacity of twenty-two tons a day. The Hahn Company has made improvements and brought the capacity production up to thirty tons.

C. A. Lyford and H. E. Brinckerhoff announce that they have formed a partnership under the name of Clark & Lyford for the practice of forest engineering. They will act as eastern agents for Clark & Lyford, Ltd. of Vancouver, British Columbia, Canada. Their office is 15 East 40th St., N. Y.

FINE PROGRAM FOR TECHNICAL MEN.

The following excellent program has been arranged for the annual spring meeting of the Technical Association of the Pulp and Paper Industry at Neenah, Wisconsin, for May 24 and 25.

Thursday, May 24, 1917.

9.30 A.M. Opening of the Business Session.

Call to order by President H. P. Carruth.

Address of Welcome by Hon. C. B. Clark, Mayor of Neenah.

Response for the Technical Association, by Robert B. Wolf, of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont., Canada.

Reports of Officers and Standing Committees.

12.15 P.M. Luncheon given by the pulp and paper manufacturers of the Fox River Valley at the Menasha Hotel, Menasha, Wis.

1.30 P.M. General Meeting of the Technical Association of the Pulp and Paper Industry.

Lecture by Charles W. Rieser on "Sulphite Pulp Testing." To be followed by discussion.

4.30 P.M. Visit to the Main Laboratory of the Kimberly-Clark Company and Experimental Station of he National Textile Fibre Company. At the Laboratory of the Kimberly-Clark Company a lecture with demonstrations will be given by Charles G. Bright, a member of our association, on "Some New Developments in the Microscopy of Paper Fibres."

The party will be divided in two groups and the lecture will be delivered separately to each. While one group is inspecting the plant of the National Textile Fibre Company, the other will attend the lecture on the "Microscopy of Paper Fibres," and vice versa.

7.30 P.M. Dinner at the Valley Inn, by the Directors of the Kimberly-Clark Company to members and guests of the Technical Association.

Special lecture on "Safety First and Human Development in Paper Mills," by S. Frank Shattuck, Secretary of the Kimberly-Clark Company.

Friday, May 25, 1917.

Valley Inn, Neenah.

9.00 A.M. Leave by automobiles for the Kimberly mills, at Kimberly, Wis., twelve miles from Neenah.

The party will be taken in groups for an inspection of all departments of the mills, including the sulphite mill, groundwood mill, paper mill, electrolytic bleach plant, alcohol plant, etc.

1.30 P.M. Luncheon as guests of the Fox River Valley pulp and paper manufacturers at the Sherman House, Appleton, Wis.

After luncheon a visit will be paid to the mill of Fox River Paper Company.

Members desiring to return to their homes on Friday can take trains from Neenah for Chicago at 4.02 P.M. But as a number of members may desire to visit other mills in the vicinity which are open for inspection, their stay may be prolonged to the following day. There are several interesting plants to which the members are invited and arrangements for visits can be made during the meeting. Those desiring to do so may proceed to Madison on Saturday and spend a profitable hour or two inspecting the Forest Products Laboratory.

QUEBEC TO SELL WOOD LIMITS.

The province of Quebec is perhaps better situated than any other part of North America to profit by the pulp wood industry. According to an announcement made in Quebec recently, the Minister of Crown Lands will offer for sale a large area of timber limits situated in different parts of the province, mainly in the Lake St. John region, the Saint Maurice Valley and in the Ottawa Superior district.

The numerous demands that have been made upon the Forest Department for over a year are said to justify the Provincial Government in making this sale, for which the time could not be better chosen. Quebec possesses an immense forestry domain, a large part of which has remained unproductive up to the present. The present occasion is regarded as the most favorable for opening up the industry.

Apart from the considerable revenue that this sale will give the province, as well as the cutting dues, etc., the Provincial Government will have the satisfaction of knowing that they are developing the forestry resources of the provinces, and are contributing to an improvement in the paper situation, and that its policy may tend towards a reduction in the price of this necessary commodity.

CRISIS IN PAPER TRADE.

London, May 2.—The Express says that there is an acute crisis in the paper trade in Great Britain owing to submarine activities, and that imports of raw material have almost stopped. Several paper mills have been obliged to close, and imports in the last few weeks were only ten per cent. of the restricted amount allowed by the Government. There is no prospect of improvement, as every ton of shipping will be needed henceforth for food. A further reduction in the size of the newspapers is considered inevitable. Paper, which before the war cost the newspaper publishers two cents a pound, is now nine cents.

PULP AND PAPER NEWS

It is rumored that the Ontario Department of Lands, Forests and Mines will shortly upen up another pulp wood concession in northwestern Ontario. During the past year two concessions were placed on the market that of the Pic River, for which J. J. Carrick, M.P., Port Arthur, was the successful tenderer and the Black Sturgeon river limits, which went to S. A. Marks of Nipigon. Now word comes from Port Arthur that Mr. Carrick and his associates will shortly commence the erection of a huge pulp mill which will have an output of 360 tons of ground wood a day. The site is fifty seven acres of land located immediately outside the city limits beyond Bare Point, where the Port Arthur Pulp and Paper Co. have started the erection of their sulphite plant excavation being now in progress. The fifty seven acres are owned by Mr. Carrick and New York capitalists and it is stated that the capitalization of the new company will be six million dollars. Pulp will be obtained from Black Sturgeon and Pic River which are tributary to the mill. It is learned that all the money for the big enterprise has been put up and that Port Arthur will not be asked for any concessions in the way of land grant, fixed assessment, etc. The question of power has been definitely settled. The mill will use 18,000 horse power which will be developed by the Hydro-Electric Commission on the Nipigon river. This will be delivered to Port Arthur at high tension and will be stepped down to low tension at a large sub-station which will be erected in Port Arthur. Experts estimate that the power available on the Nipigon river is 177,000. Three falls can be harnessed, Virgin Falls, Cameron Falls and a series of falls at Pine Portage. It is reported that the Hydro Electric Commission will deliver power at Port Arthur from Nipigon stepped down and ready for use at a maximum price of $12 per horse power Nipigon power will be ready for delivery at the head of the lakes in a couple of years.

The pulp and paper mills along the old Welland canal have received notice from the Department of Railways and Canals that the water will be let out of the canal on June 1st in order that the waterway may be given a cleaning out and some repairs made to the locks. While the mills are shut down for a few days they will be given a thorough overhauling.

A federal charter has been granted to the Nominique Pulp and Lumber Co., Limited, with headquarters at Montreal and a capital stock of three hundred dollars. The incorporators are Eugène Patenaude of Outremont, Herbert G. Boyle of Westmount, Louis Sessenwein, James G. Shearer and Pierre J. Hubert of Montreal. The company is empowered to take over all the assets and property of Eugène Patenaude and to manufacture and deal in timber, lumber and wood of all kinds, and to carry on in all its branches a pulp wood sulphite and paper business.

The St. Maurice Pulp and Paper Co. got a flying start the other day. They made 103 tons in the 24 hours on machines rated at 100 tons. President Alex. MacLaurin says they can beat that.

It is understood that there is a strong possibility of Fort William having a large pulp and paper industry locate in that city in the near future. Milwaukee and other capitalists are behind the enterprise which will be given forty acres of land, a fixed assessment and other concessions in the shape of free water, etc. It is proposed to erect a 100 ton news print mill and two Fourdriniers will be installed. A ground wood pulp plant will also be put up of eighty-five tons capacity and a sulphite mill of fifty tons. Arrangements have been made for an ample supply of pulp wood from the lands owned by the Grand Trunk Pacific which cover many thousand acres and are richly wooded.

A difficult piece of work in the building line was recently carried out in Montreal in the case of the Canada Box Board Co's plant. The building is situated over a tail race near the canal. One of the walls has bulged out and was only saved from collapsing entirely by the adjacent wall of the Ogilvie Flour Mills, while the foundations were also discovered to be giving way. In order to substitute steel for iron pillars and concrete for wooden floors it was found necessary to raise the entire structure about three quarters of an inch from its supports. As the weight of the building and machinery approximated one thousand pounds to the square inch this meant lifting a total of 3,600 tons. The structure was successfully shored up, requiring the use of 350,000 feet of timber. The foundations had also to be constructed and, while the water was out of the canal, the job was rushed, night and day and the work carried out without any interruption to the operations of the plant, which will still continue to run while the contractors are erecting what is virtually a new building.

Robert Sweeny, of New York City, has been elected President of the Rainy River Pulp and Paper Co. whose property is at Port Mellon, B. C. The company has a capital stock of one million dollars and recently secured an extra provincial license to carry on business in British Columbia as manufacturers and dealers in logs, lumber etc. The capital stock of the company is one million dollars and has opened an office in the Standard Bank building, Vancouver. The company manufacture kraft pulp and paper.

Flight Lieut. George Fleming, of Toronto, was killed on action on April 19th. He was one of Toronto's first aviators and went overseas in September, 1915. A graduate of the School of Practical Science, he was thirty years of age and before enlisting was associated with his father, Atwell Fleming, in the printing and publishing business. He was also a keen sportsman and well known in bowling and curling circles.

The Pulp and Paper Division of the Bathurst Lumber Co., Bathurst, N.B., is now turning out fifty tons a day each of sulphite and kraft pulp and perfecting its output on these lines. The company will take up the making of container board later after its plant is in full operation.

The Donnacona Paper Co., Donnacona, Que., which put six new grinders in operation in March last, giving a pulp grinding capacity of eighteen grinders, has erected an additional digester, which is being lined at the present time. This will increase the sulphite output from thirty to fifty tons a day.

It is expected that the Rainy River Pulp and Paper Co., whose plant is located at Port Mellon, B.C., will commence manufacturing kraft pulp in two or three weeks. The output will be twenty tons per day and the company will also make kraft paper.

The Swedish Association of Canada has been formed to further closer trade and social relations between Canada and Sweden. E. Alsson, of the Brompton Pulp and Paper Co., East Angus, Que. is President and H. Helin, of the Wayagamack Pulp and Paper Co., Three Rivers, Que., is Vice-President.

The Beaver Board Timber Co., which is a subsidiary organization of the Beaver Board Companies and some time ago acquired the plant of the Smith-Fassett Lumber Co. at Charlton, Ont. is planning extensive additions to the equipment. The firm will not only enlarge the saw mill but will put up a modern drum barker plant for rossing the pulp wood on the limits in that district owned by it.

The many friends of Blaney McGuire, proprietor of the Orangeville, Ont. Banner, will sympathize with him the death of his son Lieut. Robert B. McGuire, who was accidentally killed in France. Another son, Lieut. Harry McGuire, was killed in the fighting at St. Julien.

The Howard Smith Paper Mills Co., Montreal, have the plans out for their new beater room at Crabtree Mills, Que. The building will be three storeys high and the additional equipment to the plant will be five beaters of 1,500 pounds each, a washer, a pulper, a Jordan, super calendars, cutters, new boilers, new turbine wheel, etc.

At the annual meeting of the Canadian Press Association, which will be held in Toronto on June 14 and 15 John R. Rathom, editor and publisher of the Providence, R.I., Journal, which paper has been a staunch supporter of the Allies since the outbreak of the war, will be one of the guests and principal speakers.

A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers Safety Association, has removed his office from the Bell Telephone Building to room 306 Dominion Bank Building, Toronto. Mr. Costigane spent the past week in paying his first official visit to the pulp and paper mills in Belleville, Frankford Glen Miller and Campbellford.

Justus Miller, late editor of the Canadian Countryman, Toronto has been appointed assistant commissioner of Agriculture for Ontario and has entered upon his new duties.

Hon. G. Howard Ferguson Minister of Lands, Forests and Mines for the province of Ontario, left last week for British Guiana in search of health and will be absent several weeks. He was taken ill during the session and has not been feeling up to to the mark since.

Work on the Welland ship canal has closed down permanently until after the war and the services of all the staff have been dispensed with. The contracts for four sections comprising eleven miles and all the seven lift locks amounting to about twenty five milllion dollars are about half completed.

A deputation representing the Provincial Paper Mills Co., Limited, met with the council of Thorold last week, and Mr. T. A. Weldon addressed them asking permission to close the lower end of Water Street, which intersects some of their property, recently purchased. He stated that at the time of their negotiations this had been promised them, and he did not think the company would build any buildings that would be a detriment to the vicinity. The company are talking of building another mill, providing they are able to secure the necessary property. After some discussion by the council it was moved and passed that a by-law be published, for the closing of the street.

Mr. S. F. Duncan, secretary of the Provincial Paper Mills, was visiting at the Montrose Division in Thorold during the week.

The employees of the Interlake Tissue Mills at Merritton were granted a raise in their wages last week.

The Dextrine Co. makers of Dextrine, Gum and Size, whose factory was erected at Thorold some twelve months ago, are doing an extensive business with the paper mills of this district and orders are now coming in from different parts of the country for their products which are, according to many of the superintendents here, of a very high quality.

The annual meeting of the Toronto Paper Mfg. Co., whose plant is located at Cornwall, Ont., will be held in Toronto on May 18th. The annual report which will be out in a few days is expected to show very large earnings during the past year.

The Brown Corporation, Portland, Maine, has purchased the mills and timber limits at Tobin, P.Q., of the Trois Pistoles Pulp and Lumber Company.

The Great Eastern Paper Company, Limited, incorporated with a capital of $600 000, will carry on business in the city of Quebec. The powers include the manufacture and sale of lumber, paper and pulpwood.

The Nottaway Pulp and Lumber Company, Limited, has been incorporated with a capital of $20.000. Messrs. J. E. Fortin and U. Fortin, of Bell River, P.Q., D. Gourd, C. A. Twitchell and J. R. Giguère are interested.

The Mooney and Van Dyke Company, Limited, has been incorporated with head office at Quebec, P.Q., and capital stock of $40.000. The company will operate mills and manufacture pulp and paper. They will also deal in lumber and pulpwood. Those interested are M. J. Mooney, 15 de Salaberry Street, Quebec, P.Q., and G. H. Van Dyke, Quebec.

The Paper & Hardware Products, Limited, have been granted letters patent with head office at Montreal, Que., and capital stock of $49,000, to carry on business as manufacturers and dealers in paper, chip board, straw board, pulp, pulpwood, logs, lumber, timber, etc. Among those interested are W. A. Lyons, H. Larin, P. A. Donnelly, U. Pigeon and A. Savard, all of Montreal.

The Fort Francis Pulp and Paper Company, Fort Frances, Ont., have been obliged to shut down one unit of their newsprint mills, on account of the opening of the waste water gates at Fort Frances and International dams by Dominion Government engineers. This step has been taken in order to create additional storage to take care of spring freshets.

Mr. Robson Black, secretary of the Canadian Forestry Association, Ottawa, Ont., has returned from a lecture tour of Western Canada where he addressed many public meetings on the subject of forest conservation. Noonday addresses were given before several of the Canadian Clubs and Boards of Trade.

Alexander Baptist, one of the oldest residents of Three Rivers and a pioneer of the lumber industry in the St. Maurice Valley, died last Thursday at the age of eighty-one. Some five years ago he sold out his interests to the Wayagamack Pulp and Paper Co.

NEW PULP COMPANY IN NOVA SCOTIA.

The Panuke Pulp and Paper Company has been organized to operate upon freehold timber limits located in the counties of Hants and Halifax, N.S. The company will operate a pulp grinding mill, a band-saw mill, with a capacity of 35,000 feet a day, planing mill, etc. They are acquiring 26,000 acres of freehold timber land, and estimate that their standing timber amounts to 95,000,000 feet board measure, consisting of spruce, hemlock and some hardwood, and 75,000 cords of pulpwood. The pulp grinding mill will be placed in operation at an early date.

NEW GASPE PULP PROPOSITION.

The Great Eastern Pulp Company has just been organized at Quebec, for the purpose of erecting and operating pulp and saw mills at Madeleine River, Gaspe County, Quebec. The officers chosen so far are: President, John Mullen of Bangor, Maine; V. P. Archibald Hay Cook, K.C., Quebec. There will be a bond issue of $600,000 and a stock issue of a like amount. The pulp mill will have a capacity of 30,000 tons of ground wood pulp annually, and the output of the saw mill will be 10,000,000 feet. The company owns 300,000 acres of timber lands, assuring an adequate supply.

NEWSPRINT PROBE BEGINS.

The Canadian newsprint probe, conducted by the Dominion Government, which opened at the Court House, Ottawa on Tuesday is one that will have a decidedly grave bearing upon the future output, price, etc., of the Canadian newsprint manufacturer and will like as not decide whether or not the manufacturers are to harken to the dictation of the government or get more than the "fair and just" price set by the Federal authorities.

The sitting of the Commission on Tuesday was an unprecedented event in the history of the newsprint trade in Canada. For the first time since the manufacture of newsprint began in Canada has the government decided to conduct a strict inquiry into the paper trade, and the productive, labor and capital costs surrounding it.

Whether or not the paper industry is to be shod with legislative shackles or not, will rest with the findings of the official report of the commissioner.

In a nutshell from information given to the correspondent of the Pulp and Paper magazine, from a very reliable and authoritative source, the government through the medium of Mr. Pringle K.C. its commissioner, is out to find out exactly what it costs to manufacture newsprint and set a price for it.

By the investigation not only the newsprint maker but the pulp-wood maker, the sulphite producer, and all others connected with the industry comes under fire. The question of labor, overhead expense, freight rates, and in fact everything connected with the manufacture and marketing of newsprint will be sifted down to the last grain, before the Commissioner finds out wha tthe government wants to know—the real average actual cost of production of newsprint.

What the newsprint probe will bring out when the findings of the Commissioner are made public is entirely a matter of conjecture, but, from the present angle it appears that the manufacturers of newsprint have good chances of gaining a much better price than two and one-half cents per pound for their product, as against a decline in the stated "fair and just" price set by the government some time ago.

OTTAWA NOTES

Nearly six hundred members of Canadian Printing Unions have enlisted and are now on active service, according to a booklet which has been issued from the office of the president of the Canadian Typographical Union. Twenty-seven have made the supreme sacrifice.

According to information from Trade sources Mr. W. H. McAuliffe president of the large lumbering firm of McAuliffe Davis, is to withdraw from active participation in the firm, about the end of this month.

Mr. A. M. Davis the vice president and secretary treasurer will carry on the business alone. The firm are large lumber manufacturers and dealers, the head of office of their many plants, being at the corner of Duke and McAuliffe streets.

A forestry and railway construction depot will be established in Ottawa during the motnh of May. Recruits for railway construction battalions from all parts of Canada will be mobilized here. Lt.-Col. Cecil Williams will be in charge of the newly formed depot.

The Canadian Car Service Bureau has submitted to the railway Commission a new code of demurrage rules for approval and also asks that the provisions of the general order effective January 1st to March 30th, whereby new and increased demurrage rates were put into operation, will be continued in force pending the approval of the new rules.

Sir Henry Drayton in an order issued this week has refused the request on the ground that the general order which expired May 1st cannot be renewed or further charges made without the submission of evidence of jurisdiction before a hearing of the board.

He pointed out that the demurrage rates in operation up to March 30th were sanctioned only with regard to the extraordinary conditions and congestion of traffic. Something had to be done to compel the release of cars and the cleaning up of terminals. Shippers realized this and after initial objections agreed that something had to be done and consented to the action taken.

"It was clearly understood" adds Sir Henry "by everybody that the order was only temporarily and under the circumstances a new hearing is necessary."

Heads of the E. B. Eddy Co. and J. R. Booth firms are highly gratified over the result of the prohibition sweep in Hull city, when after thirteen days voting the city entered the "dry" column.

The Markets

CANADIAN MARKETS.

TORONTO, May 8th.

There are no new developments in the news print situation during the past few days. The mills are busy and getting inquiries from all over regarding extra supplies. These have to be turned down, while fancy prices are offered in a number of instances, the manufacturers in the Dominion desire to protect their contract customers to the full. The question is now being asked, "Will R. A. Pringle, the new Canadian commissioner, favor his investigation into conditions and an advance to go into effect after the three months period of two and a half cents has expired?" It is felt by those in a position to know that the appointment of Mr. Pringle is a concession granted to the news print manufacturers by the government and the publishers, who thought they had scored a victory over the mills by forcing the issue, may yet have cause to regret their arbitrary action.

The new federal excess profits tax is viewed with alarm and already one large paper and pulp concern which had contemplated going ahead with extensions to its power plant has halted its plans, as noted on another page.

It is rumored that other large paper concerns will not go ahead with their construction work until things are on a more stable basis and an increase in the price of news print is sanctioned. In view of the shortage of labor, the high cost of material and other things, news print cannot be made today at a profit at the figure named if the mill does not produce its own pulp and have large limits of its own. The question arises is the paper manufacturer to be forced to make paper at a loss for the benefit of the publisher? This is the whole problem in a nut shell.

Speaking of the outlook for an adequate supply of news print during the coming summer, a leading Quebec manufacturer remarked this week: "It is my belief that news print will not be any more plentiful during the present year than it is now. The cost of the production is increasing by leaps and bounds as we have been met with an increased outlay for raw material within the last sixty days which we had not anticipated at the beginning of the year. Coal is now double of last year's contract price. Sulphur and other chemicals have advanced from twenty to twenty-five per cent due to the war insurance which has gone into effect on these commodities since the United States entered the conflict. I may add that, with usual driving conditions, our pulp wood supply will be sufficient for this season."

The morning papers in Toronto have joined in the movement now spreading all the while and the subscription price is four dollars a year, the new rate going into effect on May 1st The increase is one dollar. Other daily papers are getting in line as the demands of printers for higher wages as each agreement with the typos expires is such that publishers must get more money for their journals.

Touching upon the prices of high grade papers one of the leading manufacturers in Canada remarked to the Pulp and Paper Magazine this week that he believed they would hold. Labor is still very scarce and while some grades of materials are more plentiful at present, he thought there was not nearly enough forthcoming to go around. The demand keeps up well for the better papers although it is reported that some representatives from mills on the other side of the line have been visiting Canada and cutting prices. Another producer remarked that, in spite of freight embargoes and other difficulties in obtaining supplies, and also in the face of the high cost of labor and material, the plant of the company had been kept continuously running and a good profit made. There had been very brisk requisitions for all kinds of book, writing, bond and ledger papers, and although orders had fallen off somewhat he looked forward to an active summer and was of the opinion that present prices would hold.

A leading Massachusetts firm making bonds, linens and ledgers, writing to a Canadian consumer on what conditions would be in their line, owing to the participation of the United States in the war, express the opinion that, in the near future there will be a very largely increased demand for the various grades of paper as war conditions stimulate the demand for all manufactured products, and that the prices of raw material, which have been, and are higher, than has been seen for years will be forced still higher. They continue, "Apparently it will be more a question of supply than of price of some of these raw materials such as coal, animal size, pulp wood, etc. We cannot find that the consumption of paper has decreased, while jobbers' stocks which have been heavy for some months back, have been materially reduced. Then again there is an agitation in regard to further increase in wages among paper mill employees. When we compare the advances made in the paper market, we find that with the exception of lower grades they are much less than many other commodities. Considering all this a further advance of the figure for papers does not seem unreasonable. There has been all kinds of delay in getting goods shipped and we may look for still further congestion and embargoes. This is not intended as a scarce letter, nor do we advise ordering in excess of wants. At the same time, in view of the unusual conditions and possibilities, we suggest that you carefully consider the advisability of carrying full stocks."

It is understood that good progress is being made with reference to forming a jobbers association in Canada in order to protect the interest of the wholesalers. The work of creating such an organization has been going on quietly for some time.

There are no new developments in the box or board trade and while orders have fallen off to some extent, plenty of business is ahead to ensure an active summer. One jobber remarked this week that he was advising all his large customers to stock up with paper now as prices would not go any lower and he looked for a substantial increase in many lines before fall sets in. He has notified all his patrons that nothing is to be gained by delay. Many jobbers who have stocks that are low, are entering the market and buying fresh

supplies as they fear that the war has so many uncertainties in its train and so many men will be called to the colors, that the operation of plants and the supply of pulp wood will become increasingly difficult and things are likely to grow much worse before they improve to any extent.

There is no change to report in ground wood conditions and the one fear is the supply of sufficient pulp wood before the season is over. Grinders are now operating to capacity in all mills and water conditions are good. In chemical pulps about the same state of affairs remains and while buying has fallen off prices hold firm. The amount of cellulose coming in from Europe is very small.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (car load), No. 3	$7.75
xBook papers, (ton lots), No. 3	$8.00 to $8.75
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.75 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots, No. 1)	$10.25 to $11.00
Ledgers	15c up
Sulphite bonds	13c. to 15c.
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$47.50 to $52.50
Easy bleaching sulphite	$110
Sulphite, news grade	$90.00 to $95.00
Sulphite (bleached)	$160.00 to $170.00
Sulphate	$110.00 to $120.00

No changes are reported in **rag** and **paper stocks.**

Interlake Tissue Mills

Limited

MANUFACTURERS OF A FULL LINE OF WHITE AND COLORED M. G. TISSUES, BROWN AND COLORED LIGHT WEIGHT M. G. KRAFT, WHITE AND COLORED DRUG WRAP, ALL GRADES OF FRUIT WRAPS, DRY PROOF PAPER. A FULL LINE OF TOILET PAPER, PAPER TOWELS, PAPER NAPKINS, DECORATIVE CREPE ROLLS, LUNCH AND OUTING SETS.

Head Office, 331 Telephone Bldg., Toronto. Mills at Merritton

NEW YORK MARKETS.

By Rowland W. Jolly.

Judging from reports that are being received it appears likely that the railroads will be granted the increase in freight rates for which they have applied. It is generally recognized that by the recent wage increase, the roads have had to add considerably to their operating expenses and that they are, therefore, entitled to added remuneration for their services.—espe- army is a practical certainty, it is interesting to watch modities are selling at the present time. Just what affect such an increase will have on the pulp and paper market, cannot yet be stated, but it is believed that, when the roads receive permission to go ahead, the trade will come in for its share of higher rates.

Now that selective conscription for the United States army is a practical certainty, it is interesting to watch the effect on the industry. Of course, everything depends on the extent to which the various mills are hurt. It is known that a good many plants are suffering from the shortage of labor, and have been suffering for some time. It has been a question, however, to what extent women could be practically used in the mills

The matter of coal has taken on very serious aspects during the past few weeks. Of course, there has always been certain fears about coal, but conditions appear worse than ever before. In the first place, after increasing the wages of miners in several states from 10 to 20 per cent, coal operators have advanced the price of coal again. It has been said authentically that coal figures are today the highest they have ever been in history. However, even if mills are content to pay the increases, they are not at all certain of getting their supplies. The government is using large quantities of certain grades and is getting first call. Then

Tender for Timber Limits---Mill and Equipment

The following valuable property composing a going lumber manufacturing plant, is offered for sale in order that an Estate may be closed:

125 Square miles more or less, of timber limits under license from Ontario Government, conditions of which may be obtained from the Department of Lands, Forests and Mines, which permits cutting of all kinds of trees; composed of townships of Goschen, Carlyle, 67 and north half of Humbolt.

200 Acres of land at mouth of river on which are situated water-power saw mill and mill dam, box factory, yard with docks and tramways, store, boarding house, blacksmith shop, machine shop, storehouses, stables and about twenty houses for families. A steel tug eighty feet long, a steam launch and tow barge. Also camp equipment for two camps including sleighs, horses and all necessary rigging.

The territory is well watered and the river improved with dams, slides, etc. Blue prints may be obtained at the office of the undersigned.

Tenders for the purchase of the foregoing endorsed, "Tender for timber limits, etc.," addressed to the undersigned, will be received up to Thursday, 28th June, 1917.

Terms: Certified cheque payable to the undersigned, for 10% of the amount offered, must accompany the tender; 15% to be payable on the 1st of August, 1917; 25% on the 1st of November, 1917; 25% on the 1st of February, 1918, and 25% on the 1st of August, 1918.

Interest at 6% per annum from date of acceptance of offer to date each payment is made.

Cheques of unsuccessful tenderers will be promptly returned. The right is reserved to reject any or all proposals.

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The above is a series of Oil Storage Tanks built recently from our large stock of plants on hand.

FOR PULP AND PAPER MILLS

CHEMICAL AND ACID PLANTS AND REFINE RIES.

A long experience in filling the requirements of industrial plants for TANKS, LARGE AND SMALL, has won us wide-spread recognition as specialists in this line.

WE HAVE THE MATERIAL,—the organization and the facilities to meet YOUR requirements. Send us your specifications for prompt shipments.

The TORONTO IRON WORKS, LIMITED

TORONTO, ONTARIO—Head Office: ROYAL BAN K BLDG. Works: FOOT CHERRY ST.

again, the freight situation is still in bad shape so that deliveries are uncertain and usually delayed considerably. An interesting statement given out by a prominent manufacturer states that his concern has just contracted for coal for the coming year at $3.75 per ton at the mine, as compared with $1.70 per ton at the mines, last year. The statement tells that it has been impossible to get coal deliveries during the past several months and that at times it has been necessary to go out into the open market and pay as high as $5.50 to $6.50 per ton at the mines.

Activity in the mechanical pulp market has been somewhat retarded because of the lack of available stock and of the high prices which are being asked. However, in spite of these high figures, it is understood that there are certain concerns who, viewing the future and doubting the certainty of getting supplies some months hence, are endeavoring to store whatever stock can be had. By those who know, this is regarded as indicative of a great deal. As has been stated in these columns, before, the labor question is one of the chief problems facing the grinders today—both from their own viewpoint and from the viewpoint of the pulp wood supply. It has been asserted that the labor problem is the most important reason for the high cost of ground wood pulp today. Not only have the lumbermen been receiving more pay for their services, but they have been in such scarcity that the available supplies of wood has been cut to the point where the law of supply and demand forced prices up—and it seems certain that this law will make itself felt within the next few months, according to the reports now prevalent in many circles. It is estimated that the demand for ground wood will continue strong for some time to come. One of the good reasons for such reasoning is the fact that the consumption of newsprint for the next few months is expected to surpass practically anything that has been recorded for this period of the year. War extras, baseball extras and other general excitement, besides the fact that advertising is going strong and is expected to take on still greater proportions.

No renewed activity has yet been reported in chemical pulps. The tendency seems to be to keep out of this market for the time being. Conditions continue strong, however, for the mills report they are working as well as they can taking care of their old obligations and not having any surplus to speak of, for the open market. Shipments from abroad have not been of any real account because of the continued activity of the German submarines. A deep impression was made in the trade by the news of the large amount of tonnage which it was reported the German submarines destroyed during last week—and it was considered that shipping was more perilous today than it has ever been. The talk that the United States is going to build a fleet of a thousand wooden ships to carry on commerce with Europe — and that this would be a means of overcoming the submarine scare, was discussed as a probable means of increasing the imports of wood pulp. But this hope is scant, at least so it is regarded.

Interest was expressed in the statement of the manufacturer referred to before, in which he says that, since the new submarine blockade went into effect, "it has been impossible to get shipments from Norway and we received notice that, so far as the importer is concerned, we cannot look to him for any further shipments on the contract. Stocks are being exhausted fast, and the paper mills will soon be in the market for 'spot' pulp—the present nominal price of which is 11 cents per pound and over—with really none available." This expresses the situation. It is this way that the importers and others having pulp feel inclined and is forcing them to remain firm in their quotations, awaiting the time in the near future, they say, when the mills will be compelled to buy "spot" pulp.

It would not be wise to leave the subject of spot goods without saying that the dealers in rags are holding to the best of their ability to their present prices, in the hope that the time is near when the demand for rags will be stimulated by the fact that the consumers will no longer be able to hold aloof from the market. Despite the rumors to the contrary, the dealers insist that there is a shortage of rags in this country today. This condition has not been felt because the demand for stock has been so light as to be of no material consequence. However, just as soon as interest becomes lively, the truth of the situation, will be known. The labor element enters largely into the cause for the shortage of collections. Today, new white shirt cuttings are being held from 8¼c up to about 9c. Old white rags are not very active and are being quoted in this city at around 4½c to 5c; house soiled whites are reported at 3c to 3¼c; street soiled whites, are said to bring 2¼c to 2¾c; thirds and blues at 2¼c to 2½c; with black stockings at 2c to 2¼c. Roofing stock is fairly active, with prices ranging as high as 1¾c. The bagging market is firm, although the interest on the part of the consumers is said to be none too active. Reports state that the stocks available for this market are somewhat limited and that a good demand would

Wilson - Paterson Co'y.

Board of Trade Building, MONTREAL

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As you know, the excessive foaming of stock on the paper machine slows up production and lowers the quality of the sheet.

Where this foam is caused by gas in the stock. Superior Vegetable Tallow will positively kill the foam without killing the Sizing or spotting the sheet.

May we have the pleasure of sending you a barrel for trial?

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Rosin Size—Satin White—English and Domestic Clays—Paper Makers and Paper Coaters Chemicals.

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Probably one of the most essential features of a successfully working plant is a babbitt metal that will stand up under heavy duty service. A shut down in machinery costs money.

Hoyt Metals are thoroughly alloyed and made of the best selected stocks. These alloys are standardized in carload lots, insuring very even mixture.

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GRADERS AND PACKERS OF ALL KINDS
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Howard Smith Paper Mills, Limited
MONTREAL
Mills at BEAUHARNOIS and CRABTREE, Que.

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

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exhaust supplies in a very short time. Gunny is reported at about 3¼c to 3½c; bright bagging, at 3c to 3¼c; sound bagging, at 2½c to 2¾c. Manila rope is holding fairly firm at about 6c. While stock is said to be moving a bit, the market is not considered active.

The demand for paper stock continues somewhat satisfactory, due no doubt, to the situations described in the ground wood and chemical pulp markets. There is no question but that many mills are doing more and more in the way of reclaiming pulp and rags from old paper stock and that other plants are experimenting with the purpose in view to utilize waste papers wherever practical. It is this reasoning that causes the local dealers to be so optimistic with regard to the future. The shortage of ground wood is the dominating cause for the good demand for the cheaper grades of waste papers. Strictly folded news is going up to 1¼c, while overissues are said to be getting a little over this price. For some reason, that has not been made known, there seems to have been a little drop in mixed papers, to about 75c per hundred pounds. However, this is a good figure. Old manilas are said to be active, at prices ranging up to 1½c. The demand for old krafts is good, sales bringing as high as 4c, according to packing. Hard white shavings are reported up to 5¼c; soft white shavings, at about 4¼c to 4½c; magazines have dropped off to about 1½c; ledger stock is at about 2¾c.

No stimulation of buying has been reported in papers. The bearish tendency on the part of the jobbers is still noted — with prices reigning firm, however. Many of the mills seem to have curtailed their production in proportion to the buying, with the result that they are able to maintain their figures. News print is firm, with a good demand. Publishers are said to be discussing the report of the Paper Committee of the American Newspaper Publishers' Association—and stating that there were prospects of cheaper paper in sight. Few if any of the mills are inclined to agree on the subject of "Cheaper paper." Tissues are holding as firm as they can, with buying somewhat off. Books are strong and also boards and wrappings.

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Domestic bleached sulphite, f.o.b. pulp mill	8c*
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Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5½c*
Domestic unbleached sulphite, f.o.b. pulp mill	5¼c to 5½c
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Foreign unbleached soda pulp, ex-dock, N.Y.	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	12c†
Best grade writings	21c*
Regular superfine	19c*
Ledgers papers	12c†
News, contracts, f.o.b. mill	3c to 4¼c
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Book, super	9c*
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Tissues, good sulphite, bleached, per ream	$1.30*
Tissue, ground wood, manila, per ream	$1.30*
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Strawboard, per ton, f.o.b. New York	$60.00*
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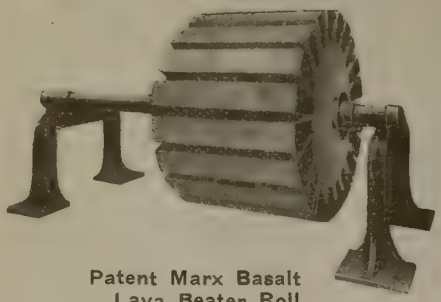
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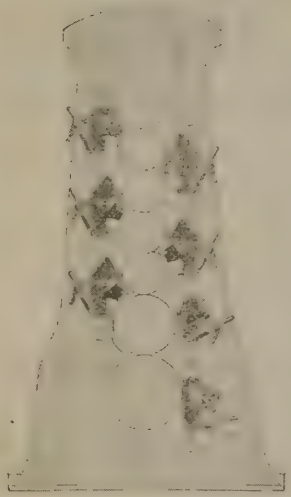
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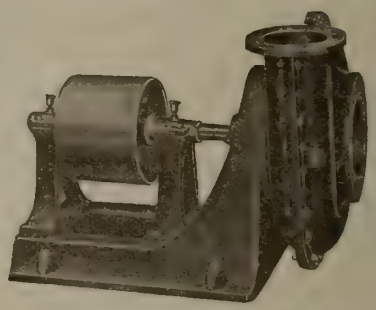


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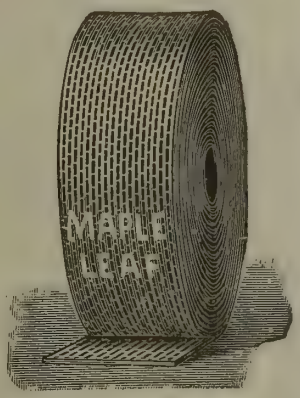
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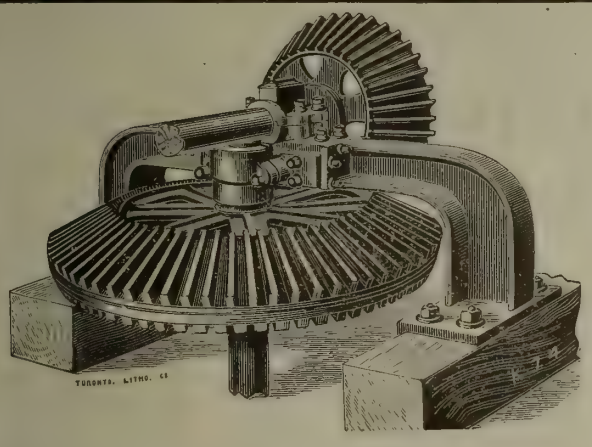


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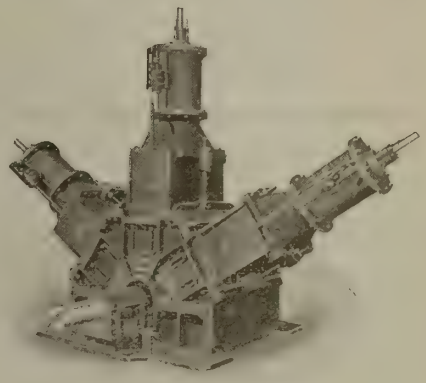
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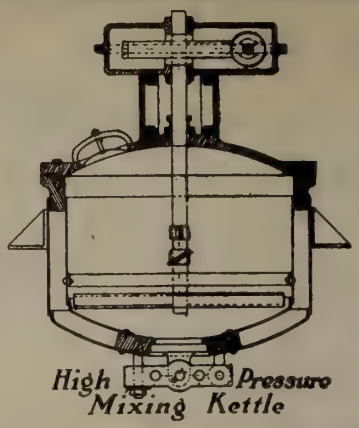
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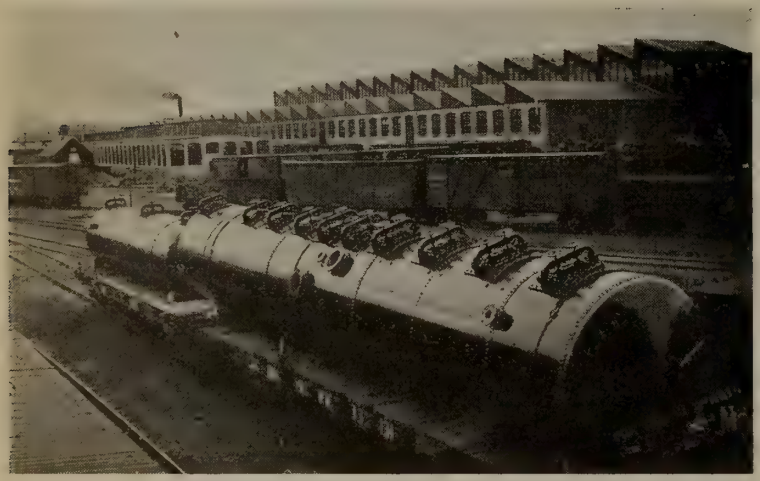
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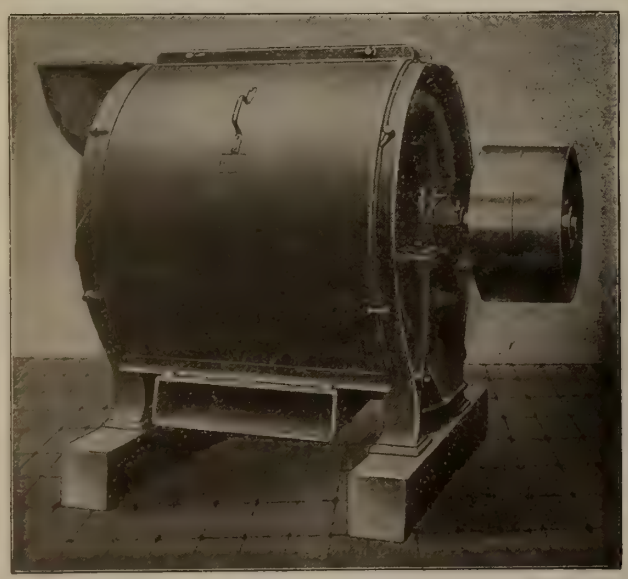
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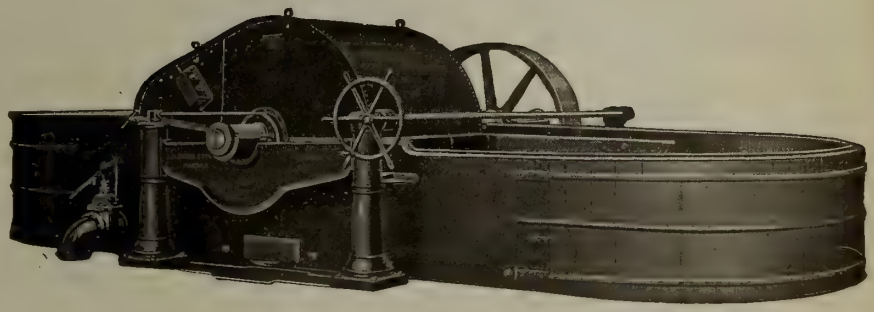
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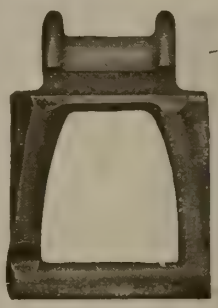
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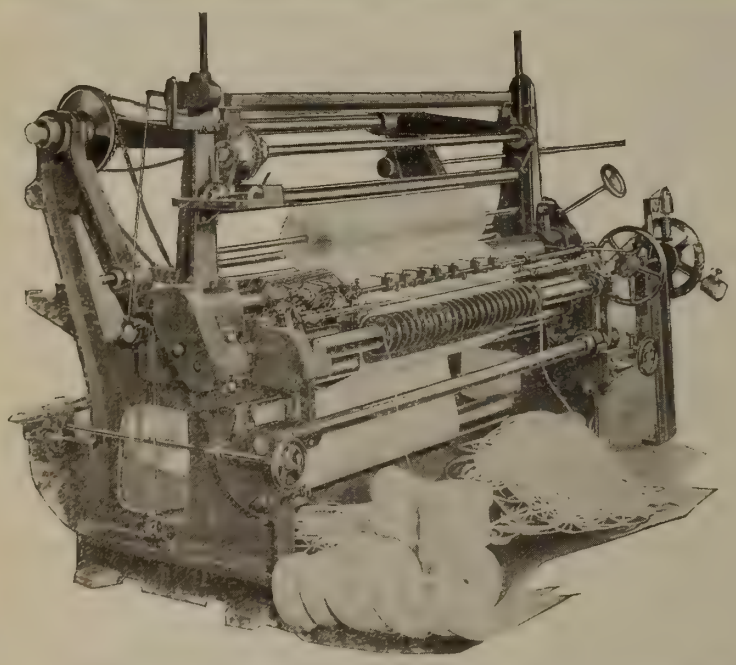
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EDITORIAL

TARIFF AND TAXES.

The biggest business in the world just now is the war, and as education is based on the three R's, the conduct of the war depends on three M's—Men, Money and Munitions. The munition business is fairly well organized and plans have been perfected for getting the men for the American contingent. Congress is also at work on means for raising money, the so-called "sinews of war." The Ways and Means Committee at Washington has proposed a scheme which involves tariff changes, although it was anticipated that the tariff would not be molested.

It is proposed to raise tariff schedules horizontally by 10 percent, that is, to add 10 percent to the present rates. Thus articles on the free list would have to pay 10 percent duty during the war.

The question is, "How would this tariff affect the pulp and paper industry?" The answer depends on which side of the fence one is standing and also on the probability of the bill going through as it is. History has already repeated itself several times in regard to what the Press can do to a proposed tariff and it is hardly to be supposed that the publishers will submit to a 10 per cent. increase in their paper bills without a complaint. We say a 10 per cent. increase because when the tariff was removed from paper and pulp imported into the United States, the price fell by an amount almost identical with the duty. A similar increase may be anticipated if the proposed tariff becomes effective.

It is hardly probable that such a bill will go through unchanged and any changes can be predicted with some assurance as affecting foodstuffs, print paper and pulp. These are the items that make the biggest hit with the public and the papers. What the publishers did to the Reciprocity Bill for their own ends will not soon be forgotten. We shall look for a rider or a joker in any tariff bill we see.

As a tax, a flat 10 per cent. increase in duties would have an advantage in avoiding explanations and exceptions. But taxing trade is a ticklish job and is likely to have unforeseen results.

Under present conditions, which will undoubtedly last as long as the war — and the new tax — there seems to be no reason for apprehension on the part of paper makers. The market wants more than can be produced. Business is largely adjusted to war conditions—except a further readjustment of labor, so that demands seem likely to continue. With the expenditure of new appropriations, large amounts of money will be put in circulation. People will buy newspapers and will pay two cents for them. This ought to cover easily the extra price to the publisher.

What looks more serious to the industry than the flat increase in duty is the proposed increase in postal rates on second-class matter. This will make it difficult for book mills if the better magazines curtail consumption, while the shrinkage in those that consume cheaper grades would help supply the war extras.

The United States plans a very mild tax on excess profits compared to that imposed by other countries. This is very commendable, inasmuch as it affects staple industries, as they will have to continue to bear the burden of war, especially in the case of an industry in which fair profits are made difficult. "War-babies" should be taxed on a different basis.

Evidences are already appearing in Canada of the results of putting permanent, staple industries in the same class with the mushroom, "built-by-the-war" businesses. An undue extension of the latter would tend to instability, while Canada must develop the normal industries based on her national resources. Such industries can best bear their share of war tax by extending the burden over a long period. Taking away an undue proportion of profits from such an industry as paper making is really curtailing the available capital for necessary development of our resources of forests and water falls.

Some firms have already abandoned work in developments or greatly modified their plans on account of the proposed tax on their surplus. This surplus or so-called excessive earnings is really capital in Canada. It is all we have to build our industries with. If this is taken away it means that we must wait for capital to come in from some other country, and that means the conducting of our business for the benefit of foreigners and sending future profits **out of the country**. .On the other hand, many of the war-born industries are already paid up affairs, so that earnings are now really incomes, and should be differentiated from our home-made activities.

THE QUESTION OF PENSIONS.

The Board of Pension Commissioners have written the Pulp and Paper Magazine protesting against a recent editorial in these columns, and asking for specific cases of inadequate pensions. Many of these have been appearing in the Toronto papers, while a few additional have been brought to the attention of the editor of this paper. In some cases we admit that the inequalities complained of are the result of the legislation which has been passed by the Government. At the same time, however, we feel that the Pensions Board should interpret the spirit of the law rather than the letter. Further, the Board need not delude themselves that this is a matter beyond the scope of newspaper criticism. Nothing is to be gained by secret operations. Every case of injustice, or alleged injustice, among the men is told to their friends, and soon attains a wide degree of publicity.

In complying with the request for specific charges, the Pulp and Paper Magazine knows of a returned officer, a college graduate, who gave up a position worth thousands a year to go overseas. Since he returned wounded, he has not been able to earn a dollar from his profession, yet the Pensions Board have allotted him the magnificent sum of $16.65 per month. It is true that he is earning money in another way, but that is a mere incident. Another case is that of the eldest son of a widow who went overseas and was killed. Because he was not the "only and sole support" of this widowed mother, the commissioners will not grant her a single cent in pension. The boy had only left school a few months and was earning some $25.00 a month, half of which he gave to his mother, who kept a boarding house. In a very few years the son would have been forced to be the sole support of his mother. Other instances could be cited, but these two are sufficient to justify our protest against the more or less rigid and unfair enforcement of the act as interpreted to the Pensions Board.

We are convinced that the public would support the Pensions Commissioners and the Government, if they showed a disposition to deal generously with our returned heroes. No one wants them to squander the nation's money, but better far that we should err on the side of lavishness than exhibit a spirit of penuriousness.

"MAKING TWO BITES OF A CHERRY."

When doctors disagree the ordinary layman is not supposed to be able to diagnose the case. However, there sometimes comes a crisis when the ordinary man of affairs is able to find a solution in matters which baffle the technical experts.

The case in point is the railroad situation in Canada—one of the most vexed questions confronting the people of the Dominion. According to the recent report of the special commission appointed to investigate this question, two members favored the taking over of the Grand Trunk, Grand Trunk Pacific and Canadian Northern, while the other member of the Commission advocated the operation of the roads by private interests, but re-arranging the Grand Trunk and Canadian Northern Systems in such a way as to make for greater efficiency. The details of the two reports are familiar to the readers of this journal, who also have their own opinions as to what the solution should be.

If we are going to have a partial government ownership of the railways in Canada, why make two bites of a cherry? It looks like poor business to advise the Government to take over the two or three roads in Canada that are more or less crippled, and allow a private corporation to still own and operate the most profitable road. To the ordinary on-looker, it looks like good business foresight to take the fat with the lean. Why should the country be saddled with two more or less broken down roads and leave the third prosperous road to still earn fat dividends for shareholders?

Canada has spent hundreds of millions of dollars on railroads, has given millions of acres of land, and guarantees, to the various railroad systems operating in the Dominion; this includes the C. P. R. as well as the other roads recommended to be taken over by the majority of the commission. It is certainly not good business to continue to pay out millions of dollars for the building and operation of railroads, and then hand them over in their entirety to private corporations to own and operate. If we must spend money as we have spent it in the past, then let us own our roads.

The war has shown that private ownership of railroads has been tried in the balance and found wanting. In Great Britain the roads have become nationalized, and it is extremely doubtful if they will ever go back to private ownership. This continent is the last stronghold of privately owned railroads, and the war is likely to see the passing of this policy, even in the United States.

The Pulp and Paper Magazine believes in making a complete job of our nationalization by taking over and operating all the railroads in Canada. Of course, there are difficulties in the way, such as patronage, but there is no real reason why the railroads of Canada cannot be operated as honestly and efficiently as the Post Office or any other department of the Government's activities.

With so many two-cent papers in the States, we may look to see a resumption of the coinage of two-cent pieces, which are almost identical in size with the Canadian cent.

"The daily gossip about starting new mills or enlarging present plants is somewhat nonsensical when it is known that the necessary machinery can not be delivered within a year and a half", says one manufacturer. "I know for I have recently investigated."

Producing Half Cellulose

According to Norwegian Patent No. 23570 and Swedish Patent No. 40894.

By E. KITTELSEN and T. KITTELSEN.

(Special Translation for Pulp and Paper Magazine).

In the trade-journals as well as in technical lectures information has recently been given with regard to experiments on radical changes in the paper industry, and we believe that also our method of manufacturing half-cellulose and half-cellulose paper will be of interest to members of the technical association. We shall therefore in the following give a brief outline of this method and the results obtained up to the present time.

It is a known fact that with the cooking methods now in use in the manufacture of cellulose the loss of wood material amounts to 45% to 60% of the total wood used. When we consider the fact, that the price of wood in the last decade has been at least doubled and also consider the several other burdens under which the industry is working, it is easily understood that a better utilisation of the wood is much more desired at present than in the past. However, with technical developments and the practical results obtained from them the possibilities of a better utilisation of the wood has also increased considerably.

The incrusting matters, which with the present cooking methods are transferred into the liquor, contain substances, which could in many cases with advantage be retained in the pulp. It is of course in that case not possible to obtain the pure product cellulose, but a uniform product, which would in the beater be equivalent to a mixture of various kinds of fibrous materials for the production of "half kraft" or similar qualities. In the usual cooking of brown woodpulp only 14-20% of the wood is lost and is relieved under the general name "wood acid", but it is known that this cooking is not sufficient for the production of better kinds of wrapping paper, which are now practically dominating the market.

Our patented method for producing half-cellulose is the result of efforts in manufacturing a product without any greater loss of wood worth mentioning, however with a greater strength, a better finish and thereby securing a higher price. Sucha product is all the more desired as the demand for "half-kraft" and "kraft" increases, whereas the demand for ordinary brownpulp and "natural" paper is usually small and decreasing.

After several years of experimenting and investigation upon these questions, unfortunately interrupted by the war, and in trying out the method of various mills in this country (Norway) as well as is in Sweden and also in the Paper Making Laboratory of the Municipal School of Technology, Manchester, we have obtained results, which we believe ought to form the foundation of a partial change in the manufacture of paper, that is to say, when it is desired to make wrapping paper, paperbags, insulation paper, etc. We shall begin with a description of the treatment of the wood blocks for grinding or what we call the preparing of the wood.

II

THE PREPARING OF THE WOOD.

A.—Previous Treatment of Blocks.

The wood is cut into the lengths required for the grinding. Large sized blocks are split in four parts. The block is then given a cut with a thin ripsaw, first from one end, whereupon the block is given one-fourth turn and then cut from the other end so far that the two cuts intersect each other in the middle of the block.

Experience from tests show, that this previous treatment of the wood is essential for an effective action of the liquor on the interior of the block. The wood used for the half-cellulose need not necessarily be dry.

B.—The Absorption of the Black Liquor.

The digester can be used as container for the blocks during the preparation with liquor, which has already been used. The digester is charged with cut blocks. The top cover is put on and steam introduced for a certain length of time in order to heat the blocks and remove the most soluble "wood acids". The black liquor from one finished digester in the system is blown over into this digester.

This black liquor contains according to analysis sufficient caustic liquor for a favorable osmotic action in the block, but not sufficient for an economic recovery of the soda, which therefore is proposed to be left out in this process. On the other hand the liquor is on account of the previous removal of "wood acids" not more loaded with impurities, than that it can with adadvantage be partly used in mixture with a fresh portion of strong liquor, whereby part of the soda already used can be considered as recovered. (About half the "waste" liquor can be re-used in making strong caustic.) It is further to be noted, that the liquor which has been used in the half-cellulose process according to analysis contains in percent more caustic soda than carbonate, whereas the condition is reverse in the sulphate process. The relieved "wood acid" and the excess of black liquor could eventually, according to its composition, comparatively easily be distilled or evaporated for utilization of the combustible substances as fuel. This question however shall not be further dealt with here. According to the rules for osmosis the black liquor will mix with the water present in the wood (and this mixing must take place through the wood fibres till both liquids are uniform and of the same composition and strength). This penetration can take place at low pressure and temperature, whereby the steam consumption is reduced proportionately. The time required for such an osmotic action may vary from 3 to 15 hours depending on the circumstances. This preparation is of special importance for a favorable result. After about one half of the black liquor has been relieved from the bottom of the digester at the end of this preparation, the digester is ready for the addition of strong liquor for the following cooking process. The fibres appear to be considerably softened after this treatment.

III

The Cooking Process.

When the strong liquor has been added, the cooking is conducted in the usual manner with gradual addition of steam and regular relieving of gas. Super-

heated steam is of advantage but also saturated steam can be used and in both cases the cooking must be at 80-90 kg. per hour, during the last part of the cook the steamline is kept closed.

The whole operation: (a) charging a digester with blocks, (b) steaming, (c) preparing, (d) cooking and (e) emptying will take from 24 to 36 hours. Here as in the sulphate mills a calorifier with forced circulation will probably be of advantage.

IV.

Loss of Wood in Cooking.

According to analysis our cooking liquor after a finished cook contains 7.9% solid and volatile combustible matters, extracted from the wood.

As 1 cub. metre of liquor weighs 1028 kg. this therefore contains 80 kg. combustible matters.

One digester used by us contained 4.9 cubic metres solid wood, of specific gravity 0.5, giving a total weight of the cook 2450 kg. There was used 3,5 cub. metres of liquor with 80 kg. solid combustible substances, corresponding a loss of wood (loss in weight) of about 11.50%.

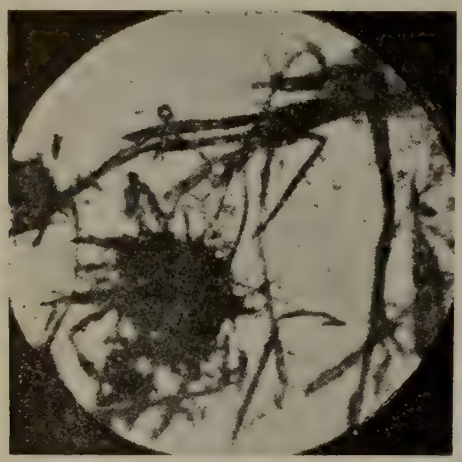


Fig. 1.—Hot-ground Pulp.

According to analysis further 4.27% not combustible substances are obtained equal to loss of wood . . . . . About 6.25%
In addition to this experience has proved a loss by steaming and relieving of gases of . . . . . About 4.25%

Total loss of wood . . . . . About 22. %

V.

THE TREATMENT IN THE GROUNDWOOD MILL AND THE PAPER MILL.

A.—In the Groundwood Mill.

The cooked blocks are preferably ground on cold grinders but can also be ground on hot grinders if the addition of sufficient cold water is secured. As the wood after cooking is very soft one must be careful in the selection of burr and the sharpening should be done in a very way as to preserve the fibres as much as possible. We can in any case be sure of a production of 50-60 kg. per H.P. in 24 hours. (For comparison it may be noted, that in grinding ordinary white pulp the production is only 35-38 kg. and brown pulp maximum 50 kg.) Without having investigated it we may say that it is very possible that the fibres may be further improved in using "longitudinal" grinding. There should further be arranged for a good refining of the pulp. In screening 1¾ mm. openings should be used. (Handled like chemical pulp).

We reproduce the photomicographs of Enge ("N.-G") pulp, etc., used by Mr. Chr. Vig in "Papir-Journalen" No. 6 this year, and for comparison we add to these a photomicograph of one of our half-celluloses, manufactured by the Mago Groundwood Mills and also of a paper made of the same material and Bohnsdalen Mills Ltd. and finally for comparison a sample of half-kraft paper, which has been sent to us, and for which quality there is said to be a very brisk demand.



Fig. 2.—"Enge" ("N.G.") Pulp.

B.—In the Papermill.

The treatment of pulp is on the whole the same as in the manufacture of half-kraft or kraft paper, the treatment of the pulp in the beaters being of special importance and taking from 6 to 8 hours.

We did not have the opportunity of beating so long the paper made by us up to the present time, but microscopic examinations show that the fibres could stand a longer time of beating.

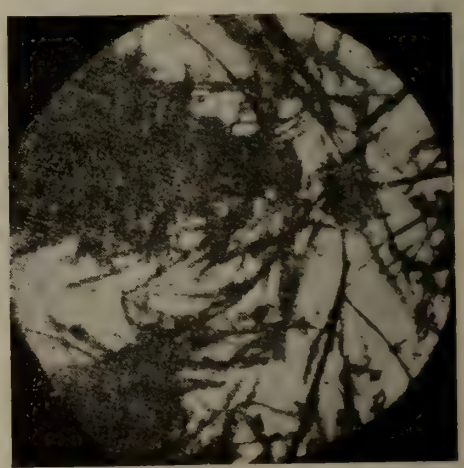


Fig. 3.—Hot-ground Pulp.

Tests show that the half-cellulose paper on account of the previous special treatment with soda is very susceptible to sizing. At one of our recent tests at Bohnsdalen the paper with the addition of 10% sulphite cellulose ("seconds") gave a poorer result as to breaking length than when only half-cellulose was used.

In order to show the results of the strength of our paper obtained up to the present time a comparison with "natural" and "kraft" is given below, the strength of the kraft-paper being given as 100%.

Test No.	Paper Quality.	Mill.	Gr ım. Weight.	Breaking length average.	Strength %
1.	"Natural"	Skjaerdalen	74 gr.	1700 m.	21.2%
2.	"	Aamofors	40 "	1916 "	23.9 "
6.	"	Aamofors	95 "	2375 "	29.6 "
4.	½ cell. paper	Skjaerdalen	37 "	2650 "	30.9 "
5.	½ "	Union	77 "	2700 "	33.7 "
6.	½ "	Aamobfors	45 "	3673 "	45.9 "
7.	½ "	"	95 "	3915 "	48.0 "
8.	Real ½ "			4150 "	52.0 "
9.	½ cell paper	England	65 "	4340 "	54.2 "
10.	½ "	(Bohnsdalen "cook 1")	55 "	5851 "	73.1 "x)
11.	½ "	(Bohnsdalen "cook 2")	55 "	6578 "	82.2 "
12.	1-1 kraft	Hurum	50 "	8000 "	100.0 "

x) 10% Sulphite pulp added.

From this table it may be concluded that the strength of the paper made from half-cellulose in Boehnsdalen is considerably superior to the half-kraftpaper sent to us.

VI.
The Soda Process.

As analyses have proved that the greatest part of the caustic soda used in our cooking process remains in the wood (75%) and can not be washed out in diffusors or in other satisfactory way, a recovery is as mentioned before practically out of the question in our method, especially as only small amounts of liquor per ton are to be regarded (2.2 cub. meter liquor per ton dry half-cellulose against about 8 cub. meters per ton dry sulphate-pulp of about the same strength).

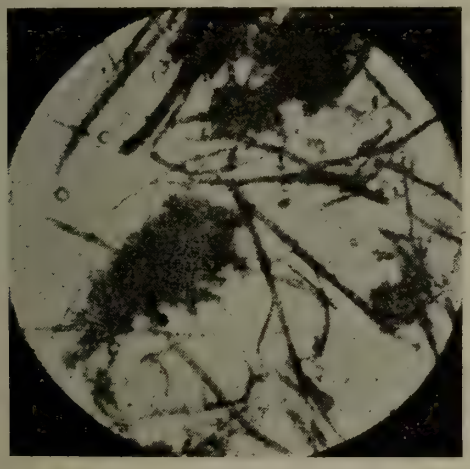


Fig. 4.—Angle-ground Pulp.

However, as shown below, the preparing of fresh caustic soda, will, especially electrolytically, be more favourable than a recovery. This being so it should seem to us as if also the sulphate mills ought to go over to preparing electrolytic soda instead of recovering. The reason why this has not yet been done may be that the method is not sufficiently known and is perhaps not always feasible in old plants owing to the great power consumption for the large quantities of liquor required by these mills per ton of cellulose.

Before we, however, pass on to a description of the electrolytic method for producing soda, we shall describe a method by which the required amount of cooking liquor can be prepared in an inexpensive plant and for experimenting purposes.

This method is more expensive than the electrolytic method, but should be described in case it might probably be suitable in certain special cases.

Alternative I.
Preparing Cooking Liquor from Calcined Soda and Quicklime.

To a solution of calcined soda quicklime is added in a mixer under steam heating (causticizing) whereby is obtained:

$Na_2CO_3 + Ca(OH)_2 = Ca\,CO_3 + 2\,Na\,OH$ (the liquor).

The proportion according to the atonic weights will be:



Fig. 5.—Chemical Pulp.

$106\,Na_2CO_3 + 74\,Ca(OH)_2 = 100\,CaCO_3 + 80\,NaOH.$

If it is desired to cook with a mixture of 8° Bé (caustic soda) and it is calculated that in mixing with one half of the volume black liquor of 2° Bé, altogether 1° is gained for the whole charge, the price per ton is to be calculated as for a fresh liquor of 7° Bé. The strong liquor charge is then made up to 14° Bé and per 1.1 cub. meter (corresponding to the quantity of liquor per wet ton) 162 NaOH are then required. The proportion will then be:

210 kg. Na_2CO_3 + 150 kg. $Ca(OH)_2$ = 203 kg. $CaCO_3$ + 162 kg. NaOH.

As the soda is not absolutely pure an addition of 15% should be added to that theoretically estimated (= 242 kg.) As also the lime is not always pure and fresh, it is necessary to make an addition of 10% of the theoretically found (= 165 kg.) whereby the result is:

242 kg. soda at 8½ oere per kg. = crowns 20.57
165 kg. quicklime 3 oere per kg. = crowns 4.95

crowns 25.52
(= $6.90x)

x) Assuming $100 = 370 crowns. 1 kg. (kilogram) = 2.2. pounds.

The cost of liquor per ton of half-cellulose excluding cost of plant and labour then is:

For 7° Bé (corresponding to a cooking liquor—8 Bé)

$$\text{Crowns } \frac{25.52}{2} = \text{crowns } 12.76 \text{ (about \$3.45)}$$

Very little power is required in this arrangement — (about 10 HP.).

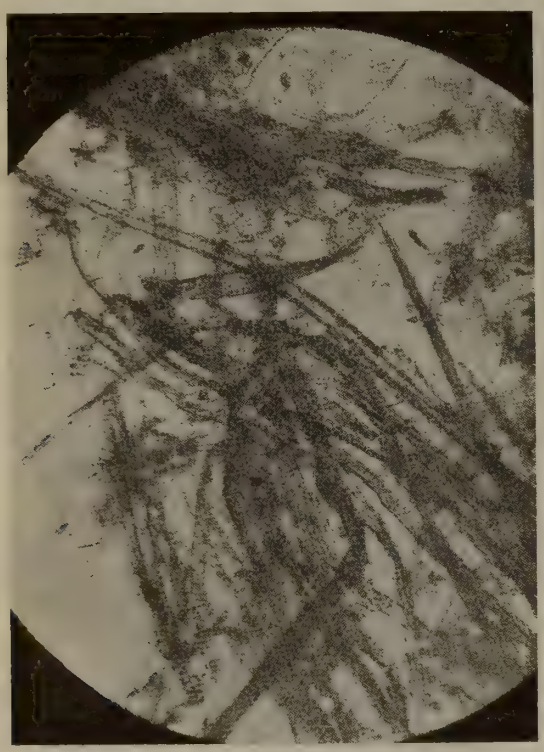


Fig. 6.—½-Cellulose manufactured at Mago Mill.

Alternative II.

Preparation of Liquor and Chloride of Lime by Electrolysis.

In the following a method of preparation is described which gives the most favourable result for the half-cellulose process.

For further particulars of the method we may refer to "Papir-Journalen" No. 3, 5, 7, and 10, 1913, in which the plants of the Oxford Paper Co., Rumford, Me. are described. This company uses as cathode a liquid metal (mercury), which produces in **one** operation pure causitc soda as well as chlorine for preparation of bleaching-material. The "Whiting Cell" is used. The system is comparatively new. However, it is posible that the "Siemens-Billiter Cell" or the "diaphragm"-cell will prove to be more favorable to our process.

The plant mentioned above is constructed for a production of 20 tons of 35% chloride of lime in 24 hours, delivering at the same time 8 tons of sodium hydroxide practically free from sodium chloride.

The electrolysers are arranged in 4 series of 48 cells each, total 192 cells. Each series is driven by a continuous current dynamo of 220 volts and 1,500 ampères, but is usually running at 206 volt and 1,300 ampères (364 HP.) One series therefore produces 2 tons caustis soda and 5 tons 35% chloride of lime in 24 hours. We shall in the following show what the conditions are in a plant producing annually 6,000 tons wet half-cellulose (about 3,000 tons paper).

For a plant of this size one of the series will be sufficient.

The necessary production of caustic soda per 24 hours can be assumed to be 1620 kg. whereby 4250 kg. of chloride of lime are obtained, which means a theoretical power consumption of 364 HP.

With this method the consumption of salt is very low, only approximately 10% more than the theoretical amount. (Losses in using old electrolytic methods amounts to as much as 80%).

The electrolytic decomposition is:

$$\underset{+}{Na}\ \underset{-}{Cl} + \underset{+}{HO} = \underset{+}{Na}\ \underset{-}{OH} + Cl$$

Common salt (rock salt) dissolved in water is decomposed by the electric current in such a way that the sodium ion on its way to the cathode combines with hydroxide ion to form caustic liquor (sodium hydroxide) and free chlorine, which is collected at he anode, from where it can be conducted into a container with milk of lime.

The cost of liquor per ton of wet half-cellulose, exclusive cost of plant and labor will be for 7° Bé.

Production cost:

a. 130 kg. rock salt at .025 = 3.25 crowns
b. 112 kg. quicklime at 0.03 = 3.36 crowns
c. 437 kg. H.P.-hours .01 (20% added to amount theoretically quired . . . . . 4.37 crowns
d. cost of electrodes . . . . . 0.30 crowns

11.28 crowns
(= $3.05)

Value of by-product:

e. (212 kg. 15%) = 180 kg. chloride of lime at 0.07 . . . . . = 12.60 crowns

Profit 1.32 crowns
(= $0.36)

In other words, we may assume that the sale of chloride of lime more than balances the expenses for power, electrode, salt and lime, so that in the final calculation only the interest and depreciation of the plant and the cost of labor have to be considered. If limestone is obtainable at a low price, it may probably be possible to make further savings, whereby the result will be still more favorable. We may add that we in all our calculations have considered the prices before the war. We have for instance assumed a market-value of cr. 70.00 (about $18.90) per ton for chloride of lime whereas at present cr. 1200 has for a long period been paid.

Our yearly production is estimated to be about 1100 tons in a plant with a capacity of 6000 tons (wet) half-cellulose.

VII.

Estimation of Costs and Returns.

To Alternative I (Calcined Soda method):

Additional building and equipment required for transition into the manufacture of half-cellulose, applied to a running brown pulp mill of a capacity of

6000 tons (wet) pulp per year, consisting of:

1 container for strong liquor, 1 container for black liquor, 2 centrifugal pumps with connections, piping and fittings, 1 new digester, changes in the digester building, transport arrangements, 1 mixer with stirring aparatus and rip saw machinery, total 15.000 crowns.

When we assume the cost of brown pulp to be per ton . . . . . cr. 30.00

Additional costs for half-cellulose:

Liquor (see above)	Cr.	12.75
10% interest and depreciation of the soda plant	"	.25
Labor (4 men)	"	.80
Lubricants	"	.05
Maintenance	"	.15 cr. 14.00

Cost of production per ton half-cellulose cr. 44.00
(About $12.00)

If the pulp is delivered to the paper mill at cost-price this means an additional cost of 2 × 14.00 cr. 28.00 per ton paper + cr. 1.00 in the paper mill = cr. 29.00
(= about $8.05)

If the half-cellulose plant is connected with a corresponding paper mill of 3000 tons paper capacity, the annual profit on the half-cellulose plant, the groundwood mill and the paper mill will be cr. 138,000 (about $37,000) against only cr. 45,000 ($12,200) on brown pulp mill and paper mill alone.

From these figures, possible expenses in increased capital, invested enlargement of the beater room and the possession of the process would have to be subtracted. These expenses, however, will not influence the favorable result anything worth mentioning.

To Alternative II (Electrolytic Plant)
Invested Capital.

As under Alternative I . . .	cr. 15000	lime towers instead of lime kiln
1 dynamo	cr. 10000	
Electrolytic plant	cr. 80000	
Buildings	cr. 40000	
	cr. 145000	
Miscellaneous	cr. 5000	cr. 150000

(About $40600)

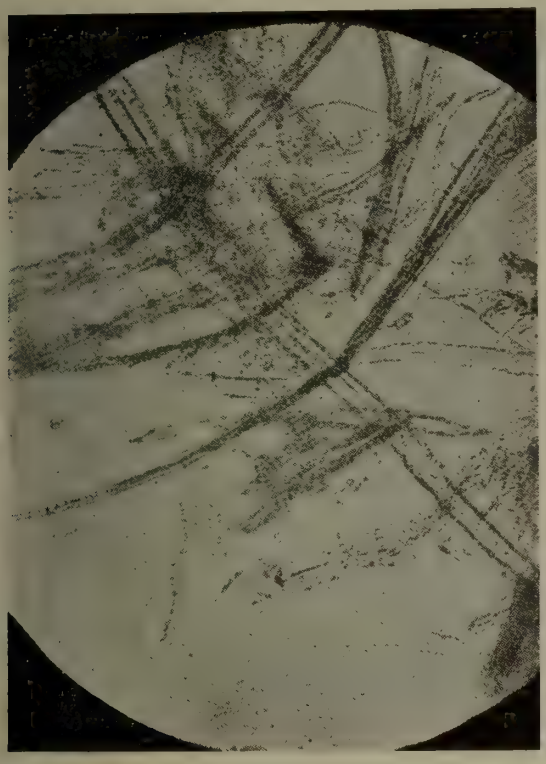


Fig. 7.—½-Cellulose Paper, manufactured at Bohnsdalen Mills.

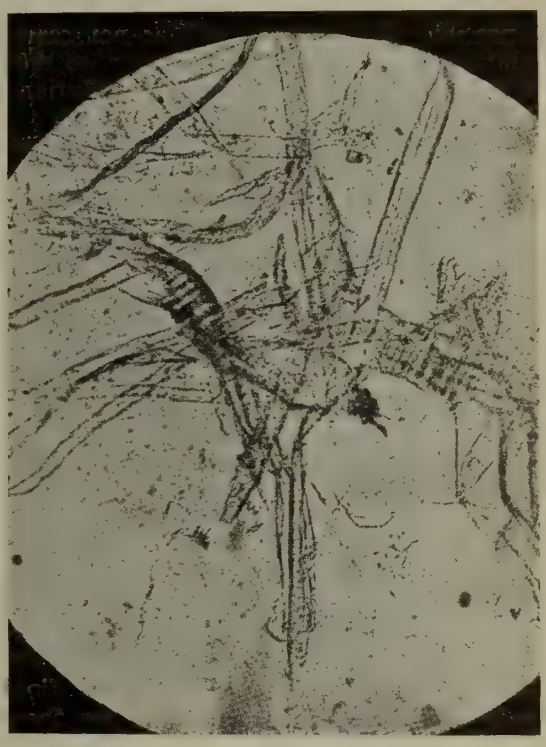


Fig. 8.—White ½-Kraft paper (Anth. B. Neilsen.)

For comparison:

1 ton "natural" paper, 50 gr. weight,		
Manufacturing cost	About cr. 135.00	f.o.b.
Market price estimate high . .	" cr. 150.00	"
Net profit per ton	cr. 15.00 ($4.00)	
1 ton half-cellulose 50 gr.		
Manufacturing cost	cr. 164.00	
Assumed market price for half-cellulose paper according to information	cr. 210.00	
Net profit per ton	cr. 46.00 ($12.50)	

Costs of production in manufacturing half-cellulose:

Brown pulp as alternative I . . .	cr.	30.00
10% interest and depreciation	cr.	2.50
Labor	cr.	1.60
Increased administration cost . .	cr.	0.50
Maintenance, taxes, etc.		0.40
Additional cost due to increased depreciation and increased working capital	cr.	2.00
	cd.	37.00
Profit on electrolytic plant	cr.	1.30
Cost of half-cellulose	cr.	35.70 per wet ton (About $9.70)

Additional expenses per ton paper:
2 tons half-cellulose (2 × 5.70) 11.40 + cr. 1.00 in the paper mill = cr. 12.40.

For comparison:

I ton "natural" paper (50 gr.) cost .. .. cr. 135.00
Market price .. .. cr. 150.00

Net profit per ton .. .. cr. 15.00
(About $4.05).

The manufacturing cost of
1 ton half-cellulose paper (50 gr.):
cr. 135,00 + 12.40 = " 147.40
Estimated maket price according to information = " 210.00

Net profit .. .. cr. 62.00
(Ab. $17.00).

On 3,000 tons paper therefore this profit is cr. 187,800.00 (about $50,700.00) per year against cr. 45,000.00 (about $12,200.00) on brown pulp mill and paper mill alone (excluding expenses as under Alternative I).

The calculations regarding the electrolytic plant as given above, are based upon information which is regarded to be sufficient, and these are, as will be seen, transferred with advantage to our half-cellulose process.

It is possible that our process has not reached its final solution in all its details; however, so much has already been achieved, that a perfect solution seems beyond doubt.

With a smaller experimental plant to begin with we believe that very good results can be secured.

—Papir-Journalen 1916, p. 254.

GRAIN ALCOHOL FROM WOOD WASTE.

There is no doubt but that two factors will greatly influence the development of the manufacture of alcohol from wood. One is the increasing demand of growing populations on its grain supply for food only and the other is the increasing demand for volatile fuel for internal combustion engines. due partly to rising cost of gasoline and partly to rapidly increasing numbers of motors.

The possible raw materials for alcohol production are unlimited, for anything containing starch, cellulose or sugar can be utilized. In the case of starch we are limited at present to establish crops, and the cost of the raw material from such substances as potatoes. maize and rice includes raising the crop. harvesting it, transportation to the distillery and the final conversion there to alcohol. As a consequence the cost of the raw material is too great, varying as it does from twelve to twenty-five cents a gallon of finished alcohol.

Of all the above possible sources. the most interesting, owing to the low cost of raw material. is the waste from the lumber industry particularly that in the form of sawdust or small chips. This material in the vicinity of sawmills or woodworking plants is often an item of loss owing to its production in excess of their own power requirements, its value never rising above fifty cents a ton, even as used as a source of power. The disposal of this superfluous waste from figures gathered by the Forest Products Laboratory at Madison. Wis.. costs from thirty to sixty-six cents a cord of 1.800 pounds, the total annual loss from this cause amounting to about $6.000.000 annually, in addition to the value of the wood so burned.

This represents an annual wastage of approximately 15,000.000 cords of wood and constitutes only about fifty to sixty per cent of the total waste material produced in this form. Thus we see that there is produced annually in the United States waste material amounting in volume to about 30,000,000 cords, or around 27,000,000 tons, which is now burned as the easiest method of getting rid of it.

From experiments which have been carefully conducted by various experimenters a ton of dry sawdust has been found to yield with proper treatment around 20 to 25 gallons of 95 per cent alcohol and we could have therefore an estimated production from this source alone of around 500,000,000 gallons annually.

If we add to this the amount of wood wasted in the form of stumps and branches sufficiently thick to be barked which on a conservative basis is equal in amount to the sawdust and chips produced, we would get from this "waste" wood a volume of alcohol almost sufficient to supply with fuel even the stupendous number of automobiles at present in use.

WILL TAKE YEARS TO REBUILD DEMAND FOR HIGHER GRADES OF PAPER.

(From Louisville Correspondent, U. S. Paper Maker).

Paper jobbers and printers of Louisville are of the opinion that it will take years to rebuild the demand for the higher grades of bonds and other papers following a return of normal conditions in this country. It is reported that consumers of paper have been gradually working to lower and lower grades of stationery in an effort to hold down their overhead expense, and continue using papers at the same approximate price, although at considerable lower quality.

It is asserted that many of these consumers will continue using low-grade materials when conditions return to normal. A printing salesman recently made the statement that out of his following in the city, he had less than half a dozen customers who were using the same grades of paper that they employed previous to the war and the advances.

WOOD FLOUR WANTED.

The Commercial Intelligence Branch of the Department of Trade and Commerce frequently receives inquiries for wood flour or wood meal made in Canada. So far no Canadian manufacturer has been found who is prepared to supply this article. It is used in the manufacture of explosives, the making of linoleums. the manufacture of dolls and a variety of other purposes. This would appear to be an opportunity for some Canadian wood working establishment to use up waste material. For further information apply to the Commercial Intelligence Branch. (Refer File 13533).

As mentioned further in Trade Inquiry 791. an English firm requires supplies of wood flour or wood meal to be used in the production of explosives and linoleum. They could take from 500 to 1.000 tons monthly at the present time provided quality and price are satisfactory.

PAPER WANTED.

A London firm are anxious to get into touch with a Canadian mill in a position to make paper of any kind (news. book. bonds. writings or wrappings) for export direct to Australia and New Zealand. where they have six branches and a unique selling organization. Trade Inquiry 797.

The Paper Probe at Ottawa

(Written Specially for the Pulp and Paper Magazine)

By EVERETT ANDREW.

Probings and delvings of considerable magnitude, into the newsprint industry, which may develop into a similiar situation arising in other branches of the paper trade, were created when Canada's first newspaper manufacturing investigation (brought into being by the real or fancied grievances of publishers) began at the Court House, Ottawa, on Tuesday, May 8th, with Commissioner R. A. Pringle, K.C. presiding.

Not only is the newsprint manufacturer to have his "recording plant" — books, accounts, trial balances, etc., searched from cellar to garret for any pertaining to the cost of production and sale of newsprint, but he is required in answering the "forms" sent him by the Commission to tell how much supply he has in sight, what it is worth, and estimate its cost.

What happened when the opening session of the "probe" sat at Ottawa last week is summarized as follows:

The Canadian paper situation is to be "fully" probed.

Every newsprint manufacturer in Canada (British Columbia excepted) is to be called on to tell the Commission what it costs him to produce newsprint, estimate his present stock, and supply, newsprint making materials, etc. If he does not choose to fill in the forms received from the Commission and answer the question thereon he will be brought to Ottawa for examination under oath or his books will be gone over by an accountant or—BOTH.

A deep probe is to be made into the affairs of companies who have issued prospectus and statements showing low cost of production and enormous profits. The prospectus of the Abitibi Power and Paper Company and the Brompton Pulp and Paper Company are desired by the Commission.

It appeared that the neswpapers of today (war time contingencies considered) were too large.

John F. Orde, K.C., representing E. B. Eddy, interests claimed. "It is not how much (newsprint) newspaper publishers wanted, but how much could they get along with. Mr. Orde pressed this point and maintained it was pertinent to the inquiry and that all conditions should be investigated.

"It was conceivable," Mr. Orde said. "that some of the newspapers had laid away supplies of newsprint (purchased at the government's 'fair and just price') for an Evil Day." He was not sure, but assured Mr. Pringle that while there was ground for this belief it would be hard to find out.

Not only will the manufacturer's end of the question be probed, but newspaper publishers will likely be called upon for statements.

The Commission will not sit further west than Fort Francis for the purpose of the present inquiry. The sitting of the Commission has adjourned until May 21 to give the newsprint manufacturers an opportunity to furnish the information asked for by the forms.

At least fourteen newsprint and paper manufacturers in Quebec and Ontario will come under fire from the Commission. Seventeen producers of newsprint will give information to the tribunal before the inquiry concludes.

Mr. George Cahoon of the Laurentide Co., said the accusation that a manufacturer had refused to make a contract with a publisher after June 1st should be investigated. He hardly credited it.

* * °

Only a small attendance of manufacturers were represented at the opening sitting, among those present being: George H. Millen, president of the E. B. Eddy Company; J. A. Bothwell, general manager of the Brompton Pulp & Paper Company; H. R. Erskine, representing J. R. Booth interests and P. B. Wilson of the Spanish River Pulp and Paper Co.

Counsel appearing before the commission were: Mr. Glyn Osler, K.C., Toronto representing the Ontario Paper Company; Mr. John F. Orde, K.C., for E. B. Eddy; Gordon MacDougall, K.C. and George H. Montgomery, representing the newsprint section of the Canadian Paper Manufacturers' Association; Mr. H. A. Stewart, K.C. of Brockville, represented the Government.

The questions contained in the "forms" which the Commission is sending out to the newsprint manufacturers are in part as follows:

Name of manufacturer and location of plant.
Output during 1914-15-16 and 17 to date.
Quantity of newsprint exported to the United States.
Quantity of newsprint sold in Canada.
Cost of production in Canada.
Cost of production per ton in each year mentioned.
Selling price in Canada each year.
Selling price in carload lots to jobbers and small consumers. (This covers sheets, small rolls and all quantities of paper).
Selling arrangements.
Profit per ton at each plant.
Nature of contracts between producer and consumer.
Nature of agreements between manufacturers.
Profits on the percentage basis on sales.
Amount of stock in mills.
Amount of materials on hand and supply.

This, while not a complete list of the questions are the ones of chief importance to the trade.

In opening the inquiry, Mr. Pringle said that the investigation into the price and supply of newsprint was authorized by an Order-in-Council, fixing until June 1st the price of newsprint at two and half cents per pound. He referred to resolutions passed by Western newspaper publishers complaining that they had considerable difficulty in securing a supply of newsprint. Replying to this fact the commissioner produced a copy of the Manitoba Free Press which contained almost **seventy-five pages** of news, special sections, advertising, etc. Mr. Pringle thought it would be well if newspapers considered economy, and referred to the drastic measures taken by the British and French governments. "In view of amount of paper exported, it might be said that there is no danger of a paper famine in Canada," said the Commissioner.

Returning to the question of what procedure should

be followed in the inquiry, Mr. Pringle said, "I take it, I have no power to compel the paper manufacturer to answer a set of questions which I hand to him, but if he refuses he can be brought here and examined under oath, or I could have an accountant go into his office and examine his books."

In regard to the situation of news paper publishers who perhaps wanted to get in a supply of newsprint greater than they actually required, Mr. Pringle said he could see why they wanted to get it and added that if publishers tried to get in a supply of newsprint beyond their requirements he (Mr. Pringle) "might have to go into that question. I have letters from newspapers in which the publishers state they cannot make contracts with paper manufacturers after June 1st. The manufacturers state they are not in a position to say if they can supply newsprint then or not," said he. Mr. Pringle further said that he had replied to the newspaper publishers that they need not be "apprehensive," of there being no newsprint after June 1st, for if newsprint was being manufactured the Government would see that they (publishers) get it. The Commissioner explained that in making this assurance to the publishers that he had taken it upon himself to speak for the Government.

In referring to one letter he had received from a publisher, Mr. Pringle said that the manufacturer had told the publisher that he would not give the publisher any more newsprint after his contract expired. Mr. George Cahoon of the Laurentide Co., took exception to the view the situation between the said publisher and the manufacturer in question might have, and asked the Commissioner on behalf of the paper industry to have the accusation run down. Mr. Cahoon pointed out that it could be a very easy thing for the publisher to state that he had been refused a supply whereas the manufacturer might never have refused it. Mr. Pringle said he would write the publisher for confirmation of the contents of the letter and find out more about the situation between the publisher and manufacturer in question.

Mr. Glyn Osler, K.C., of Toronto appearing for the Ontario Paper Company asked the Commissioner if the figures submitted by the manufacturers to the Commission were to be considered approximate estimates? Mr. Pringle thought such would be the case especially in relation to the costs of production for 1917.

Mr. Cahoon of the Laurentide Co. pointed out that some manufacturers, had not yet drawn on materials that had been purchased at increased prices, but which would be used during this year. The new coal contracts with increased prices, increases in the price of labor in comparison with last year, and all other such expenditures, he thought in fairness to the manufacturer should be considered, in estimating the manufacturing cost of newsprint for 1917.

"You can put in anything you like which has a bearing to the situation and if I am not satisfied with it I will send an auditor down to examine your books," replied Mr. Pringle.

Getting back to the function of the Commision Mr. Pringle inquired of Government Counsel, "What the complaint of the newspapers was?"

Mr. Stewart replied that so far as he knew the tenor of complaint to the govermnent (which resulted in the investigation being held) was that the newspapers felt that the cost of news print to them had been unduly increased. Some information (what it was Mr. Stewart didn't say) had been given to the Minister (Hon. Mr. White). He said he would produce the complaints at the next sitting of the Commission.

Mr. George H. Montgomery, K.C., who with Mr. Gordon MacDougall, K.C., (both of Montreal), represented the newsprint section of the Canadian Manufacturers' Association wanted the Commission to secure from the newspaper publishers a detailed statement as to how much newsprint they required, and how much print paper was utilized by them for comics, fiction articles, special articles, fashions, etc., apart from war news, news and advertising. Mr. Montgomery stated that the paper manufacturers had no means of getting this information as much as they would be pleased to have it.

For the information of Mr. Osler, Mr. Stewart read a few extracts from the report of the Federal Trade Commission of the United States, which in determining the price of newsprint, took into consideration under separate headings a very lengthy list of requirements and operations bearing on the expense of newsprint production. Among some of the items of expense to be considered were: stocks, pulps, ground wood, fillers, alum, sizing and other ingredients. Then there was conversion, labor, belts, machinery, overhead expenses, and so on down the line, as the paper manufacturer is very well conversant with, through experience and his pocket.

Finally the Commissioner decided and the manufacturers present apparently agreed that the best method of procedure of the probe would be the submitting of forms containing the questions outlined above to the paper manufacturers.

Mr. Cahoon speaking for the manufacturers thought the information could be dug from records, books, documents and statements within a period of two weeks.

Suggestions and arguments were advanced that the Order-in-Council would have to be extended by the government—failing the report of its Commissioner and his findings. The newsprint manufacturers it was evident have no desire whatever to keep on making newsprint at two and one half cents per pound for a day or an hour longer than they have to. Any extention of the "2½ cent Order-in-Council" is not desired by them or to their liking. On the other hand Mr. Pringle in the opening stages drew the attention of those present to the fact, that the report of the Commissioner should for expediency "be ready" and delivered to the Government by June 1st, on which day so far as is known now the referred to Order-in-Council becomes non-effective.

Finally the Commission decided on Monday, May 21st, as the date of re-assembly. This only gives the newsprint manufacturer eleven working days to compile the information which the Commission so earnestly requires.

PAPER DRINKING CUPS WANTED.

There is a good demand in New Zealand for paper drinking cups; they are largely in use by the Government Tourist Department. Previously they came from England but the supply has ceased. It would be a good idea to send a sample, with prices c.i.f. New Zealand ports, to this office, and they will be passed on to the proper quarter.

Effect of Proposed U. S. Tariff on Canadian Trade?

(Special from Rowland W. Jolly).

NEW YORK, N.Y., May 12th.

It is hard to tell whether the local trade is pleased or whether it is displeased with the provision made in the proposed Revenue Bill, that ten per cent be added to all tariffs and that those articles now on the free list, be assessed at ten per cent. It is realized that, should this bill go through as it is suggested, the paper trade will be affected to a considerable extent. Whether it will be for the good or whether it will still further hinder progress is a matter on which there seems to be a division of opinion, depending on the branch of the industry with which one is associated.

In the first place, it assures a firm figure for chemical pulp in the future. It has been suggested that, whatever the possibilities were for shipments of pulp from Scandinavia, after the opening of the Baltic Sea, they would be decidedly worse, with the ten per cent tariff in effect—for the present time, at least. According to opinions offered, the foreign producers might feel some hesitation and the result would be that only with difficulty would it be possible to get stock from abroad.

Canada, however, is the chief source of fear. For a long time, there has been howling against the free admission of pulp and paper from Canada, valued at 2½ cents and less, per pound. It is true that the pulp producers of the United States fought the "Reciprocity", as it was called, tooth and nail. At that time, a great many of the paper manufacturers and practically all of the newspapers put forth their efforts for "free" pulp —and newsprint.

Considerably over a year ago, it was understood that the attitude of the Newsprint Manufacturers' Association had become such that it really did not favor putting a tariff on Canadian newsprint. At this time, the scope of that organization was enlarged by including a number of the large manufacturers in the Dominion.

With regard to the newspapers there also seems to have been a change in attitude. When the serious situation in print paper had begun to play havoc with the publishers, a howl was made that the paper makers in the United States were not increasing their capacities to take care of the increased demands as were concerns in other lines. It was pointed out that in various other industries, new machinery had been made to meet the situation as the public believed it should have been met. The reply of the paper makers was along this line: "You (the publishers) fought for free pulp and for free news print. Congress has given us this measure—has forced us to compete with Canadian mills which have many advantages over us—advantages in water supply, wood supply, etc. We made it plain that such legislation was discouraging to the growth of the pulp and news print industry in the United States. The result was that, since the so-called Reciprocity law has been in effect, there has been comparatively little building of mills in this country. While Canada's exports were sufficient to take care of a good part of the demand, the domestic mills suffered and no one howled. Now, however, when the demand becomes such that Canada cannot ship fast enough—the cry is made that the paper manufacturers of the United States are not doing what patriotic concerns should do. As a result, it is said that some publishers now question whether free pulp and paper was the best policy."

And now the climax is reached. Congress proposes to place a ten per cent tax on all imports that were formerly on the free list. And the trade is not certain whether or not it is pleased. As a matter of fact, it is realized that today, this country cannot do without the supplies of paper and pulp that are sent here from Canada. More than that, in the way of news print, the domestic consumers feel that the more stock we can get from the Dominion, the better it will be for us. Therefore, it is questionable whether the ten per cent duty will help matters or not. It certainly is expected to complicate the work now being carried on by the Federal Trade Commission to a still greater extent than has been done by anything else so far.

The following views, from an authority on tariff questions, will be of interest to all in the trade: "A ten per cent duty on raw materials now on the free list would prove disastrous to many industries if the world demand for goods did not create an abnormal business condition at the present time. And even in spite of this demand, many industries will find serious difficulties in adjusting themselves to the new conditions. This proposed horizontal increase violates all theories of scientific tariff legislation, and even the present war emergency does not justify it, as there is sufficient time to arrange for tariff increases in a scientific and equitable manner."

This opinion is, of course, very pertinent, when one considers the pulp question.

It is understood that efforts will be made by manufacturers in general to have exempted from the tax such articles as they may now have contracted with foreign firms, in which class the Canadian mills are categorized. Unless something to this effect is done, it will mean considerable injury to many manufacturers. Take for instance, where a paper maker has contracted ahead for stock at a certain price, calculating on a specified figure which he expected or had agreed to pay for Canadian or Swedish pulp, it would be very unjust to expect that he should pay the additional ten per cent to the cost of his manufacture—and still be able to ask no more, in return, from his customer, who will likely be burdened by taxes of other sorts. However, from what is understood, there is not very much tendency on the part of the legislators to recognize this situation. As a matter of fact, says one report, to do so would mean to defeat the whole proposition of a horizontal tariff increase which some members of Congress are determined shall pass at all hazards.

Those paper men who have been advocating a protective tariff on dyestuffs, to encourage the domestic industry so that it would make itself independent of Germany, have some consolation from the proposed revenue tariff. The bill gives them a duty higher than that for which they asked. It is understood that the dye manufacturers are very well pleased thus far and the hope has been expressed that some means would be found to continue the high tariff on dyes after the war was over. The chief matter affected is the deep tinted dyes. Of the vegetable dyes and the other less deep colored dyes, this country is said to be producing a large amount and is said to have bright prospects for the future. Some of these dyes are used in the paper industry, but the largest part is consumed in the textile trades.

CORRESPONDENCE REGARDING "RED SPRUCE."

To Pulp and Paper Magazine:

In the March 22nd issue of the "Pulp & Paper Magazine" I read an interesting article by P. L. Buttrick, on "The Red Spruce." In this connection may I call attention to the statement regarding black spruce (picea mariana). Mr. Buttrick says, " . . . it is a small and straggling tree, mostly confined to swamps and semi-barren hill-tops. Its only value lies in the occasional specimens which happen to get large enough to be harvested with red or white spruce."

Speaking of the forests of Quebec and Ontario I should like to add that though black spruce does grow as "a small and straggling tree" on "semi-barren hill-tops and swamps," there are also thousands of square miles of black spruce forests running anywhere from 4 to 40 cords per acre. In the clay belt and flat lands of Northern Ontario and Quebec, probably 60 to 75 per cent. of the spruce is black spruce—a vast quantity considering that they must be more than two hundred million (200,000,000) cords of pulpwood in that region.

The black spruce is of course smaller than the white spruce, but the mature trees in the average black spruce swamp attain a height of 60 to 75 feet, giving 40 to 70 feet of timber, measuring 9 to 13 inches at butt, and 4 inches at top. In the virgin forests of the north as many as 500 to 600 black spruce trees (of 7-in. to 14-in. diam.) per acre have been counted.

Regarding the red spruce, Mr. Buttrick refers to it as the "epinette rouge" of the French Canadian. Now, strange to say, the French Canadian, when they speak of "epinette rouge" do not mean red spruce, but they have reference to tamarac. Epinette rouge is known as far north as the James Bay region, hundreds of miles out of the red spruce localities. "Epinette rouge sec," or dry tamarac, furnishes the best camp fire fuel of the north country.

R. O. SWEEZEY.

PULP WOOD DEVELOPMENTS IN NORTHERN ONTARIO.

In the course of his report for the year 1916 to the shareholders of the Canadian Northern Railway System, the President (Sir William Mackenzie) states:—"The colonization of Northern Ontario has been retarded by the war; but, peculiarly enough, there is a compensating feature in the inordinate demand for paper and its consequent startling increase in costs. The spruce, balsam, and jack pine woods, suitable for making pulp, and of which there is an abundance tributary to the company's lines, are finding an immediate market demand. The Provincial Government has offered for sale a large acreage of wood; and the company, having 2,000,000 acres of land, mostly covered with pulp wood, is undertaking their development. Arrangements are being made for the establishment of pulp and paper mills in the district, and, in the meantime, large shipments of pulp wood will be made to mills already under operation in the older sections of the country. Mills for the sawing of merchantable timber are also being erected along the company's lines."

THOROLD'S INDUSTRIAL EVENING CLASSES.

The assembly hall of the High School was filled to its capacity last Monday evening with a brilliant assemblage, consisting of students of the Industrial Technical Classes, teachers, friends and invited guests. It was the occasion of the closing exercises, the chief item of which was the presentation to Miss Ruby Justice of the medal awarded by Chairman Carruthers for proficiency in chemistry, and won by her. This was preceded, however, by a short programme, followed by a few addresses from members of the committee and citizens.

The first item was an opening address by Principal Bonis in which he gave a general review of the work, and showed from the report of the departments that the outcome of the first Thorold effort compared very favourably with the work done at the twenty-one other places in the province where classes are established.

Mr. Bonis then gave a very interesting and instructive demonstration of wireless telegraphy and illustrated in a simple way how code was used. The program of songs and readings was well rendered by the following: The Misses Railton, Miss M. Bonis, Messrs. W. Gavand, H. Cowan and D. Fenton. Miss Fraser was then called upon to explain events leading up to the winning of the medal, and did so in a few well chosen sentences. She spoke of the history of her class, stating that on two or three occasions, on account of stormy weather, etc., when she expected no class, she was agreeably surprised to find them all there. This showed the earnestness of purpose of the students who continued, and it was but a sign of the hard work put in by them when the competition for the medal developed. The issue was between Miss Justice and Mr. Sims and at the final examination the latter came out only five marks behind, and deserved great credit for his work. She was justly proud of the work of her class.

Mr. G. Carruthers was called upon to present the medal, but managed to switch, the pleasant task over to Mr. T. A. Weldon who did it in his well-known happy manner, Miss Justice receiving the honor with modesty and a gracious "thank you." She was presented with an elegant floral basket, coming from the office staff of the Montrose Division of the Provincial Paper Mills and the little ceremony was over.

Short addresses were made by Mr. Carruthers, D. Daverin, Mayor Battle, Rev. W. H. Smith, Mr. Lorriman, J. H. Thompson, D. J. C. Munro and F. M. H. Cushing. The addresses were all along the line of the work, and tended to intensify the interest on the part of the students and others concerned in the classes which had just closed the first term, and which should be carried through another winter with even greater success than this.

BIG NEWS MILL FOR ONTARIO.

It is announced that the Michipicoten Power and Paper Co. contemplates the construction of a 150-ton news mill at Michipicoten Harbour, about 120 miles west of Sault Ste. Marie, and also a 125-ton groundwood pulp mill. The cost of mills and waterpower development is estimated at about $6,000,000. Mr. L. M. Wood, president of the Standard Chemical, Iron and Lumber Co., is the head of the new company, the healquarters of which will be at Toronto.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Bache-Wiig Barking Drum.—By S. A. Moulton. Pulp and Paper Mag. Can. Vol. 15; No. 15; Apr. 12, 1917, p. 357-361. The relative merits of the barking drum and operating cost. Illustrated.

Flax Straw as Basis for Paper Industry.—By E. B. Biggar. Pulp and Paper Mag. Can. Vol. 15; No. 17; Apr. 26, 1917; p. 411-412. Article points out the enormous waste of straw in the United States and Canada and calls attention to investigations being carried out by A. D. Little for the C.P.R. also Paper, May 9, 1917.

Bird's-Eye View of the World's Paper Industry.—By the Secretary of the Newsprint Manufacturers' Assn. Pulp and Paper Mag. Can. Vol. 15; No. 17; Apr. 26, 1917; p. 413-416.

New Process for Safety Paper Uses Oxgall.—Paper Vol. 20; No. 2. Mar. 21, 1917; p. 18. A patent has been taken out by E. E. Schmidt, Covington, Ky. on a safety paper intended for use in checks, notes, etc. The invention has for its object the prevention of successful fraudulent alteration of matter written on the paper with commercial writing ink. The paper is impregnated with an agent adopted to chemically combine with the essential ingredients of commercial writing ink in rendering matter written with such an ink indelible either by the acid and alkaline solutions usually employed to remove commercial ink from paper or by the abrasive action of a mechanical eraser. An agent composed of the following: ferrocyanide of potassium (or ferrocyanide of sodium) 2 lbs.; Oxgall 3 oz., magnesium sulphate 1 oz., Water 4 gal. has been used with satisfactory results.—E.K.M.

The Technology of the Washroom.—Anon. Sci. Am., (May 5, 1917).—A soap with no free alkali at all is less effective as a cleaner. Soda ash, borax, or trisodium phosphate are desirable in washing solutions along with the soap even when starting with soft water. Their purpose is to keep the water from decomposing the soap. It is the action of the free fatty acid upon the alkali that gives us the emulsifying power of soap. The grease and dirt are carried away in the form of an emulsion.—A.D.C.

Some Observations on the Influence of Humidity on the Physical Constants of Paper.—By Otto Kress and Philip Silverstein. Ind. and Eng. Chem., Vol. 9, No. 3, (March 1, 1917), p. 277-282.—1. The value of points per pound increases with the decrease in relative humidity. 2. The same results seem to hold for the breaking length. 3. The stretch of the paper increases with increase in relative humidity. 4. The folding properties seem to be affected to a greater degree than any other property. Also in Paper, Vol. 19, No. 25, p. 13, (Feb. 28, 1917).—E.K.M.

The Technical Man in the Paper Mill. By Henry P. Carruth, Paper, Vol. 20, No. 7, p. 11-12 (April 25, 1917),—How co-operation between the technical men and practical men works to advantage.

Safety Principles for Paper Mills. By A. G. Pounsford, Paper, Vol. 20, No. 7, p. 13-14 (April 25, 1917). —Work of the Ontario Pulp and Paper Makers' Association in the prevention of accidents. Safety committee rules. General safety rules.

Sampling Device for Pulp Digesters. Paper, Vol. 20, No. 7, p. 22-23, (April 25, 1917). (Patent No. 1,222,249).—A simple device, patented by Phil S. Tuttle, of Johnsonburg, Pa., permits an inspection of the stock at any time without relieving to any great extent the pressure within the digester thus ensuring uniform cooking of the chips at all times.—E.K.M.

Timber Estimating in the Southern Appalachians.—R. C. Hall, J. of For. XV., No. 3, pp. 310-21 (March, 1917).—H.N.L.

Some Problems in Appalachian Timber Appraisal.—W. W. Ashe, J. of For., Vol. XV., No. 3, pp. 322-34, (March, 1917).—The following problems of Government timber appraisal are discussed: 1. The adaptation of volume tables to closeness of utilization. 2. The correlation of volume cruise with lumberman's stumpage appraisal for different species. 3. The adjustment of intensity of volume cruise to local conditions. 4. The determination of grades and defect. 5. The appraisal of small trees. 6. Personnel.—H.N.L.

Logarithmic Cross-Section Paper in Forest Mensuration.—D. Bruce, J. of For., Vol. XV., No. 3, pp. 335-42, (March, 1917). Illustrated.—H.N.L.

Empire Timbers and Their Utilizations. — Timber Trades J. (March 24, 1917), pp. 513-26.—A concise but comprehensive review of all the commercial woods of the British Empire, giving distribution, properties, supplies, exports, etc. In 1913 only about one-seventh of the imports of wood into the United Kingdom came from other parts of the Empire. In the same year about one-seventeenth of the imports of pulp came from British possessions.—H.N.L.

The Determination of Magnesium in Dolomite Abstracted From the Titration of Some Bivalent Metal Sulfates by The Conductance Method.—H. S. Harned. The J. Am. Chem. Soc., Vol. 39, p. 252 (February, 1917).—The conductance of a solution depends upon; the concentration of the electrolyte, the degree of ionization, and the mobilities of the ions in the solution. If to a solution of magnesium sulfate barium hydroxide be added both the magnesium and the sulfate ions will be removed from the solution and the conductance will fall. At the completion of the reaction the conductance will rise due to the introduction of the mobile hydroxyl ion. By plotting c.c. of barium hydroxide against the conductance, or bridge wire readings, the end point of the reaction is observed as the point where there is an abrupt change in the direction of the curve. This reaction will take place in the presence of calcium sulfate as the magnesium sulfate is precipitated first and the conductance rises again with the formation of the more soluble calcium hydroxide. The end point is less sharp than with magnesium sulfate alone. The titration must be carried out in a solution free from carbon dioxide and a specially designed cell for this purpose is illustrated. The sample of dolomite is decomposed by a slight excess of sulfuric acid and the carbon dioxide expelled by boiling under reduced pressure. Barium hydroxide is then added until a pink color just appears with phenophthalein. This neutralizes the free sulfuric acid, precipitates iron, and converts carbon dioxide to the bicarbonate. The solution is transferred to the titration cell and boiled under reduced pressure. The bicarbonate then precipitates as neutral barium carbonate. There remains in solution all the magnesium sulfate and some of the calcium sulfate. The solution is then titrated without the removal of the insoluble material. The magnesium content of the solution can be determined within one milligram of the magnesium independent of the amount of magnesium present. As many as four determinations have been made by the author within three hours. Some experience is necessary to obtain the best results.—A.D.C.

UNITED STATES NOTES

Several men well known in the Maine Paper industry are interested in the incorporation of a new pulp company at Madeline River, Gaspe County, Quebec. John Mullen, of Bangor, is president of the company, and Charles W. Mullen, of the same place is a heavy stockholder.

For the purpose of making extensive repairs The Tonawanda Board & Paper Company of Tonawanda, N. Y. shut down its mill on May 2.

The Shortville Paper Company, inc. has just been chartered at Shortville, N. Y. to manufacture paper. The capital is $10,000 and the incorporators are: M. D. Nutting, E. M. and B. F. Hall, Shortville, N.Y.

Federal Judge Hand last week set for Oct. 8 the trial of the seven individuals indicted on a charge of violating the Sherman anti-trust law through the activities of the News Print Manufacturers' Association. Mark Hyman and Bainbridge Colby special government counsel, wanted the trial fixed for May 28, but Judge Hand, after hearing ex-Senator O'Gorman, Henry A. Wise, George Gordon Battle, Richard A. Lindabury, and the other lawyers, decided on the later date.

The annual outing of the employees of the International Paper Company of 30 Broad Street, New York, will be held on Saturday, June 23, at Glenwood, R. I. The Employees Association have organized its baseball team for 1917, and its manager, Mr. Spitzenberger promises some lively times on Saturday afternoons.

From the Far West comes the report that the Sound Paper Company, proposes to build a big paper mill and develop the Sultan power plant project, at cost of $12,000,000 as the company however may have to seek another location. Capt. A. O. Powell, representing the Pacific Power and Development Company which was incorporated several years ago with W. G. Jordan an eastern capitalist, as president and S. O. Whitney as secretary, notified members of the city council that his organization expects to submit a bid on a completed power plant at Sultan which may upset the plans of the Sound Paper Company.

It is understood on good authority that the Hammermill Paper Company, Erie, Pa., has purchased the wooden steamer, Gogebic from Piephorn & McDougal, of Port Huron, Mich. The boat will be used it is understood in bringing pulp from Black Bay, near Fort William, Ontario, to the mill.

According to advices from Middle West, quite a number of the paper manufacturers in and around Appleton, Wis. are in favor of the adoption of the "more daylight" plan in Appleton.

In order to encourage farming among its working force the Penobscot Chemical Fibre Company of Great Works, Me. has offered to supply land ot its employees and will also plow it free of charge. The company is in sympathy with the movement to increase crops and indications are that the offer will promptly be taken up.

The Bergstrom Paper Company of Neenah, Wis. is making plans for extensive alterations and addition to its mill. One of the buildings contemplated will be two stories high and of concrete construction.

Wausau, Wis. is soon to have a new industry as the Gaylord Paper Products Company, of Menasha is planning to move its factory to that city. The company at present, according to its general manager is making pasteboard butter wrappers, and as the raw product is secured mostly from the Northern mills at Rothschild it has been deemed advisable to move closer to that place.

Press dispatches from Dover, N. J. tell of the incorporation of the Fiber Containers Corporation with a capital of $1,000,000. The company will manufacture paper containers, boxes, etc.

The Remington Paper & Power Company of Watertown, N. Y. has just purchased 50,000 tons of coal which is to be delivered at the Norfolk mill storage grounds this summer. This supply of coal will also be used at the two other mills at Raymond and Norwood next winter.

The John Schraeder Lumber Company of Milwaukee, Wis. is making arrangements to raft over 60,000 cords of pulp wood from Canada this season to Ashland. A big portion of the wood will be delivered to the Wisconsin Paper mills.

Another bonus has been awarded the employees of the Bagley & Sewall Co. paper machine manufacturers of Watertown, N. Y. The original bonus last January amounted to $1.50 a week to each employee regardless of his salary. Fifty per cent. has now been added to this bonus, making the total to each employee $2.25.

About twenty thousand Spruce and Pine trees, were shipped last week from the State Forest nursery of the University of Maine by Prof. Briscoe. The trees are from four to twelve inches high, and will be transplanted in the State of Maine.

The Illinois Containers Corporation has been chartered at Chicago to manufacture and deal in paper containers, boxes and cartons. The capital of the new company is understood to be about a half million dollars.

The Great Northern Paper Company is working with its employees to solve the high cost of living problems, The result is that the company is raising all the vegetables required to feed its men in the lumber camps during the coming fall and winter. The company has been raising about three-quarters of its food and buying the rest; this year it hopes to raise the entire supply.

Thomas G. Smiley of the New York Paper and Pulp Traffic Association is endeavoring to bring about the pooling of pulp wood consigned to this section of the state. It is stated that co-operation in this effort is the best way of assuring a surplus in case of emergency in any of the paper mills. Mr. Smiley states that no mill is able to keep in reserve a supply of pulp wood that will carry it through the season. It must therefore depend upon the floating supply to a degree. A case might arise where a mill might have a large consignment en route, while its neighbor might have but a small consignment, while another might not be able to get any. In this manner some of the mills might be seriously crippled or forced to close entirely it is thought.

William A. Underhill one of the oldest and best known paper men in the United States, passed away in his 63rd year at his late residence in Brooklyn, N. Y. during the past week. Born in New York city Mr. Underhill was of old New England Ancestry, the son of Capt. William H. Underhill; of the Seventy Regiment and a veteran of the Civil War. He was a descendant of Capt. John Underhill the famous Indian fighter, for whom a monument was erected on Long Island. The Underhill family is one of the oldest in the United States, and deceased was one of those who organized the Underhill Society of America, at the time of his death, Mr. Underhill was Vice-president of the wholesale paper house of Chas. F. Hubbes & Co. He was a former president of the Paper Trade Association of New York City and has frequently been prominently active in the National Paper Trade Association.

The spring drives of logs in the vicinity of Carthage, N. Y. are practically finished and attention is now being given to peeling woods and moving camps.

The Mill, a weekly paper, published by and for the employees of the Eastern Mfg. Co. at South Burner, Me., appears with a new title design. Back of the letters, THE MILL, is seen a picture of the mill, with the Penobscot River in the background. A few of the head lines will give an idea of the varied activities of our Maine friends. We read, Minstrel Show, Red Cross, Baseball, Track Gardening, and notes from 15 departments in the mill.

THE PUBLISHERS' POSITION.

The newsprint situation is like this at the present time. The publishers are waiting for cheaper paper. They have been advised as it is coming. This advice has been given in the face of facts—undeniable facts—that there has been a considerable increase in the cost of production. It is given in the face of the fact that ground wood pulp is bringing as high as $50 a ton—and higher. This advice was given with the knowledge that the prospects for a wood supply from which ground wood pulp is converted for the making of news print paper is to be obtained, are decidedly poor because of the shortage of labor. Just what the status of wood pulp will be this summer, one one knows. All that can be done is to hope for the best. It is certain, however, to go higher than it is — and to become more difficult to obtain.

But the publishers have been listening to the Commission's 2½c talk — that is about some of the manufacturers think it is worth — and are now confident that prices will go much lower than they are.

The latest hope that has been expressed is that the government will regulate the price of news print as a war measure. Already plans have been formed for the regulation of food prices and for the control of a good many other commodities and it is thought that a cause might be inserted which would place the responsibility for news print prices in the hands of the government. We might as well be frank with ourselves and say that there is some possibility that such a measure will at least receive consideration. It is not at all improbable that if a bill to this effect is presented in Congress, it will be passed because of the great pressure which the newspapers will bring to bear. In that event, it is not likely that many of the smaller mills will attempt to continue in operation, selling their products at a figure that would spell nothing but bankruptcy for them.

CUT OUT BASEBALL EXTRAS.

In line with the movement to conserve the supply of white paper, the four afternoon papers of Buffalo this year will not publish the extras which in former years were issued during the baseball season.

This action will result in a great saving of print paper, and the elimination of no small expense. The base ball extras in Buffalo, it is understood, never have been paying propositions.

All morning papers in Chicago are now sold at two cents. The evening papers are expected to follow suit shortly.

CAR SHORTAGE—SOME WHY'S.

The paper industry, which has suffered such a serious handicap in recent months from the car shortage, will not be encouraged from the car figures just made public by the American Railway Association. According to these figures, the railroads of the country are facing the most serious car shortage ever reported. This is in spite of all efforts that have been made to remedy the situation and is contrary to all predictions that were made a few weeks ago. The statement of the association brings out the fact that on April 1 there was a freight car shortage of 143,059 cars, an increase of 12,977 over the shortage reported on March 1st.

Three factors are blamed in the association's report for the growing shortage: (1) Shippers order more cars than then actually need, in the anticipation that their entire order will not be filled; (2) the practice of shippers in filing identical orders with several railroads, thus causing a duplication in the report of shortage; (3) manufacturers receiving orders call for cars regardless of whether they have materials to ship.

The report states that on March 30 there were standing on sidings 89.371 cars, which, if tehy had been available, would have reduced the shortage to approximately 50,000 cars.—Paper Trade Journal.

* * *

This is not the whole story by any means. Loaded cars are known to have been left in the yards for two weeks before starting on their journey at all. And with a haul taking only a week as a reasonable maximum, the percentage in convenience was considerable. Cars are also left on sidings for days and weeks by the roads. Another point that cannot be blamed on the shipper is the wretched condition of motive power and rolling stock. This is partly unavoidable, but is largely due to gross inefficiency.

The latest news on the situation is a possibility that the United States railroads will take off some passenger trains and put the engines into freight service. The release of a thousand engines in this way would mean a faster movement of freight and a more frequent emptying of cars.

According to "Papir-Journalen", some small parcels of sulphite for prompt delivery have been sold, at unaltered prices, viz., at about 375.00 kronor per ton, pure nett, cash fob. Gothenburg.

Regarding sulphate wood pulp, the demand from Germany and Austria is good, and prices firm at about 500.00 kronor and above, pure nett, fob., for first quality "kraft" pulp.

PULP AND PAPER NEWS

The Riordon Pulp and Paper Co's. plant at Merritton have taken the lead among the industries in the district, by giving over a large piece of ground to the men of the plant for the purpose of "food production" which has become the slogan of the whole country, this piece of ground has lain idle for many years, and men were set about clearing it off this week. Each man will be given a small lot to work, and at the close of the season their efforts will be combined, and divided equally.

The Lincoln Paper Mills at Merritton have started unloading pulp wood for the new sulphite plant and already the pile assumes large dimensions.

A novel feature in the way of advertising is in the course of erection on the roof of the Montrose Division of the Provincial Paper Mills Co., Limited, at Thorold, which will take the form of a huge signboard, eleven feet high by ninety feet long bearing the name of the company. The new part of this feature will be the erection of two search-lights set off about thirty feet from the building, which will light up the whole front of the plant, making it easily discernable at night to the town visitors and also to the tourists who travel in the direction of Niagara Falls and St. Catharines.

The new finishing room at the Kinleith Paper Co's plant St. Catharines is now completed and is already being used, while in the vacated part of the old finishing-room, preparations are being made for the erecting of the new 72-in. super calender which has just arrived.

The rossing plant of the Monteith Pulp and Timber Co., which is located at Monteith, Ont., has been closed down for the winter, has resumed operations for the season with a large force of men.

The Montrose Division of the Provincial Paper Mills at Thorold have secured the services of Mr. Gordon Whitehead, horticulturist, who has set to work to beautify the vacant parts of the plant, in the way of shrubs, trees and floral beds.

John Hewitt, Jr., who has been with Price Bros. & Co., of Quebec, for a number of years, the major portion of that time representing them in Toronto, has severed his connection with the company. It is understood that Mr. Hewitt has joined Paper Sales, Limited, which organization was recently granted a charter and will have its headquarters in Toronto. The company will have the selling agency of several important mills.

The offer of the city to exchange pulp wood for other wood equally good has been accepted by the Keewatin Lumber company for the paper factory at International Falls. The city's wood is piled along the Greater Winnipeg Water District railway and that suitable for pulp will be culled out when shipments are being made.

Miss Wilson of Toronto, has accepted the position of bookkeeper with the Interlake Tissue Paper Mills at Merritton.

At a recent meeting of the Cornwall Board of Trade, W. J. Wallace, manager of the Toronto Paper Mfg. Co., stated that if the men employed by the company would be willing to revert to the old system of two, twelve hour shifts instead of three, eight hour shifts now in force, it would be possible to allow twenty to thirty hands to leave for a few weeks to help work on the farm. The Board will open a help bureau. It is understood that nothing definite has yet been done toward placing the two, twelve hour proposition before the employees of the mill.

A federal charter has been granted to the Budge Carbon Paper Mfg. Co., Limited, with headquarters in Montreal and a capital stock of ten thousand dollars. E. C. Budge, of Westmount, is one of the principals of the company which is empowered to manufacture and deal in typewriters, typewriting ribbons, carbon paper, stationery, etc.

Brennens Limited, have been incorporated with head office at Hamilton, Ont., and capital stock of $600,000, to carry on business as lumbermen, manufacturers of and dealers in paper, pulp, logs, lumber, timber, etc. Among those interested are J. S. Lovell, C. D. Magee, W. Bain, R. Gowans, and J. J. Dashwood, all of the city of Toronto.

OTTAWA NOTES

(Special correspondence of the Pulp and Paper Magazine).

An available market for Canadian newsprint at sixty or more per cent advance over the present Canadian Government's "fair and just" price is open in Australia, according to information gleaned during the opening session of the first Canadian newsprint probe which opened in Ottawa, Tuesday May 8th.

Australian publishers are facing a critical situation. Many newspapers in the Commenwealth may have to shut down this year, if they cannot get supplies of newsprint from Canada.

Australian publishers, so it was stated before Commissioner Pringle, are not only willing to purchase but grab at any supply of newsprint available and are not arguing the price. They are willing to pay whatever the Canadian newsprint manufacturer wants for his product, take their own chance on shipping, and will pay cash against the warehouse receipts with the newsprint stocked at Boston or other Canadian or American port on the Atlantic sea board.

The new alderman conducts à Job Printing House on apparently not any part of the Canadian Newsprint probe — came about when Mr. Pringle the government's commissioner, asked Mr. Cahoon of the Laurentide Paper Co. how the Australian newsprint trade bore at present on the Canadian newsprint market?

The Ottawa Hydro Electric Power Commission has decided on salary increases. Thirty men employed on construction and maintenance work will receive an increase of 10 per cent. The inside men get increases on merit. The Commission decided on the salary increases, in preference to a slight reduction in rates for next year.

The Chaudiere Falls Local of Paper makers in semi-annual session had the satisfaction of hearing the report of their committee as to requests made to Mr. J. R. Booth. Although the decisions arrived at had been pretty generally known, there was a full attendance at the Trade session to accept the same in an official way.

President J. Raymond who was head of the committee gave the result in his usual pleasing way. The result of the mission was summed up that satisfaction had been obtained in every particular, the venerable employer Mr. Booth realizing the just claims.

In the changes made the twenty-four hour shut-down is now in operation and the different grades of workers not previously receiving the scale as laid down by international law, were granted the increases, bringing up, beater room engineers to 45 cents per hour, and boss tenders to a $6.08 rate per day. By this action the mill is now up to all union requirements and rated as such.

General satisfaction was expressed with the satisfactory termination of the committee's work and before their discharge the members of it were tendered hearty thanks.

All the Canadian mills have adopted, or are about to adopt, the twenty-four hour shut-down each week, and the trade throughout the whole continent is now a unit on this point. The Local selected Brother F. A. McLeod to represent them on the arrangement committee for the Dominion Trade Congress convention.

A further depletion in the ranks of Canadian foresters, cutters of pulp wood, etc., is very likely to be made by the raising of Captain A. G. Midford's draft of Woodsmen for England which is being raised at Ottawa.

The men who enroll in this draft do not enroll for military service at all. The draft has nothing to do with the militia, though it will indirectly help in winning the war.

The woodsmen will leave for England as soon as three hundred have been enrolled.

Two thousand five hundred Canadian prisoners of war in Germany — whose chief problem is to get enough nourishing food, are to be better off, as the result of a new arrangement which permits them getting larger parcels sent them from Canada.

The Red Cross Society announce that the weight of parcels will be increased from 7 to 10 pounds. In future no money will be accepted from prisoners for standard parcels and no extra parcels of any sort will be forwarded.

About 238 Canadian prisoners of war are on the list of the Ottawa Women's Club who act here as the agent for the Canadian Red Cross. About $1,600 is sent across monthly for the purpose of buying food for the imprisoned men.

The "Farmerettes" of the Ottawa Women's Canadian Club have donned the sensible and appropriate gardening overalls and are gardening a plot on the Driveway near Cartier Square. The club has purchased an auto truck which will be used to facilitate the work and deliver parcels to the post office. The truck will be **manned** by **women.**

Seldom does a printed paper or document render a greater service to its possessor than to save his life, especially The Bible whose purpose is to tend toward saving the spiritual life of mankind. Yet such a thing has happened on the battle fields of Flanders, when Gunner Robert McAllister had his life saved twice by a Bible.

A Bible that his mother had given him saved the gunner's life in the Battle of the Somme, when the testament he carried was ripped to pieces by shrapnel. His brother Samuel when the two met in England gave the gunner another Bible to replace the destroyed one, Again a present saved the soldier's life for he writes: "We were moving a gun forward and I guess Fritz saw us. He dropped a shell seven feet from us, hitting a sergeant, a gunner and myself. I got off lucky for the pieces of shell went through the Bible that Sam gave me, and my looking glass, and pay book and only penetrated my skin."

At the annual meeting of the Toronto Paper Mfg. Co., held this week in Toronto, the financial statement, which has already been published and showed earnings of $212.794 during the past year and the restoration of the dividend to the six per cent. basis, was received with a large measure of satisfaction by the shareholders. R. S. Waldie was re-elected president; W. J. Sheppard, vice-president; A. W. Briggs, secretary; Rev. Dr. Briggs, T. Albert Brown, R. A. Lyon and T. H. Watson, directors.

Richard Brown, of Brown Bros, Limited, Toronto, celebrated his eighty-third birthday on Sunday. He was one of seven brothers born at Newcastle-on-Tyne, England, and came with his parents to Canada in 1846. After serving his apprenticeship as printer and bookbinder with the late Thomas Maclean, publisher, of Toronto, in company with two of his brothers, Mr. Brown founded the house of Brown Bros., in 1856, the largest stationery, account-book manufacturing and bookbinding firm in Canada, of which he is the sole survivor. Mr. Brown has been steadily coming down to his own business for the past sixty years and still enjoys fairly good health considering his advanced age.

A charter has been granted to Dextrine Products, Limited, with a capital stock of forty thousand dollars and headquarters in Brampton. The organizers are: R. R. Barber, W. J. Hood, E. R. Colbert and G. W. Unsworth, and the plant of the company will soon be in operation. It will manufacture dextrine and dextrine products, light and dark British gum, and sizing for paper and cotton mills.

Good progress is being made on the plant of the Houpt Paper Mills, Limited, Camden East, Ont., and it is expected that the industry will be in operation in about six weeks' time.

As a result of a petition signed by more than five thousand citizens of Windsor and adjoining municipalities, and presented to the Attorney-General of Ontario, it is likely that the residents of Canadian border cities and towns will be able to purchase the Detroit newspapers on Sunday without having to cross the river to that city. An arrangement may be effected whereby newsboys can deliver copies on Sunday morning up to nine o'clock.

C. T. Lapp, editor and proprietor of the Brighton, Ont., Ensign, has joined the 8th Cobourg Heavy Battery draft for overseas and has made arrangements to have the paper carried on during his absence.

(Continued on page 504).

The Markets

CANADIAN MARKETS.

TORONTO, May 14th.

The news print investigation, a full report of which appears in another column of the Pulp and Paper Magazine, is the chief topic of conversation among the trade at the present time. The present agreement, or rather arrangement, made by the manufacturers in acceding to the two and half cent rate at mill, expires on June 1st, after a three months probation, and it is expected that Commissioner Pringle will have gathered all the data on the manufacture sale, price, and supply ere that date and name a figure for the coming three months. This would appear to be the case, as the mills all have to have replies to the Questionaire in by May 21st. when another sitting of the Commission will take place. Of course, what the returns will show one can only conjecture and whether the mills will be able to establish a condition of affairs calling for increased price of their product will not be revealed until all the information is presented. There is a feeling, however, that one thing which the Commissioner will do, is to bring home to the Canadian dailies that war is really going on. While the newspapers have been urging the masses to economy and thrift inviting them to cut down their allowance on everything brought and eaten, the metropolitan sheets, which have been giving admonition so freely to the public, have manifested no evidence on their part toward reducing the size of their publications. Many of them still go on printing larger editions than ever and, when it is considered, that newspapers on the other side of the line and more particularly those in London and Paris are down to four and eight pages. Canadian publishers put out large supplements and extras at all times.

Commissioner Pringle gave a hint of his views on the subject when he stated that one regular edition of a western paper on a recent Saturday contained no less than seventy pages He thought that such generous sized sheets should be discontinued at any rate until after the war.

A leading paper manufacturer remarked this week that, while the newspaper publishers had been complaining about the high price of news print, the way that some of them were using it, would lead the reader to believe that paper was as cheap as ever and that space galore was the main object in getting out a publication. It would not surprise him, he said, if the publishers were held down to a rigid rule whereby they could use only so many pages of reading matter in proportion to the advertising pages carried. A hard and fast regulation may be struck and one that will be fair to all dailies. While the members of the Canadian Press Association have talked for a long time on decreasing the number of pages, no publication appears to have adopted any radical measure of economy in this respect and the same state of affairs as prevailed before the war continues.

In all lines of paper there is a good trade being done although orders are not nearly so plentiful as they were a few weeks ago and mills are catching up so that they can give deliveries within reasonable time limits and take aboard some new business. The feeling on the whole is one of uneasiness on the part of buyers as they do not know whether to go in heavily now and replenish stocks or to wait a while and see what turns up. Many manufacturers and jobbing houses are advising customers to place any business now as quotations will under no circumstances go lower and may go very much higher by fall.

There is some dullness in the ground wood market and prices are a little easier in Canada. One representative remarked this week that he had a thousand tons which he had been offering at forty-five at mill but had no takers. There has also been a drop in the figure for sulphite of between five and ten dollars a ton which is the first break in a long period. Buyers are hanging back and there is a disposition on the part of all consumers, who can get along meanwhile, to mark time.

A new phase in the pulp and paper situation has loomed up during the past week, and that is the war revenue bill of the United States. There is proposed a flat increase of ten per cent on all existing tariff duties and ten per cent duties on all articles now admitted free. Under this latter head will come paper to five cents a pound and pulp of all kinds. As about two million dollars per month of news print is now crossing the border and a large amount of mechanical and chemical pulp, which will be taxed ten per cent. the future of these lines is uncertain and may result in decreased exports. Pulp and paper men do not care to discuss the aspect of affairs until the new war revenue bill becomes law. News print, the American publishers must have, for the supply in that country is by no means sufficient to meet the requirements and about fifteen hundred tons a day go from Canada to the United States, but with the pulp men matters are different as the supply of this commodity is better taken care of across the line than news print. In 1915-16 there was exported to the United States nearly seven million dollars worth of chemical pulp and nearly four million dollars worth of mechanical pulp which, at the high prices, that have prevailed during the past year, will, when the returns for the last twelve months are completed, show a very substantial increase.

The number of pulp and paper companies being formed in Canada is going on steadily and the latest announcement is that Fort William is to have a large new pulp mill followed by a news print mill. The profits earned by existing companies have been the largest on record and the future in every instance is viewed with confidence. Jobbers report that business this spring is good and printing establishments are busy with catalogues and booklets of all kinds. There is no change in wrapping paper prices although a great scarcity in some lines.

It may be mentioned that the basis of 24½ x 36½, 40 pounds to the ream, has been accepted as the minimum basis of all supercalendered book papers in the past and in the selling of double royal, 28 x 42, 50 pounds to the ream has been prevalent. Henceforth, a

new basis of weight will be observed by the trade, which will mean about three pounds more to the ream on 28 x 42.

Another reason why paper is not likely to get cheaper in Canada is the fact that mills have increased the pay of their employees in order to retain their services and in view of the high cost of living. A number of plants have advanced wages by ten per cent and while it has been suggested that the three tour system be abandoned during the summer to let men off for the farms and the old order be reverted to the suggestion is not taken very seriously.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$7.75
xBook papers (ton lots), No. 3	$8.00 to $8.75
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.75 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$10.25 to $11.00
Ledgers	15c up
Sulphite bonds	13c. to 15c.
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $50.00
Easy bleaching sulphite	$100.00 to $105.00
Sulphite, news grade	$85.00 to $90.00
Sulphite (bleached)	$160.00
Sulphate	$110.00 to $115.00

The rag and paper stock market is very weak and in some lines is "all shot to pieces". There is very little movement in any commodity just now as mills do not appear to be buying. Some have big stocks on hand while others are holding off. Soft white shavings, white blanks and clean mixed papers are reduced in price somewhat while other lines remain the same, with quotations in many instances merely nominal.

Rag and Paper Stock.

No. 1 hard white shavings	$5.00 to $5.25
No. 1 soft white shavings	$4.00 to $4.25
Mixed shavings	$1.00
White blanks	$1.80
Heavy ledger stock	$2.50
Ledger and writings	$2.05
No. 1 magazine	$1.25 to $1.30
No. 1 book stock	$1.15 to $1.20
No. 1 manila envelope cuttings	$2.75
No. 1 printed manila	$1.40
Folded news	90c
Over issues	$1.10
Kraft	$3.50
No. 1 clean mixed papers	70c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.25
Bleached shoe clip	$6.00
Unbleached shoe clip	$5.50
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$1.90
Flock and satinettes	$1.60
Tailor rags	$1.60

NEW YORK MARKETS.

NEW YORK, N.Y., May 12th.

The opinion has been expressed in the trade that the combined opposition of the daily newspapers and the large merchants of the country to the campaign for extreme economy will prove of considerable benefit to business as a whole. It was not until this week that the press came out strongly against the measures for extreme economy which have been advocated by many of the prominent men of the nation and which, it is said, are, to a very large extent, responsible for a certain lull in trade which seems to be threatening to hurt conditions. Take the department stores, for example. Reports recently issued, show that many of the largest of these institutions throughout the country have suffered decreases in business during the past month. True, they say that the volume is still ahead of previous years, but it is not what the present day situation demands that it should be—due to a curtailing in buying of the various commodities which these concerns handle. What is the result? It means a decrease in the use of tissue paper, in box boards, in wrapping paper and in many other articles. More than that, it gives the department store proprietor a chance to indulge in some of the economies of which he himself complains. It can readily be seen what such a situation will lead to if it continues much longer. Thus far, the economy scare has hit a number of trades, all of which are large consumers of paper. And, to make matters worse, in Sunday's papers, Secretary Houston, of the Department of Agriculture, came out with a big statement, urging extreme economy in every possible fashion and giving "facts" to show how this

economy was essential at the present time. The daily papers promptly attacked this statement, emphasizing that the most important thing that could be done at the present time was to help to keep up our industries —that it was in this way that the chances for the United States to perform her part in the war best were possible. Extreme economy — mistaken thrift it is called—would mean that thousands would be thrown out of employment. It would mean a panic at a time when the thing most desired is soundness in financial conditions of the country.

The latest report shows that the railroads are asking for a 15 per cent advance in freight rates. They calim that, if granted such an increase, it will be possible for them to spend money on enlarging and improving facilities to the extent that this work will have on commodities the effect of actually lowering a good many prices. However, the trade does not seem to be enthusiastic about the prospects of paying higher rates.

There is some speculation as to what extent the paper trade will feel the new war taxation which is now being prepared by Congress and which will, no doubt, become effective within the coming month. One thing is certain and that is that the income taxes will have a wide sweep and cover the trade in all of its branches. Statistics published show, that regardless of what the income taxes are, they will be small compared to what the business men in the foreign belligerent countries are paying—a source of consolation.

Demand in general for ground wood pulp seems to have dropped to a considerable extent. No specific causes are assigned to this condition. From the manufacturers of news print, inquiry is reported to continue active, but in the other lines, interest seems to have dropped off materially. Some reports are rather contrary. For example, it is said that, in certain sections mills are operating far below their capacities. Yet, it is understood that there is but little ground wood pulp available for immediate delivery at the present time. It must be that the labor troubles are having a continually stronger effect. One thing is certain, the rainy weather of the past few weeks has been just what the grinders needed to give them the proper sort of water power necessary for the best operation of their plants. One cannot help but notice that, despite the fact that some paper manufacturers refuse to interest themselves in the ground wood market, the tendency in other directions, is to guard against what the future may have in store in the way of a shortage of ground wood pulp. Grinders are considerably concerned about what will take place with regard to supplies of pulp wood. In certain sections, it is known that arrangements have been made or are being made to form some sort of a scheme whereby all of the mills in a section can work together for their mutual benefit and protect each other from a shortage of pulp wood. It is evident that the belief of those regarded as authorities is that whatever weaknesses are visible in the market at the present time, they will disappear shortly. It is calculated that, just as soon as the money being loaned to the Allies and the money to be spent by this country in preparing for active warfare starts to circulate, all of the industries of the country will share in the prosperity—and there is no doubt in the minds of the grinders that ground wood will share as well as the other commodities.

Continued absence of interest is reported to be still characterizing the market for chemical pulp. Apparently, the mills are buying very closely, just for immediate needs, and since a good many paper making machines are not running to capacity, it has been possible to get along without going into the market to any great extent. The trade is interested in the various reports that are printed in the newspapers with regard to a new contrivance that will do away with the submarine menace of Germany. Such an invention would encourage shipping with Scandinavia greatly and mean that the pulp situation would be relieved much more than a little. Thus far, however, there has been nothing material resulting from the many rumors that have appeared in print. The domestic mills are operating at a fair capacity, having difficulty in getting various supplies. The impression given is that most of the stock being produced has been contracted for and that the available supplies are far from being sufficient to last very long in the event of a demand from the trade. It is interesting, at this time when there is so much to hinder further building, to note that several new mills have been projected during the week. According to the reports, work will start soon on these plants. However, it is difficult to tell whether they will materialize in the near future.

Interest in rags has not yet taken on any added activity. The impression prevails among the consumers, so the rag men say, that there are plenty of stocks in store and that there is no fear with regard to the future. As a good many of the rag mills have been experiencing a lull in the sale of their products, they have thus far been able to do without buying and are not bothering about the future. As a matter of fact, it has been said that some manufacturers are still of the opinion that prices will lower. Rag men still assert that while available supplies may seem big, a splurge of business that would force a sudden demand, would eat up supplies quickly and force the quotations up the way they were handled something over a year and a half ago. If the railroads succeed in getting their 15 per cent increase in rates, this will surely affect prices in proportion. Another thing. The freight situation does ont promise to be much better for the future. It is true that the roads have reported that they are prepared for emergencies of all sorts, but this means only for government business and for business pertaining to the welfare of the government. So far as rags are concerned—and waste papers and bagging come under the same heading—they are considered as the lowest class of freight—and the least desirable classes. Whenever there is a choice as to which of several shipments shall receive precedence, preference will never be given to old stock. This means that there is likely to be considerable difficulty attending the securing of supplies in the near future. Prices are about the same as we reported them last week.

While the waste papers are active compared with some of the other markets they have suffered in price, due no doubt to the general sympathy caused by conservative buying. The bulk of the demand is for the grades containing ground wood, chiefly all of the lower ones. Strictly over-issues are in fair demand, bringing about 1¼c; strictly folded have dropped during the week and are quoted at the present time at about ¾c up to about 1c. Mixed papers also have taken a slump in price moving at around ½c and a little higher. Hard white shavings are at around 4½c to 5c; soft white shavings at 4¼c to 4½c; magazine stock at around 1½c; ledgers, at about 2c to 2¼c.



SMITH

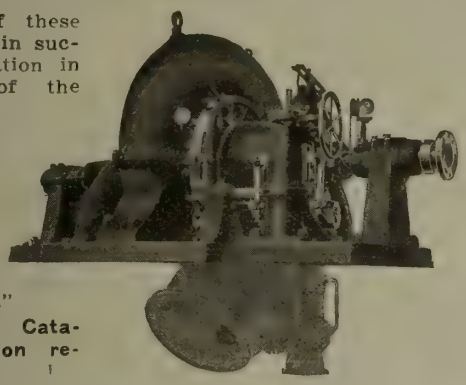
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THE HIGHEST GRADE BABBITT METAL MADE

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WILL NOT SHRINK.

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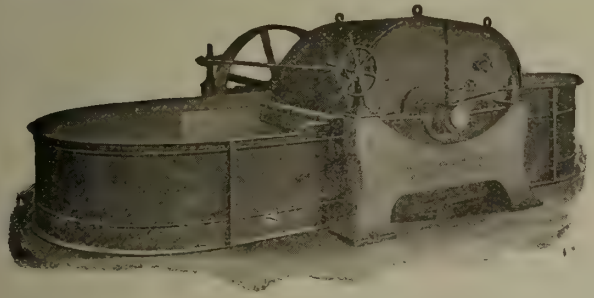
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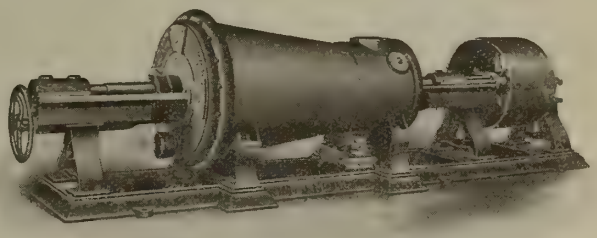
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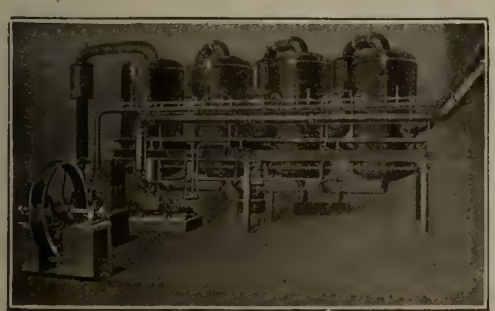
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IRON OR WOOD TUBS
7 sizes Belt or Motor Driven





Board Machines, Dusters, Stuff Chests, Pumps, etc.

THE NOBLE AND WOOD MACHINE CO. **HOOSICK FALLS, N.Y.**



SCOTT'S IMPROVED RECOVERY SYSTEMS FOR

SODA, SULPHATE & SULPHITE

Spent Liquors give the Maximum Economy and Efficiency

The PRINCIPLE, The DESIGN,
The CONSTRUCTION, The OPERATION,
The RESULT
IS RIGHT

Complete installations made by "The Firm With The Experience"

ERNEST SCOTT & CO., MANUFACTURING ENGINEERS **Fall River, Mas**

Canadian Representatives: — Process Engineers, Ltd., McGill Bldg., Montreal, Que.

optimism seems to prevail and there are but a few who no question in the minds of the dealers that prices must react favorably for them.

Better feeling in some sections, is reported in papers. On the whole, however, the tendency to bear the market seems to predominate, with the result that buying is still somewhat behind. Some mills claim that they are still working on back orders and are, therefore, not affected by the present state of affairs. The machines working on fine papers, however, have not been so active, of late—in some cases, a fairly large curtailment of production has been necessary. Nevertheless, optimism seems to prevail and there are but a few who are not confident that the future will mean added prosperity. This statement must be qualified, however, to make allowance for new conditions. The freight question is now reaching the stage where it is receiving considerable attention. Paper manufacturers are willing to concede an increase in rates, but they hesitate to sanction the 15 per cent asked by the railroads. A 15 per cent increase in freight rates will be of more consequence than one is prone to realize off hand. There seems to be question that war taxes and other burdens which are about to be placed on the industry will be the means of forcing prices higher—without excepting any grade. In newsprint, the demand continues good and is expected to keep on, in view of the war extras and the splendid advertising prospects which the newspapers report. The suggestion has been made that, if the increase in second class rates, proposed by the new Revenue Tariff bill, is effected, it will be the means of putting many small publishers out of business and will force some of the larger ones to limit their subscription lists, in order to conserve whatever is in their treasuries. Such action, would, of course, tend to curtail consumption of news print. One thing is certain, increased second class postal rates would be the means of discouraging any new journalistic enterprises, for it was this concession that was and is responsible for a great many of the papers that are issued today. Tissues are said to be holding to their high prices, with buying still conservative.

Reports from Holyoke are to the effect that several of the mills are doing better than they have done recently in fine papers. This seems to be encouraging. Boards have taken a little slump in price, although the quotations are still high enough, say a good many.

New York Quotations.

(These are a nominal range of prices):

Ground wood f.o.b. mill .....$42.50 to $45.00*
Foreign bleached sulphite, ex-dock, N.Y.....9¼c*
Foreign easy bleaching sulphite, ex-dock, N.Y....5¾c†
Domestic bleached sulphite, f.o.b. pulp mill....7¼c*
Foreign unbleached sulphite, ex-dock, N.Y.....5½c*
Foreign unbleached sulphite, No. 2, ex-dock, New York .....5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill .....5¼c to 5½c
Kraft pulp, f.o.b. pulp mill.....6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y...6½c to 7c
Bleached soda pulp, f.o.b. pulp mill.....5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y. 6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York .....6½c to 7c
Bond papers, sulphite.....11½c
Best grade writings 20c*
Regular superfine 19c*
Ledgers papers .....11½c†
News, contracts, f.o.b. mill.....$3.10 to $4.25
News, spot lots .....$3.50 to $5.00
Book, super 8½c*
Book, coated 8c*
Tissues, good sulphite, bleached, per ream.....$1.30*
Tissue, ground wood, manila, per ream $1.30*
Kraft 8½c*
Wood manilas 7c*
Jute manilas 10c*
News board, per ton, f.o.b. New York.....$60.00
Strawboard, per ton, f.o.b. New York.....$55.00*
Chip board, per ton, f.o.b. New York.....$55.00

(*)—And higher. (†)—And way up.

R. W. Jolly.

BOOTH ULTIMATUM FICTITIOUS.

A strict denial to the published statement that Mr J. R. Booth millionaire paper manufacturer, had written a cabinet minister, stating that the only way the government could control the price of his product would be to buy his plant and take over his contracts is officially made by Booth interests in Ottawa.

What happened was that Mr. J. R. Booth with his son Jackson interviewed the minister, on the matter of the set price, and whatever went on in the minister's private office is not known. This much the correspondent of the Pulp and Paper magazine is authorized to say "there was no ultimatum delivered to the government, nor were there documents in writing to this effect delivered to the minister in question.

High-Grade Paper Finishing Machinery

Built for Service

Complete Rag Room equipments largely in Evidence in leading mills throughout the United States and Canada.

The Gaara Feltless Wet Machine or Decker save the pulp that goes to waste in the ordinary deckers

Write for full information to—

Norwood Engineering Co. of Canada, Limited

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SUPERIOR VEGETABLE TALLOW

As you know, the excessive foaming of stock on the paper machine slows up production and lowers the quality of the sheet.

Where this foam is caused by gas in the stock. Superior Vegetable Tallow will positively kill the foam without killing the Sizing or spotting the sheet.

May we have the pleasure of sending you a barrel for trial?

Paper Makers Chemical Company

Easton, Pennsylvania—Holyoke, Massachusetts.

Western Paper Makers Chemical Company

Kalamazoo, Michigan.

Rosin Size—Satin White—English and Domestic Clays—Paper Makers and Paper Coaters Chemicals.

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EFFICIENCY

In order to bring your plant up to the highest standard of efficiency, it is not only essential to have competent workmen, but it is necessary to have the very best Sheet Metal for lining your tanks.

The Hoyt Metal Company has had a great many years experience in experimenting along this line and have evolved an alloy which will not only stand up under acid, but which does not creep or buckle, and will stand rough usage without breaking.

If you are contemplating renewal or installation of a new unit please let us go into the matter with you in detail.

Write for our Babbitt catalogue.

Sales—Over five million dollars worth annually.

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GRADERS AND PACKERS OF ALL KINDS
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Paper Making Material---Rags
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Howard Smith Paper Mills, Limited

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Mills at BEAUHARNOIS and CRABTREE, Que.

Bleached and Unbleached

WOOD PULP

of every description

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SAFETY INSTRUCTIONS BOOKLET.

A comprehensive and timely booklet on "Instructions to Employees in regard to Staging, Scaffolds and Tackles, etc.", which has been prepared by A. G. Pounsford, formerly Safety Engineer, and A. P. Costigane, the present Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, has just been issued. For all those engaged in construction work at the mills or using tackling, the brochure is of great importance. Copies may be obtained by the various pulp and paper mills from A. P. Costigane, 306 Dominion Bank Building, Toronto, for distribution for the nominal sum of twenty-five cents, which merely covers the cost of preparation, gathering details, etc., the expense of printing being borne by the Ontario Pulp and Paper Makers' Safety Association.



HOW TO PILE ROLLS

Save labor and space and do it Efficiently and Quickly by Using the REVOLVATOR (Reg. U.S. Pat. Off.)
Write for Bulletin C36.

N.Y. Revolving Portable Revolving Co.
350 Garfield Ave., Jersey City, N.J.

THE MANUFACTURE OF ROSIN (Part I)

Rosin Size was first used by the Germans in 1906. Previous to this time the Dutch had a monopoly of sized paper. The Dutch used glue extracted from hoofs and hides for the coarser papers, and rabbit skins and trimmings from parchment for the finer grades, and were the first to put Rosin Size into general use. It was not until 1840 that the other European countries adopted Rosin Size, and later in the United States. This tardiness was attributed to the fact that the superintendents were loathe to give up a source of revenue they derived from the sale of fats extracted from the bones and hides used in the process of making animal size.

The Chinese were the first to manufacture paper, and they used a size made from rice starch, isinglass, and a mucilaginous extract of a native plant called Koteng. Although the Chinese manufactured paper before the time of Christ, it was unknown in Europe until the tenth century, when the Spaniards made paper from macerated vegetable fibre and sized it after a fashion with gelatine.

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Want and For Sale Advertisements

WANTED — Experienced Boilermaker for permanent work on repairs, state experience and salary desired, and furnish references. Bathurst Lumber Company, Limited, Pulp & Paper Division, Bathurst, N.B.

WANTED—A few expert Machine Tenders, book and writing. Apply to Toronto Paper Manufacturing Co., Ltd., Cornwall, Ontario, Canada.

SALESMEN WANTED.—"Wanted Salesmen calling upon Pulp and Paper Mills to sell Babbitt Metals as side line. Good commission. Give full particulars in confidence as to firms represented and territory covered. Box 148, Pulp & Paper Magazine, Montreal."

The PULP AND PAPER TRADING CO.
Temple Court Building, New York City
DEALERS IN
Paper and Pulp of All Kinds
PRICES AND SAMPLES ON APPLICATION

PULP AND PAPER NEWS.

(Continued from page 497).

The recent issue of the Vancouver Lower Mainland Bell Telephone directory is the largest of any ever published in the history of the company in the Pacific Coast province. Thirty-three thousand copies were printed and required thirteen tons of paper, which was supplied by the Powell River Pulp and Paper Co., Powell River, B.C.

At the annual meeting of the Methodist Book and Publishing House, Toronto, the report for the fiscal year showed a surplus of sixty thousand dollars on the turnover in all departments, which was regarded as most satisfactory in view of the high cost and scarcity of paper. The Methodist Book and Publishing House is the largest concern of its kind in the Dominion and the pioneer book publishing concern in Toronto.

A federal charter has been granted to the Port Aux Quilles Lumber Co., Limited, with a capital stock of one hundred thousand dollars and head offices in Montreal. Among the company's powers is that of manufacturing and dealing in pulp.

Kamloops Sawmills, Limited, have been granted letters patent with a capital stock of fifty thousand dollars and headquarters in Kamloops, B.C., and are authorized to own and operate pulp and paper mills. J. C. Shields and J. L. Broadfoot, of Vancouver, are among the incorporators of the concern.

The Canada Newfoundland Lumber Co., Limited, with headquarters in Montreal and a capital stock of three hundred thousand dollars have been given letters patent and are empowered to own and operate timber limits, licenses and leases and to deal generally in wood and wood products.

Paper, Limited, Montreal, have removed their office and warehouse to 611 Unity Building.

While Lieut.-Col. Hough, president of the Hughes, Owens Co., Limited, manufacturers of blue and black print papers, Montreal, and W. T. Chipman, vice-president of the company, are on active service with the 244th Battalion, Kitchener's Own, F. M. Frederick will be in charge of the business.

An interesting case, which has been before the courts for some years, was tried in Sherbrooke, Que., recently, in which the Brompton Pulp and Paper Co., Limited, of East Angus, sued the township of Lengwick for the sum of $3,047.25, which they had paid as municipal taxes. This sum was handed over at various times, and the plaintiffs later learned that the amount had been illegally levied under a resolution only of the council instead of a by-law as required by law. The township contended that the payment by the Brompton Co. was for a legal obligation and that the plaintiff and other ratepayers had never previously complained at the taxes being levied under a resolution instead of a by-law. Mr. Justice Globensky maintained the action and ordered the township to pay the Brompton Co. the sum of $3,047.25 with the costs of the action.

Lieut.-Col. W. W. Burland, of Montreal, who is well known in pulp and paper circles, is now on the general staff, London, Eng. He was in command of the 14th Royal Montreal Battalion until last year.

The annual meeting of the Carter-Crume Co., Limited, Toronto, will be held on May 21st, to approve an arrangement whereby the preference and common shares of the company will be transferred to the American Sales Book Co.

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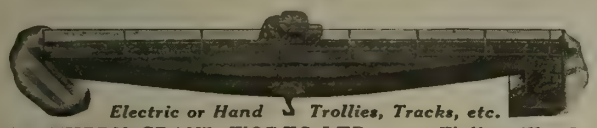
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Electric or Hand Trollies, Tracks, etc.
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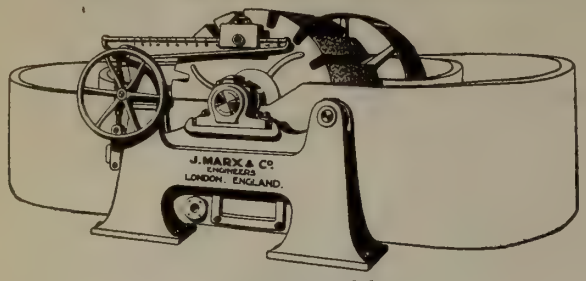
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Do better Beating and Brushing than Tub-beaters, and that you can save ⅓ of the cost, ½ the power, and ¼ of your floor space, by using them?
They Work Successfully on all Kinds of Stock
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Agents: Canadian Fairbanks-Morse Co., Limited

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Wood Pipe and Tanks
Water, Acid, and Blow Pit Tanks
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Continuous Wood Stave---any size
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The MARX REFINER Puts a Premium on COARSE GRINDING at HIGH PRESSURE



Manufactured by
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LONDON, E. C. 2

The Marx Refiner is provided with a large Basalt Lava Stone Beater of the latest patented type.

It turns Mechanical and Chemical Screenings, Splinters, Sawdust, Sulphite and Sulphate Knots into stuff ready for the Paper Making Machine.

Built in three sizes, 18,000, 27,500, and 36,000 lbs. daily output.

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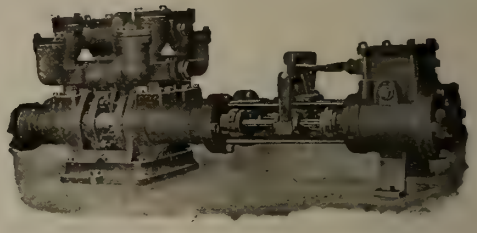


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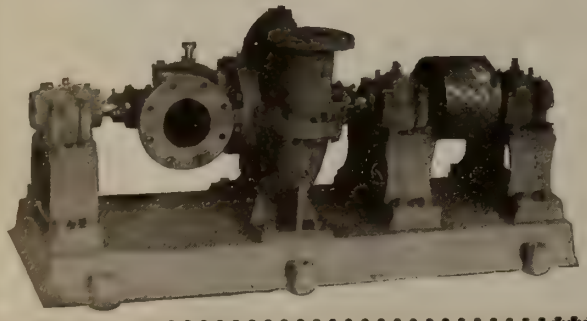
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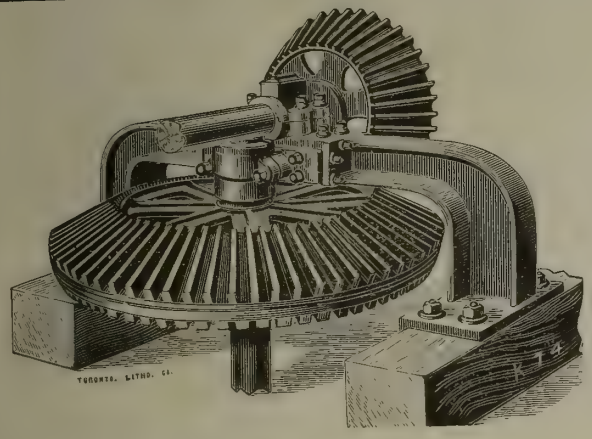
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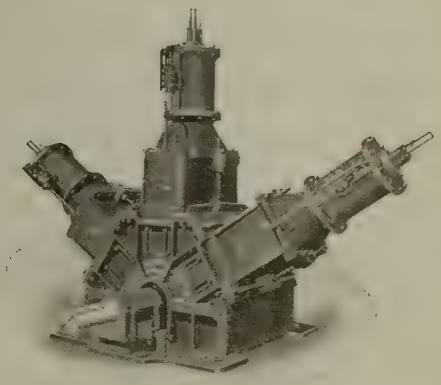
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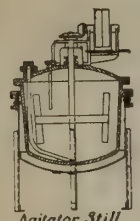
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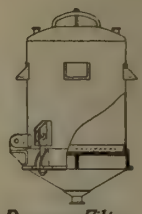
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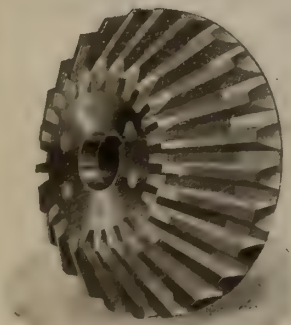
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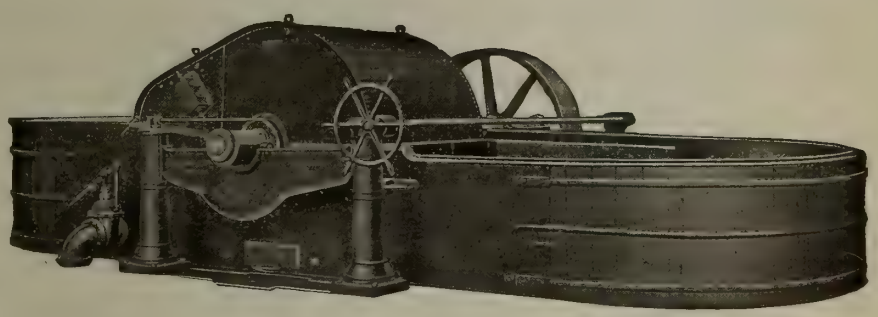
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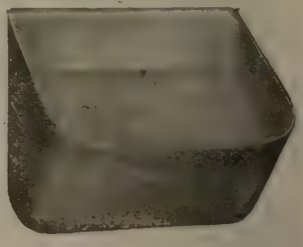
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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J. NEWELL STEPHENSON, M. S., Editor.

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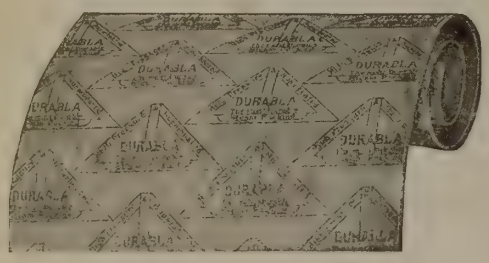
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

TO LIST OR NOT TO LIST.

Some few years ago a gentleman by the name of William Shakespeare had one of his characters soliloquizing on the question of existence, "To be, or not to be?" To-day pulp and paper managers are going over in their own minds the question whether it is better to list, or not to list.

Recently a belligerent Government at Ottawa and an equally hostile organization at Washington got together and decided to limit the price at which manufacturers could sell their newsprint. Not content with taking the foundation from under the industry, these paternal Governments also tacked on excess war profit taxes. In brief, they forbade manufacturers of newsprint to charge all they could get; but if some concern manages, in spite of this, to make a little bit of profit, the Government comes along and takes most of it away. These actions on the part of the Governments are tending to convince some manufacturers that a cellar is the only safe place to live and the night time the only proper time in which to work, in other words, carry on operations in the dark.

These manufacturers claim that the publicity which comes from listing the securities attracts too much attention from a lean and hungry Cassius, in the person of Sir Thomas White. However, after all is said and done, the advantages of listing securities more than outweigh the disadvantages. Every great corporation has its securities listed on exchanges, the listing giving it a status that cannot be secured in any other way. To list a security does not necessarily mean that its shares shall not be subject to manipulation and become more or less a football for speculators, but a company is less likely to be mismanaged if it is subjected to the fierce glare of publicity than if its affairs are carried on in the dark without the necessity of issuing statements as to its financial standing.

After all is said and done, the line between speculation and investment is very shadowy and unreal, and a person can scarcely say where one leaves off and the other begins. British consols and French rentes and other Government securities are supposed to be the safest investments, yet purchasers of these securities sell on advances, and in other ways speculate with their holdings. In so far as speculation is concerned, life and business of every kind is a speculation. The man who insures his life buys a speculation, and the insurance company sells him one. The farmer who plants a crop speculates in regard to nature's whims and the probability of harvest. The manufacturer who sells the output of his factory speculates in regard to the purchase of his raw material and the satisfactory solution of his labor problems. Apparently it is an innate characteristic of mankind to speculate. The listing of a company's securities on the stock exchanges gives a certain stability and a publicity to its affairs, and at the same time lessens the danger of extreme, or wild-cat speculations, in this respect proving a benefit to the company instead of a detriment. Taking everything into consideration, therefore, pulp and paper manufacturers will find it to their advantage to list their securities, despite the fact that at Ottawa "the Goblins will get them if you don't watch out."

THE PAPER MILL PAPER.

We welcome the Spanish River News, both for what it is and what it signifies.

It is a very nicely gotten-up mill paper, published by the Sjanish River Pulp and Paper Mills and well edited by C. A. Gilkerson. The price, "One Sent on Request" is typical of atmosphere of good nature that pervades the paper. The articles are distinctly worth while, all are of direct interest to the people in the mills at Espanda, Sturgeon Falls and Sault Ste. Marie. The paper should do much to cement the interests of the employees at the three plants.

President George H. Mead, in his letter to the employees, says:

"It is the desire of the company to do all possible toward improving conditions for more effective work throughout all plants; to make every effort for the safety and protection of its employees; to assist them in the development of most comfortable and healthful surroundings in the communities in which they live; to provide for and help maintain the best of educational institutions for their children.

"In all of such work results can only be accomplished by a proper understanding between the company and its employees combined with hearty support on the part of our men, and from my personal knowledge of existing conditions I am already certain of our success.

The Spanish River News signifies the development of an excellent idea. There are already a few ex-

cellent mill papers and more "house-organs" which have more to do with the sales force. The mill paper is much like the school or college paper. It gives an opportunity for spreading items of interest or amusement relating to the individuals and activities of the mill and giving employees a permanent record of what they have done. When a firm has several mills a certain esprit de corps is fostered.

The mill paper is a good thing. It need not be an ambitious affair, but so long as it has an ideal and serves a good purpose we wish it all success.

HELPING THE GOOD WORK.

The Canadian Forestry Association is endeavoring to enlist the aid of lumbermen and other dealers in wood products in educating the Canadian public with regard to the peril of fire hazards and the means of preventing forest fires. The campaign is very properly to be carried out in the popular press, thus reaching the amateur who only occasionally goes into the woods. It is from these individual novices and the settler and the man in the smoking car that much trouble arises.

An aroused and intelligent public sentiment is necessary to the adoption of forest protection laws and their satisfactory enforcement. To the following appeal to the advertiser for the loan of part of his advertising space, we would add the suggestion that a lumber dealer who gets his timber from properly protected limits should say so, just as a dairy mentions its herd of clean and healthy cows.

"It is suggested that this advertising copy should take the place of your regular advertisement in local newspapers for two issues a month until September next."—Canadian Forestry Association, Ottawa.

THRIFT IN FOREST FIRES.

Last year 265 Canadian men, women and children perished because of forest fires.

About six million dollars worth of property disappeared from the same cause.

The easiest and best-paying Thrift Campaign for 1917 is to keep the next five months clear of such needless sacrifices.

The neglected camp fires, the tossed-away match and cigarette, the burning of settlers' "slash" have heaped up our national account for wasted life and property.

This is the Programme.

If you are a settler—Guard well your clearing fires.

If a hunter, fisherman, camper, prospector—Put that Camp Fire out before you leave it. Put it DEAD OUT. Try a couple of extra pails of water or shovels of earth.

Never build a fire except in rocks or gravel or other safe spot. Keep your fire small. It cooks better and is safer.

Please do not throw away lighted tobacco or matches. It is the trick of an amateur. No veteran, no good citizen, fools with fire.

All the big Conflagrations have started with a wisp of flame. Your lighted match, your cigarette, your camp fire are exactly what is needed to ignite the fuse.

Advertisement inserted at the expense of "R. U. WITHUS."

CANADIAN CHEMICAL JOURNAL.

It is a pleasure to mention the appearance of a periodical dealing with the chemical industries of Canada. This newcomer is the "Canadian Chemical Journal," a monthly magazine published by the Biggar Press, of Toronto. Mr. E. B. Biggar, who is responsible for the venture, founded the Pulp and Paper Magazine fifteen years ago. The new journal makes a more elaborate debut and we hope it has an equal success.

There is no doubt but that the chemical industries of the Dominion have a very promising future, and should support a magazine. Pulp, paper and metallurgy seem to have the major part of the field at present, but the very rapid development and bright prospects of Canada's electro-chemical and electro-metallurgical possibilities should not be lost sight of. The recovery of sulphur dioxide from ore roasting would support a considerable acid industry. Electrolytic bleach and soda, colors, paints, wood distillation products, and other chemical products furnish a fascinating field of congestion as to what might be done.

Canada certainly has the resources for a very considerable chemical industry and there is nothing so essential to their development as a good live industrial journal.

MORE MEN IN KHAKI.

Editor, Pulp & Paper Magazine:

Referring to the "Honour Roll" in the current issue of the above journal, we give below names of our men who have joined the Colours:—

A. Baird, C. Dare, E. Gillespie, L. Grant, Wm. Price, Melrose Hope, G. W. Frisken, C. Tuff, Norman Dean, H. Friksen.

Yours very truly,
The British American War Paper Co., Ltd.

Editor, Pulp & Paper Magazine:

Please add to the list of our employees who have enlisted for overseas, the name of M. Hunsberger, which makes eleven enlistments from our mill.

Yours very truly,
Interlake Tissue Mills, Ltd., Merritton, Ont.

NEW MILL FOR WINNIPEG?

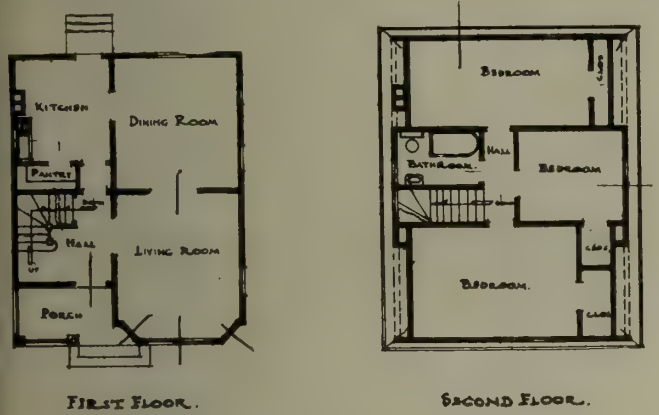
An application has been received by the City of Winnipeg from Mr. J. D. McArthur, Railway Contractor and Lumber Dealer of that city, as to what inducements or special terms in respect to assessment, rate for electric power and supply of water the city is prepared to offer for the establishment of a Pulp and Paper Mill in Winnipeg. The name of the proposed company is the Manitoba Pulp and Paper Company, Limited.

Housing for the New Industrial Town

By ALFRED D. V. HALL, Landscape Architect, Toronto.

Industrial housing projects are being developed along three lines at present, First, Municipal Housing for the bettering of congested districts in a city or large town—such as the recent successful attempt of the Toronto Housing Company — Second, Suburban Housing to provide additional living quarters or homes for the employees of a new factory locating on the outskirts of the City-usually the development of one or two streets conforming to an existing city plan, and Third, that phase which accompanies the building of new settlements about the plants of new power developments, mining companies and the pulp and paper mills.

The considerations involved in recommendations for any of the above phases differ in direct proportion to the class of tenant for which it is planned and to the land values of the district under consideration. It is the purpose of this article to deal only with the third or last division, now that so many new industries are facing the problem of inducing labor to forego suburban advantages for the new settlements. These industries now have the opportunity to benefit by the examples of the older concerns which have only today emerged from expensive experimentation.



CLASS "A" WORKINGMEN'S HOMES
DETACHED TYPE

Fig. 1.—This is a typical plan for a house such as is shown in Fig. 2.

Connection Between Housing and the Plan of the Town-Site.

In the new town site successful provision for housing and the plan for the town itself are interdependent to such an extent that neither can be economically considered apart from the other. The plans for the town layout and housing should be prepared at the time of planning the plant. The mill company should organize a department; or possibly a separate company; which would handle the construction of streets, the installation of the service, the erection of the houses, and all that pertains to the development of the new town. This department can call for expert advice on the varied problems of planning, construction and maintenance, and so have houses for employees by the time the plant begins operation. At the close of this first period of construction, it will have the results of the expert advice represented in figures of actual cost on which to base plans for maintenance and future extensions.

Financial Aspects.

After the planning expert has laid down the street lines, lot lines, and the park and playground areas on his preliminary plan, the original cost of the land should be charged against the number of lots, or saleable area. Estimates should be carefully prepared for the cost of construction, — streets, pavements, sidewalks, planting, etc., and the service of sewer, water and light for the total area, as well as for maintenance, interest and the overhead charges of the department. This total for development should be charged to the lots to give the average improved cost per lot. The difference between the original cost and the improved cost should not run over six or eight cents per sq. ft. Then the Architect should estimate the total cost of the various types of houses, and include in his estimate the cost of walks, finished-grading, seeding, etc.

With the above figures, the rates of rental or sale necessary to retire the capital invested in a given term of years may be ascertained. If the town and houses have been economically planned, and no profit is figured for the company, the rentals or sale prices will be low, if they are not an attempt should be made to secure a more practical plan before going ahead with the first proposition.

Examples.

We are quoting the figures which the Goodyear Rubber Co., of Akron, Ohio, placed before their employees who considered the purchase of a lot.

Original cost of property:		
100 acres at $300.00		$ 30,000.00
Cost of improvement:		
Excavating 100,000 yds. (est.)	$27,175.00	
Curb for brick pavement 11,796 lin. ft.	3,538.00	
Gravel roads 36,078 sq. yds. (est.)	16,235.00	
Curbs and gutters for gravel rds., 35,958 ft.	21,574.00	
Sanitary sewer system (est.)	21,000.00	
Storm sewer system (est.)	8,000.00	
Main drain	8,510.74	
Bridge (concrete)	9,729.66	
Planting trees and shrubs (est.)	2,500.00	
Office and engineering expense and Architect fees	21,000.00	
Blue Pond drain	2,932.00	
Instruments	445.00	
Sidewalk 265, 531 sq. ft. (est.)	23,153.00	
Grading about houses top soil seeding (est.)	13,000.00	
Miscellaneous, ditches, monuments, etc.	1,882.60	
		$180,675.00
Total		$210.675.00
Number of lots, 430, average area 6250 sq. ft.		
Original cost per lot		$ 70.00
Cost of improvement per lot		420.00
Total improved cost		$490.00

Bear in mind that successful industrial housing can only be obtained where the project is self supporting after it is provided. This method of estimating the financial aspect will tend toward the elimination of unproven theories and false ideals, and should place the whole project on a practical basis. If the rentals seem unduly low the standard of the development indicated by the size of the lots may be raised accordingly and better design and materials used for the houses. After this preliminary plan has been made and adjusted to the financial requirements the houses themselves may be considered in detail.



Fig. 2.—This is one of the houses erected by the American Woolen Co. of Lawrence, Mass.

Types of Houses.

There are usually three types of houses to be provided for, The first will be the house for the laborer, who receives the smallest wage; the second the house for the mechanic, who is accustomed to expect the average city living conditions; and the third, the one to which we will give the least consideration in this article, the houses for the officials who may have to spend all or part of the year near the plant.

CLASS A.—Laborers houses usually provide for five to seven rooms per house. This type is usually subject to rental and may be built in the detached or semi-detached style. In the new town where the land is cheap each house should have sufficient area for a small garden, and for plenty of light, so that the above types seemed to be the only ones to meet the requirements. The semi-detached type is often placed with the dividing partition on the property line which gives the maximum amount of open area to the lot. See figure 11. For minimum of open area figure 12.

Plans should be prepared for several different "elevations" fitted to the same floor plan, which should be alternated to avoid the too frequent reoccurence of the same elevation upon a given street. Where a company expects to erect a considerable number of houses the first year, it should let contracts for several houses each, of three or four different designs, and by "wholesale" building secure a better price per house. The cost of this type of house should range from 12 to 15c per cu. ft. or from $250 to $350 per room.

Figures 1-4 illustrate by photographs and typical plans, two houses of this type.

CLASS B.—The houses for the skilled laborers and mechanics should have from six to eight rooms. The general plan should be very simple as in the case of Class "A", but the architect is able here to have a slightly wider range in materials and finish, as this type of house will stand an increased expenditure as against that of class "A". The lots on which classes "A" and "B" are erected should be of practically

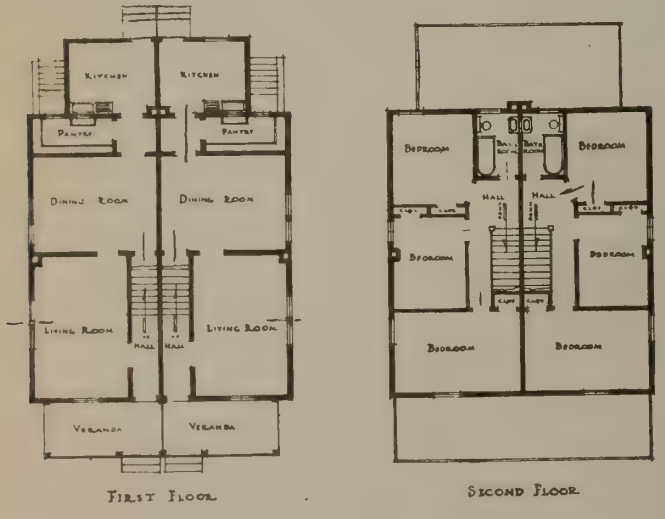


Fig. 4.—Two-family semi-detached houses erecte by the Cleveland Cliffs Iron Co. at their town site of Gwinn, Mich. These houses were designed to house the cheapest class of labor.

the same size. Slight variations in the outline of the lots tend to add rather than to detract from the attractiveness. The cost of this house might be between 14 and 17c per cu. ft., or $300 to $500 per room.

Figures 5-10 show photographs and plans of three houses which have been erected by separate companies. These illustrate fairly well the house that can be erected in accordance with the conditions outlined above.

CLASS C.—Houses of the best type for the salaried employees and officials will be situated on lots of larger area which will have been especially provided in the plan of the town and wherever possible will have the advantage of the finest outlook. The plan of the houses themselves will be governed largely by the desires of the purchasers, and the company will consider each house separately as occasion arises, which is usually after the period of first development.



CLASS 'A' WORKINGMEN'S HOMES.
SEMI-DETACHED TYPE

Fig. 3.—A typical plan of a semi-detached house as is seen in Fig. 4.

Construction.

In a housing development of this nature a grave mistake has often been made in letting the work to unreliable contractors under insufficient supervision. No matter how simply the houses are planned or what materials are used, the erection itself must be done under responsible supervision, either by the architect or by some representative of the company who is a practical builder.

Where the houses are rented the return for good workmanship is immediate through a reduction in maintenance, and in the case of sale the company are free from the prejudices arising from selling a poorly constructed house to an employee. In the case of the Canadian town, for the paper industries especially, the most economical construction will be that of wood, such as is shown in the accompanying photographs.

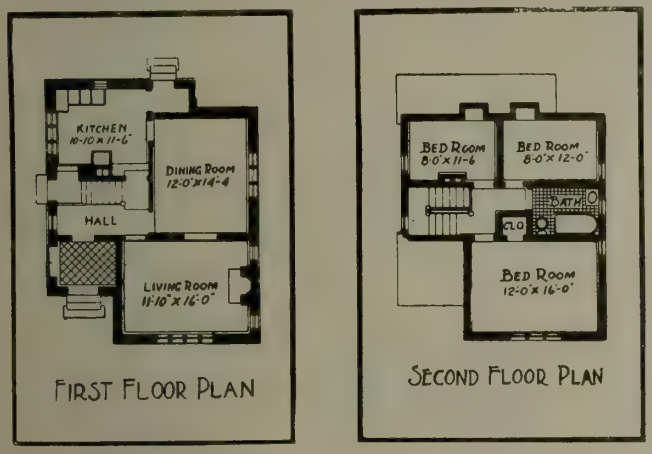


Fig. 5.—These are the original plans for the house shown in Fig. 6.

Selling or Renting.

There are two methods of handling the houses after they are built. The first is for the Company to adopt the fixed policy of owning and renting them to their employees, and the second is that of sale to encourage every man to own his own home.

In the first instance many companies, especially those located near cities, have adopted the method of renting to prevent outsiders from gaining ownership in their community and benefiting by their efforts. To this there are objections in that the company has to plan to carry this feature as a permanent part of its organization, there always exists the spirit of landlord and tenant, and we usually find additional effort necessary on the part of the company to furnish incentive in matters of maintenance, beautification of grounds and interest in civic affairs.

The provision for the ultimate sale of the property encourages the employee to own his home. This feeling of ownership tends to make his interest in the welfare of the town more permanent, and it also allows the Company to withdraw from its housing activities at such time as the town itself is sufficiently large to obtain a charter. This feeling of permanency furnishes additional inducement for tradesmen to buy lots and erect their own stores and business buildings and it has been found that the buyers do not object to the necessary restrictions, which in the case of the new town should cover a wider field than necessary where municipal ordinances exist. The rentals of some houses are of course necessary under this plan and the company will usually keep the control or management of the store, the hotel and other buildings of a semi-public or administrative character, and it will of course, have general control of all the property for a considerable period after the sales are made so it can both directly and indirectly encourage civic pride and foster the feeling of responsibility in the workmen which differentiates the permanent employee from the "drifter."

After the construction work is completed in a growing section and the houses are ready for occupancy a certain amount of attention should be given to each lot on which a house is built. Several concerns have at the beginning of construction established a nursery which has in two years time developed plants and trees of sufficient size to make the necessary plantations of shrubs and tree on each lot as well as shade trees along the streets. This method will save 50% in the cost of the plants, the necessity of the semi-annual planting orders and losses incurred in shipment.

The methods devised for the purchase by the employee have taken several forms. The Norton Co., of Worcester, Mass., make in brief the following arrangement:

The purchaser pays 10% down and the conveyance of the property is made at once. For the balance, the purchaser gives two notes, the first of $1000 is payable in 12 years at 5%. The second is payable on demand at 5%, and both notes are secured by mortgage.

The purchaser enters into a supplementary agreement to purchase five shares in a co-operative bank, and to continue payments thereon until his deposits have matured a sum of $1000 which takes nearly 12 years. In consideration of this agreement the company agrees not to make demand on the demand note as long as the purchaser continues his payments at the co-operative bank. The company itself insures the life of each purchaser, and in this way is able to agree that if he shall die or be incapacitated within 12 years it will accept the value of his co-operative bank share at that time, in full payment of the time note.



Fig. 6.—One of the houses erected by the Goodyear Rubber Co., at Akron, Ohio.

By this agreement the purchaser is assured of ownership of the property in 12 years, or if he dies his estate will receive title with the exception of a first mortgage covering a demand note which is less than 60% of the value of his house.

To carry the payments on a house costing $3800 the total monthly payment covering interest, taxes, insurance, bank shares, etc., is $20. The house in this case is sold at cost by the company including the lot on which it stands, containing 6850 sq. ft. The cost

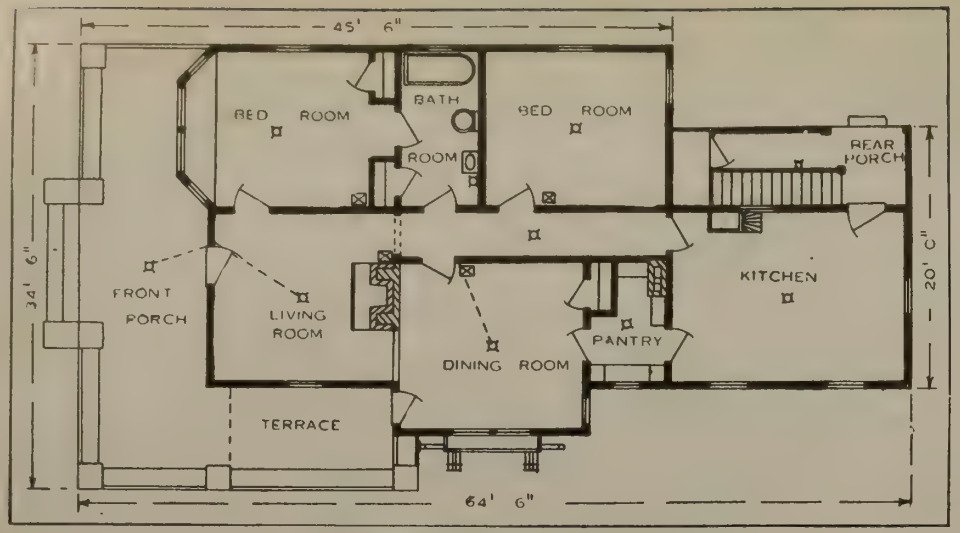


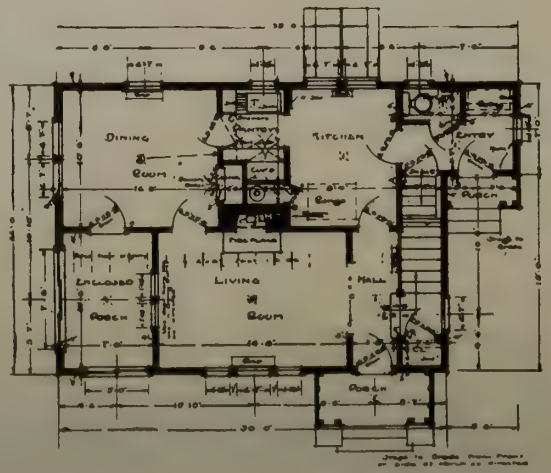
Fig. 7 is the plan for the bungalow shown on the right in Fig. 8.



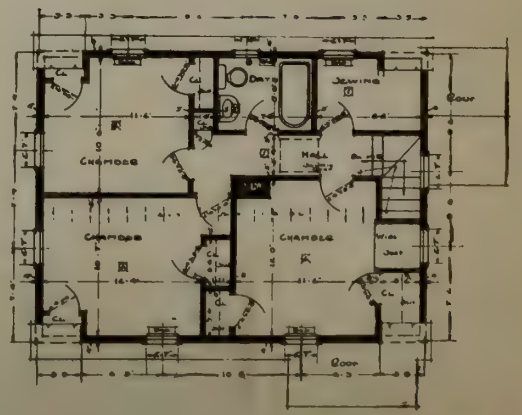
Fig. 8.—Two bungalows erected by the United States Steel Corporation, in one of their permanent new towns.



Fig. 10.—One of the houses erected by the Norton Co., at Worcester, Mass.



First Floor—N2 Type



Second Floor—N2 Type

Fig. 9.—The original plans for the cottage shown in Figure 10.

figured from purchase of the land with its share of the town development added is 10c per sq. ft. or $685.

The Goodyear Co's. Plan.

The Goodyear Company purchased land at $300 per acre. A generous subdivision secured four house-lots per acre after the deductions for streets, parks, etc., had been made. The average improved cost per lot was $490. Their arrangement for the purchase required no



Fig. 11.—Plan of a portion of the townsite of Gwinn, showing the arrangement of the semi-detached houses upon the lots. Longer views are obtained between houses by alternating or staggering the houses on each side of the street.

initial payment down. The first mortgage in this is carried by a large life insurance company, and the second by the company themselves with interest at 6% in both cases. Semi-monthly payments are arranged which pay the second mortgage in 12 years, and the first mortgage in 3 years more.



Fig. 12.—One (?) house for each 2,000 employes. Delightful method of housing at the Lackawanna Steel Plant.

To prevent speculation 25% is added to the cost price of each lot at the time of sale, and is credited the purchaser after he has carried his payments for 5 years time. The semi-monthly payments required to purchase a house valued at cost at $2860 if no initial payment is made, are $16.54 for the first five years, $10.26 for the next seven years, and $5,22 for the last three years, whereupon the house is entirely clear. The company allows the employees, if they desire, to arrange for a larger payment at any specified time. The company has also arranged that if the purchaser wishes he may by adding an average of 50c per thousand to his semi-monthly payments carry a life insurance policy which will free his home in case of death.

General Conclusions.

The nature of each industry and each town site requires a special adaptation of the general principles stated above. No industry can undertake housing with the expectation of having its capital earn what it might elsewhere, but it has been proven that provision can be made to give attractive conditions to permanent labor at no cost other than the difference in interest rates. The fact that such houses as those shown in the accompanying cuts have been built in this way should encourage Canadian industries to attempt a similiar solution for their labor problems.

BOOZE AS WASTE OF TIME.

(Chicago Tribune.)

The stock horrible example stories of the prohibitionists are confined chiefly to a recital of what booze makes men do. It makes them commit crimes, beat children, desert wives. Of course these things happen, but it is impossible to convince drinking or non-drinking men that these are inevitable consequences of booze.

The really important effect of booze is not that it makes men dangerous things but that it prevents them from doing useful things.

A couple of bottles of beer will, for intsance, divert a student from reading William James to reading Nick Carter. They will divert a business man from studying reports to drowsing over the newspaper.

What seems to be harmless wine bibbing is harmless generally in its positive effects. It does not generally send men into bad company, or inane company physically. He is rarely found actually lying in the gutter. But in his mental activity he is too often found there. He spends his time out of business hours on trash because trash requires little mental alertness. He goes to a poor movie because he has not sufficient energy to read a good book.

Booze beguiles us into wasting time. That is the chief indictment against it.

POOR TREES IN WOODLOTS.

Many woodlots contain a large number of inferior species, trees that have little or no commercial value such as hawthorne poplar, willow, juneberry, ironwood and blue beech. In cutting firewood these should first be removed. They are occupying space which might be better utilized in growing more desirable species. The removal of dead, decayed and over-mature trees is also advisable. Dead trees or dying trees are a source of danger to other trees. They harbour insects and develop rot producing fungi which spread to sound trees.—B. R. Morton, B. Sc. F.

Side Rolls and Culls as Profit Earners

Method of Avoiding the "Unmaking of Paper."

When the paper leaves the paper making machine, it ought to stay made. In the average paper mill there is a considerable accumulation of side rolls, culls, and what not which sometimes find their way back to the beaters. In the good old days, when account was not taken of every minute of time and every pound of paper, this was not an important item. There is less of this "unmaking process" than formerly, for now the customer is not quite so fussy and finicky as two or three years ago as to defective rolls and, furthermore, there has been a more serious effort to try and utilize this product, or by-product, by converting such rolls into saleable form, but the old habit is still practiced to a certain extent, and back they go to be made over.

At the present time it is the practice of paper mills to accept only such new orders as will fill up their machines, to the exclusion of side rolls, thereby insuring to themselves the largest possible product in a given time. This is a wise policy in the main, but not invariably so, as it might frequently happen that a desirable customer wants rolls which would fall short of the full width of the machine by a few inches—possibly 6-in., possibly 12-in, or 18-in. The problem then would be what to do with the side roll if the full width of the machine were utilized. It is quite possible the customer has already paid for it. It would be like finding money in respect to side roll if anything practical can be done with it.

From what has been observed in conditions for the year or so past, the writer feels safe in concluding that any paper mill not already provided would be justified in installing an efficient Slitting and Rewinding Machine in the Finishing Room to take care of just such requirements. In other words, for the conversion of cull rolls and side rolls into saleable shape.

The market requires small rolls of paper for many uses which increase year by year. Manufacturers of book paper have found it profitable to recognize certain needs on the part of customers applying for book paper in the form of narrow rolls—in some cases as narrow as 1-in. wound into diameter approximately 10, 12 or 14-in. Manufacturers of news have had the same experience, except that they have treated these requirements very indifferently, whereas a vast tonnage could have been supplied to one commercial line alone—ribbon manufacturers where paper in narrow rolls is always required in very considerable volume. Same is true as to the users of Kraft paper in small rolls. The automobile industry alone absorbs a very handsome tonnage every month for wrapping tire casings previous to shipping. Same is equally true with regard to tissue paper where, for instance, there is a very large demand by manufacturers of insulated wire for paper coils of narrow width for building up the insulation. It is not necessary to fill up much space in itemizing these needs, as they are too numerous to mention.

Cameron Machine Company of Brooklyn, N.Y., have a show room in which they have collected a great assortment of roll paper, such as is required in ordinary commercial needs in considerable quantities. A case in point is one which the average manufacturers of poster, hanging paper, and newspaper would not think of in a hundred years. There is for instance a considerable trade in this country both for domestic use and for export to Central and South America, calling for what they call "serpentine rolls"; that is to say, a little midget roll or ring of paper about 2½-in. outside diameter containing about forty to sixty feet of paper strip 5/16-in. wide. These serpentine rolls are the little streamers used at parties, celebrations, carnivals, mardi-gras, and all sorts of frivolous occassions, including banquets, etc. Their consumption is becoming greater and greater all the time and the aggregate tonnage thus consumed in a year is no picking item, and the price obtained is like finding money.

It is a safe bet that enough side rolls as thrown back into the beaters by manufacturers of poster paper, also newspaper, to yield a respectable factor of profit in the year's business if the paper manufacturers had a special machine such as the Cameron People build for converting all sorts of side rolls and any old kind of rolls into the finished article.

This sort of thing ought to prove attractive to some of the mills, however, big they may be, as they could produce these goods and other specialty lines under most favorable conditions. The above items are referred to merely as some of many which would deserve the attention of paper mills towards a policy of studying more closely the possibilities of a wide distribution of their product. The policy is frequently mutually profitable to the mill and the customer, too. The customer wants goods in certain forms which he can obtain only through the use of machinery more expensive than he is warranted in installing for his own limited requirements. The practice of the mill has been to refer him to the paper jobber, or manufacturer of paper specialties, and, vice versa, the policy of the paper jobber has been to refer him back to the mill again, and so it goes round and round a circle. The customer is usually not a dummy, and sooner or later he finds out some progressive concern where they have facilities to give him what he wants and at a fair price. A "fair price" is usually a very high price as prices go for tonnage in paper mills, and what the paper manufacturer has to do to secure this price is usually a simple operation. It usually involves merely the slitting and rewinding of the goods into special sized rolls.

In years past this proposition of slitting and rewinding has been side-stepped by the paper mills, from the President up and down. Nobody loved an order for paper in roll form. The advent of the Cameron Slitter some years ago made the problem less agonising and the many mills who have installed Cameron Slitters in their Finishing Rooms will say "Amen" to the soundness of the doctrine preached above.

There are two reasons why some people do not mind their own business; one is because they haven't any business, the other is because they haven't any mind.

CONCERNING TORONTO PAPER CO.

In connection with the annual statement of the Toronto Paper Mfg. Co., whose plant is at Cornwall where the fourth machine is now in operation and the daily output thirty tons a day, the dividend has been restored to a six per cent basis. It is interesting to recall the short lived connection of the Dominion Bond Co. interests with this paper concern. When the shares made their appearance they were on a five per cent basis and bringing around eighty. The plant was operated on the same lines of papers and selling at the same prices as it has been under the old management, but one day after much publicity about increased earnings there was a sensation on the street. The dividend had been advanced to eight per cent, although it was a mystery how it had been accomplished. This was four years ago and there was a swift ascent in the market price of the stock to par. The eight per cent dividend was paid for the second quarter but before the end of the year the shares were down from par to around sixty and in the fourth quarter of the year the dividend was back on the more stable basis of six per cent. Then the war came on and the paper business was dull. The directors were cautious and the regular half yearly dividend was passed for several terms. In 1916, two per cent was paid for the first half of the year and now three per cent is being paid for the second half of the year. R. S. Waldie, President of the Company, who has converted the mill from a stock handling proposition which it was in the hands of the old Dominion Bond Co., to a progressively managed and conservatively operated industrial is receiving congratulations on the excellent showing which he and the Board of Directors have made.

Earnings of the Toronto Paper Company for the year ending March 31, 1917, reflect the general prosperity of the paper industry. Profits as shown in the exhibit for that period were $212,794, which represents an increase of $137,923 over the 1916 year. Added to these earnings is a balance brought forward of $70,648, making a total of $283,442. From this have been deducted bond interest of $29,352, dividends $37,500, depreciation account $25,000, leaving a balance to carry forward of $191,590.

The pulp mill, which has a daily capacity of over ten tons, is now a very valuable asset. All the pulp is used in the company's own mill, and the product is all sold in Canada.

The statement shows that the company has purchased $61,500 of its own bonds, which, according to the President's statement, greatly strengthens the financial position of the company. The statement follows:

Assets.

	1916.	1915.
Capital assets—		
Holdings and good-will	$ 791,796	$ 823,796
Machinery and tools	481,541	422,723
	$1,273,338	$1,246,520
Bonds purchased	19,020	9,000
Current assets—		
Goods on hand	160,752	97,376
Bills and accounts, receivable	160,915	124,835
Cash	22,213	19,294
Investments	55,227	.....
Hydraulic rent	606	606
Unexpired insurance	852	714
	$ 400,567	$ 242,828
	$1,692,926	$1,498,349

Liabilities.

Capital liabilities—		
Capital stock	$ 750,000	$ 750,000
Bonds issued	500,000	500,000
	$1,250,000	$1,250,000
Current liabilities—		
Accounts payable	$ 92,225	$ 44,135
Bills payable	9,100	8,565
	$ 101,336	$ 52,701
Dep. reserve	150,000	125,000
Profit and loss, bal.	191,590	70,648
	$1,692,926	$1,498,349

Contingent liability on bills received discounted $2,101.

Contingent liability on bills received discounted was $378 in 1915.

Profit and Loss.

Balance at year end	$ 70,648	$ 4,777
Earnings for year	212,794	75,871
Less interest	254,090	80,648
Less dividends	37,500	.....
Less dep. res.	25,000	10,000
	$ 62,500	.....
	$191,590	$70,648

INTERNATIONAL PLAN GOES.

On and after June 1st, upon surrender of certificates of deposit to the Bankers Trust Co., preferred stockholders of the International Paper Co. will receive their deposited stock together with the cash and securities provided by plan in full settlement of the deferred dividends.

Under the plan, preferred stockholders will receive 14 per cent. in preferred stock, 12 per cent. in common and 7½ per cent. cash in settlement of 33½ per cent. back dividends. Holders of preferred stock who have not yet deposited their stock with the committee may do so between now and June 1st, and obtain the benefits of the plan or after that date similar adjustment may be obtained upon presentation of stock certificates direct to International Paper Co. The directors have voted to declare the preferred dividend adjustment plan operative.

AMERICAN WRITING ADDS MACHINES.

Spring plans of the engineering department of the American Writing Paper Company include a number of changes, part of which are under way, and part of which will develop later.

A new 120 inch machine is being installed at the Crocker Division of the company. Other changes at the Crocker mill include a new storehouse and additions to the finishing room, and, in short, more room and machinery to take care of the finishing of the additional paper that the bigger machine will produce.

Work is progressing rapidly on the installation of the big 152 inch paper machine at the Gill Division. This will give a production of 25 tons a day.

A new cylinder machine is being installed at the Beebe & Holbrook Divison. This will be used for the manufacture of loft dried paper specialties.

A new drying loft is being installed at the Lindon Division of the company. It will be ready for use in a few weeks.

MORE ABOUT GREAT EASTERN PULP CO.

The Old Town, Maine, "Enterprise," prints the following information regarding the new 100-ton pulp project in the Gaspe Peninsula. Mr. Mullen is a genius for starting things right, so we may expect to see a fine plant in the eastern county.

A new pulp and lumber manufacturing corporation, the Great Eastern Pulp Company, was organized in Quebec recently, for the purpose of erecting and operating extensive pulp and saw mills at Madeline River, Gaspe county, province of Quebec, where the natural advantages for such projects include an adjacent inexhaustible timber supply, a great water power and a deep water port, with connection by two short lines already projected and to be built very soon with the Canadian government railway system. The officers of the corporation so far as chosen are:

President, John Mullen of Bangor, Me.

Vice-President, Archibald Hay Cook, K.C., of Quebec, Que.

Secretary, Fergus Murphy, K.C., of Quebec, Que.

The majority of the directors are Canadians. The American members include John Mullen of Bangor, Garrett Schenck of New York, president of the Great Northern Paper Company, whose mills are at Millinocket, Me., and Henry G. Beyer of Portland, Maine. There will be a bond issue of $600,000, and a stock issue of an equal amount, both already largely subscribed.

Contracts already have been let for the entire construction of the plant at Madeline River, and Hardie S. Ferguson of New York has been engaged as construction engineer. The pulp mill will have a capacity to produce 30,000 tons of ground wood pulp annually, while the annual output of the saw mill will be about 10,000,000 feet of long lumber. In the region immediately tributary to this plant the corporation owns 300,000 acres of fine timber, insuring an adequate and constant supply for the mills. The water power, at which 200 feet head can be developed, is the only considerable power on the Gaspe peninsula.

Local engineers have been at work on the site of the new plant constantly for two years, and now all is in readiness for the actual construction. The pulp mill machinery has been under construction for months, and some parts have been completed. The saw mill equipment is being built by the Allis-Chalmers Company of Detroit. The grinders for the pulp mill are being built at the Union Iron Works, Bangor, Maine. It is expected that the plant will be ready for operation this fall, and that the manufacture of pulp will begin about November 1st. Millions will be spent on the plant, which ultimately is likely to attain large proportions.

The 300,000 acres of timberland from which these mills are to draw their supplies, and which, with other properties were, recently, transferred to the Great Eastern Corporation, formerly were owned by F. W. and Allen M. Fletcher of Detroit, Mich., and Charles W. Mullen of Bangor, Me. Mr. Mullen is widely known as the engineer who "discovered Millinocket," he having been first to perceive the advantage of the power site on the West branch of the Penobscot river for the erection of a great pulp and paper plant. The Great Northern Paper Company's immense establishment at that place resulted from Mr. Mullen's perception and his efforts to interest capital in the opportunity. He is among those heavily interested in the Great Eastern enterprise.

NORTH AMERICAN PULP AND PAPER CO.

According to a statement issued by the president of the North American Pulp and Paper Company, Mr. J. E. A. Dubuc, net earnings of the company for the first quarter of the present year available for bond interest, etc., amounted to $235,000. Mr. Dubuc states that as this is the first period for which the benefit of the new capital raised last fall was felt, the earnings for the present year should total $2,000,000. Bond interest, it is estimated, will take about $405,000 leaving a substantial balance for other obligations and surplus available for dividends.

This view of the company's probable 1917 earnings is also taken by Mr. John Steele, who points out that the properties of the paper merger are conservatively worth $31,500,000. He states that mills, power-houses, railroads and other physical properties could not be duplicated for $10,000,000.

The company is producing at the present time on the following basis per day: 380 tons ground work pulp, 120 tons of sulphite pulp, 100 tons of newsprint paper; total, 600 tons. The management expect to increase tonnage per day to 800 tons by August 1st next.

The bonded indebtedness of the company stands as follows: Chicoutimi Company, $3,200,000; the St. Lawrence Co., $3,700,000; the Tidewater Co., $180,000; total, $7,080,000. All bonds bear six per cent. The company's sinking fund stands at $242,000; as bond interest for 1916 was $405,000, it is expected that a small deficit will be shown when the impending company's statement appears. The rate of production at present, however, has already changed the profit and loss balance to the credit side.

The North American Pulp & Paper Company has recently completed the various extensions to its plants, which were financed last year, when a reorganization of the properties was effected and new interests became identified with them.

The subsidiary company, the St. Lawrence Pulp & Lumber Corporation, with its extensions completed, is now reaping the benefit of the extraordinary high prices for sulphite pulp, and its product is being shipped in the proportion of one-half to Great Britain and one-half to the American market.

Another subsidiary, the Tidewater Paper Mills, sells its products practically in the State of New York, and these are all delivered by the company's own trucks to the sidewalk of the press room.

POSITION OF SPANISH RIVER.

Pronounced improvement will be shown in the balance of the Spanish River Pulp and Paper Company, which will be issued some time after June 30 next, but there is reason to believe that a dividend on the common stock is a long way distant, writes the Financial Times Toronto correspondent. The preferred, however, is in much better shape, and there are traders here who believe that at the present time it is not without attractions equal to those of many other preferred issues.

The gross earnings for the year will show an increase, but to what extent they will represent an improvement over those of the previous year authorities here refuse to predict. Operating costs will also be higher, but it is certain that the net profits will nevertheless be better, and it is likely that the book value of net tangible assets applicable to the common stock, which last year equalled about $23 a share, exclusive of any equity in the Lake Superior Pulp Company, will show an enhancement.

KALBFLEISCH CORPORATION A CHEMICAL QUARTET.

The Kalbfleisch Corporation, recently organized, has purchased all the interests of the Franklin H. Kalbfleisch Co., Erie Chemical Works, the Kalbfleisch Corporation and the Kaloid Company. This is one of the most important developments that have recently taken place in the chemical trade in this country.

The new corporation will own five plants, one each at Brooklyn, N. Y., Waterbury, Conn., Elizabeth, N. J., Erie, Pa., and Chattannoga, Tenn., and a greatly enlarged output is already being manufactured. The Brooklyn, Waterbury and Elizabethport plants turn out a line of acids and heavy chemicals among which, of first importance probably, is the well known Kalbfleisch Brimstone Sulphuric Acid. The Corporation does not manufacture Sulphuric Acid from any other raw material than Brimstone, and has never done so. Sulphuric Acid being, so to speak, the parent of all the other acids, this insures a line of pure commercial products—nitric acid, muriatic acid, sulphate of alumina, sulphate of soda, etc., etc. The Erie and Chattanooga Works (the latter having been recently completed) manufacture a full line of the different grades of sulphate of alumina and alum for paper makers, filter plants, manufacturers of colors, etc.

The name Kalbfleisch is closely identified with the chemical trade and the reputation and standing of Martin Kalbfleisch, who originated the business, and of his only surviving son, Franklin H., now at the head of the corporation, are such in the community and chemical world that this extension of the business will be welcomed in many quarters. Robert S. Perry, the president, was formerly president of Harrison Bros. & Co., Inc., of Philadelphia.

The officers of the corporation are as follows: Franklin H. Kalbfleisch, chairman of the board of directors; Robert S. Perry, president; Alfred B. Savage, vice-president and treasurer; Richard Sheldrick, secretary. The directors are the same with the addition of Harry L. Derby.

U. S. PACIFIC COAST MILLS.

At present six large pulp and paper plants are in operation in Oregon and Washington. In Oregon the centre of this industry is at Oregon City, at which point are extensive falls in the Willamette River. This furnishes a large supply of the power necessary for the production of pulp, especially in the manufacture of mechanically ground wood. In Washington the mills are more scattered, one being in the Puget Sound country, one in the vicinity of Spokane, and another on the Columbia River.

At present pulp and paper from the East has to carry a freight of approximately $15 a ton to these points, which makes it necessary that it must be sold with but very little profit to the Eastern manufacturers.

The manufacturers in Oregon and Washington have extended their markets somewhat into the Orient and Australia by water. The high price of newspaper and tissues have permitted a part of the product made in this region to be shipped as far East as the Atlantic coast. Normally, however, the Mississippi river is the eastern limit of the eastern rail market.

THE VOLUME OF MINERAL FILLING.

It is often important for the paper-maker to know the volume and differences in weight manifested by different fillings and mineral pigments. For instance, two samples of China clay, apparently exactly alike, may differ in specific gravity, and hence in their filling capacity, the chief point of consideration in paper-making, it is necessary to be able to form an idea of the ratio between the filling and the weighing effects of a given mineral.

In comparing different minerals they must first be taken in equal volumes, after having been dried in an oven until they cease to lose weight. They are then filled into little cubical tin pots, measuring inside exactly 10 cm. in depth, length, and breadth. Hence they hold one litre exactly. These pots must be weighed empty, and brought to the same weight by putting a bit of solder on the outside, or by scraping off metal. One hundred grammes is a convenient weight, and any tinman of ordinary skill can get them so nearly right, by using a sheet of the proper thickness, that very little tinkering will be wanted on the finished pots. The pots are then filled with the minerals to be compared. These must be in the finest possible powder, and in powder of the same fineness, as shown by their all having passed the same sieve. To get the pots exactly full they must be well shaken down, and there must be an excess of powder to be removed by passing a straight-edge over the top of the pot. When this has been done the pots are weighed, and the differences between the weights of the full and the empty pots are the weights of equal bulks of the powders under examination. The ratios of the weights will, of course, be the ratio of the respective specific gravities. It is not necessary, of course, to have the pots any special weight, so long as they all have the same, and that weight recorded or scratched on the metal. To show what differences may occur, it may be mentioned that the writer weighed six different samples of China clay, all having come at different times from the same mine, and got the following six weights: 940, 940, 886, 1,012, 977, 910 grammes. The difference is very considerable. All these figures being the weights of equal volumes, the fourth is the heaviest, and therefore gives the most weighting, while filling no better and no worse than the others. Five samples of talc got from the same purveyor, and supplied as "what you have always had", gave quite as striking figures, viz., 822, 816, 840, 897 and 828 grammes. These results are of the greatest value in selecting a mineral filling for any special purpose.—"Papier-Fabrikant."

BROWN PAPER FOR LEATHER.

The "Melbourne Age" states: — Under the provisions of the long-delayed Footwear Regulation Act the public will be entitled to protection against the audacious swindling which has led to the substitution of brown paper for leather in certain classes of boots. The law provides that they may ascertain whether the boots offered them by the vendor are made of genuine leather or of mere shoddy. The sole of a boot or shoe must be stamped with particulars of the material of which it is made. The Act unfortunately is not to operate at once. Parliament in its wisdom decided to allow the trade six months within which to get rid of old stocks of shoddy before the coming into force of the measure. The Chief Secretary said recently that the Act would operate from July 1st, and there would be no postponement.

THE ROLLAND PAPER MILL AT ST. JEROME.

For nearly 35 years the mill built at St. Jerome, Que., by Senator J. B. Rolland who was then proprietor of "La Minerve", a Montreal daily paper, has been turning out high grade paper. The editor of the Pulp and Paper Magazine recently had the privilege of visiting the mill and the pleasure of being entertained by Mr. Olivier Rolland, who with his brother Henry, operate the St. Jerome mill. The Rolland Paper Co. has another mill at St. Adele with head office in Montreal.

St. Jerome is an attractive village about 35 miles from Montreal on the Northern River. The mill is reached by sidings from both the Canadian Pacific and Canadian Northern. The mill is a brick structure, scrupulously clean, with equipment well arranged for efficient operation. Water power from their turbines is supplemented by steam. The maximum head is about 30 feet, but between high and low water there is a considerable variation in available water power.

A large proportion of the mills output is an exceptionally high grade all-linen paper. The reasons for the quality begin with the bales of clean new linen clippings. These are carefully sorted, cut and dusted, using two dusters. There are two bleach boilers and five Hollanders for washing and bleaching. Very little bleach is required and this has ample time to become completely exhausted in the 30 drainers. The half stuff is so white that one wonders if the boxes are not full of the snow that falls in such abundance in this country. Envelope punchings, etc., are pulped in a Werner and Pfleiderer kneading machine.

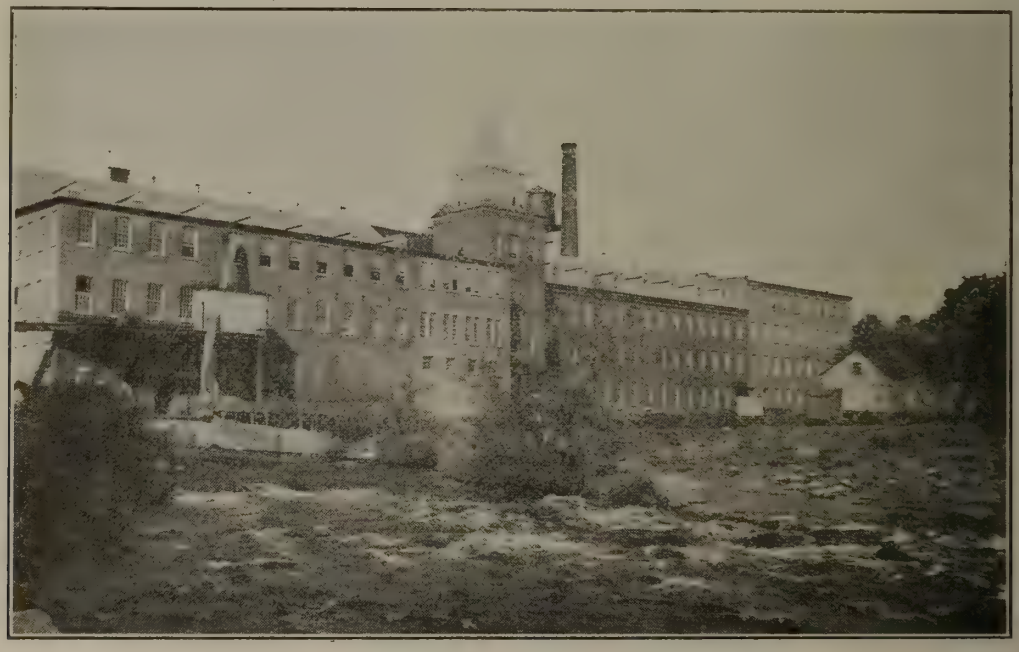
There are seven beaters, some with wooden and some with concrete tubs. The latter are kept smooth inside by painting with water-glass. Plenty of time is given in the beater, so that the Jordan has only to brush out the stock. The beater stuff chest is equipped with a recording indicator, which shows the depth of stock in the chest and incidentally the regularity of emptying beaters and the uniformity in the amount of water let down with each. This last is important in keeping the stock of uniform concentration and shows with what care the Rolland papers are made-Brass pipes are used for carrying the stock, thus minimizing iron troubles, Any iron in the stuff is removed by magnets in the long sand traps or riffles.

A Lamort rotary screen was seen at work, noiselessly and effectively straining the stuff as it flowed to the machine. There are two machines, one 66 and one 85, with three wet presses and a size press. The top story is all given to drying lofts, so that the paper dries very slowly at a moderate temperature, thus preserving its quality. The paper is finished in three ways, calendered, plated and cold pressed. One of the most interesting processes was the envelope making.

Mr. Olivier Rolland, who is a graduate of the School of Paper-making at the University of Manchester, England, has a chemical and testing laboratory. Mr. Rolland showed the writer the results of some interesting experiments in sizing.

The workers were of very good type and appeared quite satisfied. To work in the paper mill is almost a St. Jerome ideal. There is a touch of Old Country paternal kindliness and care in the custom of fathers or mothers coming with their daughters when they first come to work, much as a mother would take a child to school. There is something fine in this—and much good would come if more parents interested themselves in their children's work. Certainly one would be proud to work in the Rolland mill.

The mill was built by Senator J. B. Rolland, grandfather of Olivier, and we had the pleasure of hearing the fourth generation of paper makers, the five months old son of our host.



ROLLAND PAPER CO. MILL AT ST. JEROME, P.Q.

At a recent meeting of the Rotary Club in Appleton, Wis., the statement was made that a paper mill would probably not locate in Appleton because there are too many saloons in the manufacturing district. A committee was appointed to investigate this matter, with the result that five saloons may be without licenses after June 30.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Wood Flour. F. W. Kressmann, Metallurgical and Chemical Engineering, Vol. 14, (April 1, 1916). — Wood flour is ground or milled wood that has been screened so as to remove coarse particles and also to give particles having some uniformity in size. It is usually sold as 40, 60, or 80 mesh. The different properties of a good wood flour are: first, it must be white; second, it must be light and fluffy; third, it must be absorptive. Color and weight considerations limit the species of wood which may be used to the white light non resinous conifers and to the white broad leaved woods like aspen and poplar. Spruce, white pine, and poplar are the species most always used. The grinding is done either in stone mills or in steel burr roller mills. The stone mills appear to be used exclusively in Europe (especially Scandinavia). The stones are 40 to 60 in diameter and only the lower one is driven, the upper one being stationary. The wood after barking is first reduced to chips. These chips with a certain proportion of the screenings are fed to mills which are enclosed. Sufficient steam or water is added to prevent firing and to keep down the dust. The screening apparatus may be either silk bolting cloth or bronze wire. The imported material is packed in compressed bales. Mills of this type require 45 to 50 horsepower per twenty-four hours per ton of flour. (1200 to 1500 hp. hr. per ton). The power requirement is about the same as in the production of mechanical ground wood pulp.

Another type developed on the Pacific coast about twenty five years ago to handle sawdust consists of a number of pairs of corrugated chilled steel rolls which turn towards each other. One of the rolls turns three times as fast as the other, thereby actually cutting the sawdust which comes between them. The slower roll has it corrugations so arranged that they form pockets to hold the dust while the faster roll does the cutting. There are three stands or rolls the corrugations being progressively finer on each stand. This type of mill requires only 20 to 25 per cent of the power required by the stone mill.

Before the war Norwegian wood flour was delivered at our Atlantic ports for $12.50 to $15.00 per ton and domestic material sold largely in competition therewith. The principle uses for wood flour are in the manufacture of dynamite, linoleum, artificial plastics and flooring, and as an inert absorbent in many industries. A dynamite flour must be both white and highly absorptive. Since dynamite darkens with age a light colored stick is indicative of a fresh stock and therefore the trade demands the use of a white flour. For this reason it would be practically impossible to introduce the use of a wood flour from any colored woods. A good flour should be capable of making a 60 or 70 per cent dynamite without permitting leakage or exudation of nitroglycerine. (Reference, Bureau of Mines Bull. No. 51. The analysis of Black powder dynamite). The 1909 consumption of wood flour for use in dynamite was probably around 20,000,000 lbs.

Wood flour is used in the manufacture of inlaid linoleum. A flour as white as possible is desired in order to permit dyeing to any color. The cementing material of linoleum is oxidized linseed oil melted with rosin or Kauri gum. The cement is the expensive constituent being worth $125 to $175 a ton depending upon the price of linseed oil. The lightest flour will produce the largest volume of goods since the raw materials of linoleum are purchased on a weight basis and sold on a volume basis. The weight per cubic foot is along with the color of prime consideration to the linoleum manufacturer.

20 mesh cork, 6.25 lbs. per cu. ft; 26 mesh cork 4 to 4.5.
56 mesh cork, 7.50; 60 to 80 mesh wood imp. 4.8.
80 mesh wood imported 13.0 lbs. per cu. ft.; 60 to 80 mesh wood 6.8.
40 mesh wood domestic, 9.0 lbs. per cu. ft.

The difference in the above figures is due to the method of measuring and the amount of tamping in the measure, but in any case the wood flour weighs 50 to 100 per cent more than the cork. Cork waste before the war was worth $35 a ton and it cost about $5 a ton to grind it with power at 1½ cents per KW. Cork flour is therefore worth about three times as much as wood flour but both require equal amounts by weight of the cement which is the expensive item and because the volume of goods produced from cork is so much greater than that from wood, the cork linoleum is cheaper for goods of equal thickness than wood linoleum. Cork linoleum is also cheaper to manufacture than wood linoleum because it is simply rolled between calender rolls whereas the production of inlaid linoleum requires a considerable amount of handwork and expenses in the production of dies. The seasoning time is also less for cork linoleum. Cork linoleum is slightly more elastic than wood linoleum although the wearing qualities are about the same.—A.D.C.

New Method of Waterproofing Paper. Paper, Vol. 20, No. 2, (March 21, 1917), p. 18-19. Patent No. 1, 218,599, taken out by Armin Eichler, N.Y.—According to the patent paper may be waterproofed and fabrics made to imitate leather by impregnating either of them with a mixture of china wood oil or other named oils in cumarone and indene, the whole being dissolved in a volatile solvent before application. Fabrics given this treatment possess greater durability. The tensile strength of paper is increased 80 per cent. and the sheet rendered transparent, folding does not affect either. The sheets are rendered highly acid- and alkali-resisting.——E.K.M.

Pulping Apparatus for Pulp Stock. Paper Trade J., Vol. 64, No. 17, April 26, 1917, pp. 44, 48, 62.—A pulping apparatus designed and patented by Herman L. Kutter of Hamilton, Ohio, to deal with paper stock and reduce it to a pulp speedily and economically. Illustrations.—E.K.M.

The Characteristics of Paper Fibres. Part IV. Application of Coloring Stains and Solutions, by Harry A. Maddox, Pulp and Paper Mag., Vol. 15, No. 18, May 3, 1917, pp. 435-437.—Methods for confirming results. Preparation of necessary solutions, etc.—E.K.M.

Studies on Paper Pulps. By W. H. Smith, Assistant Chemist, U. S. Bureau Standards, Paper, Vol. 20, (1917), No. 8, p. 11-15.—Methods of analysis and drying. Results of an examination of samples of paper pulps, each representing a different method of preparation and with one exception of American manufacture to determine: (1) Their chemical properties; (2) The loss in weight produced by reagents causing hydrolysis and oxidation and the gain in weight when nitrated; (3) The effect of sunlight, temperature and ozonized air on the chemical constants of groundwood. See also Paper Mill, March 3, 1917, p. 2.—E.K.M.

UNITED STATES NOTES

It is said that the Lincoln (Me.) Paper Mill will be closed for a short time because of the lack of orders. The men will be put on half-pay.

The wedding of Leon S. Buck and Miss Beatrice I. Mayo of Bangor, took place in that city May 9th. Rev. Ashley A. Smith of the Universalist Church performed the ceremony. The bridegroom is a graduate of the U. of M., and is chief engineer of a paper mill at Kenogami, Quebec, where the pair will reside.

James W. Sewall the forester and surveyor of Old Town, Maine, is starting out crews for the summer work. He has recently sent R. L. Whitney with a number of men to make an extensive survey of townships on the lower Allegash waters in Maine. Mr. Whitney reports but little snow left in the woods in spite of the cold weather. O. W. Madden of the same office is surveying in northern New York state. A. J. Preble has a crew in southern Aroostook County, estimating the pulpwood on 75,000 acres. W. P. Billings has another estimating crew in the northern part of the same county. Mr. Sewall says this season is opening up even more busy than last and last year was his banner year to that date. The war has apparently had little effect on active interest in wild lands, especially on pulp lands.

The Canfield Paper Company, one of the largest paper jobbing concerns in New York City amended its charter on May 17 and increased its capital from $100,000 to $150,000.

Starting in one of the corners of the paper stock room of the Perkiomen Paper Mill at Pennsburg, Pa., fire last week gained such headway that an approximate loss of $35,000 was sustained before it could be got under control. It is understood that a big portion of the mill property was covered by insurance.

Advices from Lewiston, N.Y., state that the new paper towel factory being constructed by T. W. Kneeland is rapidly nearing completion and the manufacture of towels will begin about July 1.

The stockholders of the Hammermill Paper Company held their annual meeting at Erie, Pa., several weeks ago and elected the following directors for the ensuing year: E. R. Behrend, O. F. Behrend, N. W. Wilson, A. G. Becker, C. S. Weir, R. C. Schaffner and J. R. McDonald. Following the meeting the directors elected these officers: E. R. Behrend, president; N. W. Wilson, vice-president; C. S. Weir, secretary; O. F. Behrend, treasurer, and F. P. Klund, assistant-secretary.

Another southwestern mill has shifted from the twelve to the eight hour day. The Yellow Pine mill at Orange, Tenn., in making this change has agreed to continue paying the employees the same wages as they received for the long day.

An addition to its present mill buildings is being planned by McIntyre Bros. & Roudebush, Inc., of Fayetteville, N. Y. Specifications, calling for a building 185 x 60 feet, have already been presented to the officers and it is expected that bids for the erection of the building will be received shortly.

Four Massachusetts tissue mills having an aggregate capital of $1,000,000 have just been consolidated under one management. These mills, representing the largest tissue output in the state are: The Stony Brook Paper Co. of South Hadley Center; The Pearl City Tissue Mills, of Pearl City and the Japanese Tissue Mills and the Mount Rolyoke Tissue Mills, Inc., of Holyoke, J. Lewis Perkins, is the president of the new company controlling the four mills.

That the demand for higher grade writings, bonds and ledgers is holding up remarkably well is indicated by the fact that L. L. Brown Paper Company is running its Adams, Mass., mills at capacity. In discussing the situation with your correspondent this week, one of the officers said: "We are not only running our mills at full capacity now, but will continue to do so for some time to come."

News emanated this week from 171 Madison Ave., New York City that the United Paper Board Company was making arrangements to list its common stock on the New York Stock Exchange. For some years past this stock has been listed on the Chicago Exchange, but now that so much of the stock is being held in New York a plan is being devised to trade it in on the New York Exchange.

The Atlantic City (N.J.) Press has an item this week to the effect that Alexander McKeon will shortly resume operations at the old paper mill at Pleasant Mills, N. J. It is understood that Mr. McKeon makes his paper from salt hay, which is plentiful in that section. He experimented with salt hay about thirty years ago, preserving some of the specimens. He now finds the paper in excellent condition, and believes that he has solved the raw stock problems and will not only be in a position to manufacture all the paper he wants, but to manufacture it at a very low cost.

If the provisions in the profit tax of the revenue bill now being debated on at Washington are not changed the Beaver Board Company of Buffalo, N. Y., will probably be affected more than any other paper company in this country. The bill as it now stands provides for an increase of 10% in the company's raw material brought from Canada. W. F. McGlashen, president of the company is now at Washington making a little protest to the Senate Finance Committee about the bill.

Extensive improvements are now being carried on at the mill of the Orono Pulp and Paper Company at Orono, Me. A two story, 210 x 66 feet, building is being constructed and when it is completed the offices of the company will be moved to the front portion of it.

The annual spring tournament of the New York Paper Trade Golf Association was held at the Arcold Country Club, Arcold, N. J., on Tuesday and Wednesday of this week (May 22-23). B. J. Richardson, A. C. Scrimgeam F. H. Harrison and W. C. Ridgway composed the committee in charge of the tournament and the usual good time was enjoyed by the jobbers and mill representatives and members of the association.

UNITED STATES GOVERNMENT PLANNING MORE HINDRANCES FOR NEWSPRINT INDUSTRY.

(Special by ROWLAND W. JOLLY).

New York, N.Y., May 19, 1917.

A bill to class newsprint as a "public commodity" and in this way to give to the Federal Trade Commission the power to control its prices is the latest development. It cannot be said that this action was unexpected, for it was discussed for some time and more than that, the general tendency seems to encourage the government to control many of the commodities that are in general use.

According to the wording of the bill, which was introduced by Senator Robinson, of Arkansas, the purpose of the bill was to bring before Congress the very oppressive conditions regarding the trade in print paper. The Senator stated that these conditions threaten to destroy the business of many publishers, and authorizes that the power to control prices extend to "the paper used for printing newspapers, magazines, periodicals, books and other publications."

The bill gives the Federal Trade Commission absolute power with regard to business in newsprint. It is given full power to institute proceedings upon the complaint of any complainant, to investigate into any condition existing in the industry that is believed to be objectionable. In the matter of price, the decision of the Commission is to be indisputable. Of course, it is charged that it shall not decide upon an unfair or an unreasonable price and that it shall use every discretion, giving the proper hearings before it arrives at what it shall call the proper price for newsprint. However, when the price is announced, every one dealing in this paper will be legally obliged to recognize the price as standard and to govern all of his sales accordingly. It will be an offense against the Federal government to disregard this order. The penalty for violation will be a fine of $5,000 for each offense, each violation constituting a separate offense. It can be judged from this that there is every intention to force the matter to the very extreme. There is no doubt that, if the bill becomes law, it will be held up to the public as a patriotic measure—thus making it out of the question for the paper makers to get an impartial hearing from the people.

The section relating directly to instructions for the manufacturers, reads: Every manufacturer and dealer in print paper shall file with the Federal Trade Commission within sixty days after the passage of this act and keep open to public inspection a price list showing all the prices and charges for print paper of different grades and character. No changes shall be made in the prices or charges which have been filed in compliance with this act except after thirty days notice to the Commission, which notice shall plainly state the change proposed to be made in the price schedule then in force, and the time when he changed prices and charges shall be shown by printed new schedule then in force, and the time when the changed schedules in force at the time and kept open to public inspection; provided, that the commission may in its discretion, and for the good causes shown, allow changes upon less than the notice herein specified, or modify the requirements of this section in respect to publishing, posting and filing of price schedules, either in respect to particular instances or by a general order applicable to special circumstances or conditions.

It is not yet known what opposition this bill will meet. One thing is certain, there are a great many in congress who are somewhat desirous of seeing it pass. Then, of course, it would give the newspaper publishers just what they have been after for some time. It would mean, and the paper manufacturers realize it, that the Federal Trade Commission would not ask whether or not a mill would come in under a certain agreement. On the other hand, it would be criminal for a mill to dissent and not to obey an order issued by the Commission.

According to an "outside" opinion, this is just the sort of action that has been needed to finish the work commenced by the Commission. It will be remembered that a few of the large mills had agreed to come in under the 2½c plan, while the others could not see their way through such a stunt. The thing to be feared, according to those who know, is that the Commission has shown through its various reports, its way of reasoning. Its decision that 2½c was a fair and reasonable price for newsprint was the result of a lack of knowledge of conditions in the business and a disregard of some of the fundamental factors that have been guiding the course of the markets for the past few years. Because of this fact, it would be dangerous to the industry at large, so a good many agree, to have this bill become enacted into law. It is true that most of the manufacturers have made money during the past year or so. But, if they are forced to sell their products at some such figures as the commission is likely to name, it is certain that there will be a number of mills that will either shut down altogether or shift their machines on to some other piece of paper. The logic is easy. The Commission doesn't seem to realize that the cost of the manufacture of newsprint is much greater to the mill that must go out in the open market and buy its pulp than it is for the mill that has its own pulp plant. Then, again, when a concern has its own timber lands, it has still another advantage. What would be a fair price to one, might be a death blow to the other.

Newsprint men seem to be facing a number of problems all at the same time. In the proposed revenue war bill, there is a proposition which will take away from the publishers the second class privileges and replaced it with the zone system as applied under the parcels post. It has been explained by the publishers, while protesting to the Senate Finance Committee, that the enactment of such a bill would be the means of forcing a good many concerns out of business. There can be no question as to the truth of this statement because the majority of the publishers have been allowed to exist merely because of the second class privileges. To change to the parcel post zone system, would mean, in a good many cases, that the increase in mail charges would far surpass the earnings of many an income—with the natural result that business would have to be given up. It has been calculated that the effect of this proposition would be far reaching—so far reaching that it would result in a material decrease in the consumption of newsprint. As a matter of fact, it has been said that the decrease caused through this measure would be sufficient to hurt the industry seriously.

PULP AND PAPER NEWS

Arthur Morris, representing Callender and Co., Limited, of New York, who have branches in Calcutta, Bombay and Madras, India, and also in London, England, was in Toronto and Montreal last week in search of various kinds of paper, principally news print for India.

A. M. Barkwell of Barkwell-Phillips, wholesale paper dealers, Winnipeg, spent the past few days on business in Montreal and Toronto. He reports that the newly formed Paper Jobbers' Association in Winnipeg, is on a sound basis and apparently has a bright future ahead.

Many friends in the east have learned with regret of the death of Percy P. Gunn, secretary and manager of the Gunn Paper Co., Limited, Moncton, N. B., who are wholesale paper dealers and stationers.

Gordon Stationers, Limited, of Winnipeg, have sold out to the Wilson Stationery Co., Winnipeg.

The Whalen Pulp and Paper Mills, Limited, is the name of a new company in British Columbia which will have a capital stock of ten million dollars. James Whalen is the President, and George Whalen, Vice-president and General Manager. Three companies have been absorbed,—the British Columbia Sulphite Fibre Co., of Mill Creek, Empire Pulp and Paper Mills, of Swanson Bay, and the Colonial Lumber and Paper Mills of Quatsino Sound. The new company own about 150,000 acres of timber tracts as well as valuable water powers and already three quarters of a million dollars has been expended in development work. It is the intention of the company to have the sulphite fibre plant at Quatsino Sound when completed turn out two hundred tons a day. The new organization will have their own ships for transportation of their products all over the world. The shareholders of the Colonial Co. have accepted the proposition of the Whalen Pulp and Paper Co., and will from January 1st next commence to draw their dividends.

Charters have been granted to the Midland Wood Products Co., Limited, Midland, Ont., with a capital stock of two hundred thousand dollars and also to Taylor's Bookstore, Limited, Hanover, Ont., with a capital stock of forty thousand dollars.

The soda pulp plant of the Barber mill of the Provincial Papers Mills Co. at Georgetown, Ont., is now undergoing extensive improvements and additions. Two new blow pits, a new screen room and new bleaching engine as well as other equipment have been installed and it is the intention to put in a complete recovery plant. The output will then be about nine tons daily.

A. M. Huestis, of Toronto, Canadian representative of Kalbfleisch Corporation, New York, has taken a house at Oakville, Ont., and will spend the summer there with his wife and family.

Paper Sales, Limited, Toronto, have opened offices at Room 512, Bank of Hamilton building, Toronto. Robert Rolland is the president and secretary of the new company and John Hewitt, Jr., is vice-president and treasurer. The company have been appointed selling agents for a number of leading American and Canadian mills. Messrs. Rolland and Hewitt are well and favorably known to the trade.

At a splendid meeting in the interest of recruiting at Windsor Mills, Que., F. J. Campbell, general manager of the Canada Paper Co., whose plants are located in that town, made a rousing speech in which he stated that not only would any employee enlisting have his position given back to him on his return, but that any man who enlisted and had dependants and found that his service pay was less than he was earning from the company, would have the difference made up and paid to his family by the Canada Paper Co. Mr. Campbell pointed out that many men, owing to the scarcity of labor, were unwilling to enlist because they would make less money in the army than they would as civilians. As far as the Canada Paper Co. was concerned that stumbling block to recruiting was removed. This announcement was greeted with hearty cheers.

The large paper mills at Grand Falls, Nfld., have been closed down by Lord Northcliffe and his associates owing to the inability to get ships to transport the product to England.

Rolla L. Crain has purchased the property in Ottawa, recently occupied by the Rolla L. Crain Co., which was badly damaged by fire some months ago and will rebuild the same. The new business will be conducted under the name of Crain Printers, Limited.

SUNSHINE AND FORESTRY.

The Sunshine Magazine, house organ of the Sun Life Assurance Company has blossomed forth in new form and with an attractive cover design.

The issue contains a lot of valuable hints to insurance men and data relating to the progress of the Sun Life, but in addition features an illustrated article on Canada's Forest Wealth. The editors, Messrs. Emory and Steedman deserve hearty congratulations for their latest effort, especially for the compilation and publication of their timely and interesting article on Canada's forest wealth.

ESPANOLA PRODUCTION RECORD.

During the month of March all previous records for the production of paper at Espanola were broken. 4,707 tons of paper, an average of 174.3 tons per day, were made as against 4,563 tons and a daily average of 169 tons for the month of March, 1916. The nearest approach to this record was in November, 1916, when the production was 4,508 tons with a daily average of 173.4 tons. The boys at Espanola certainly have caught the spirit of the game and are making things hum. We wonder if the other mills are going to let Espanola stand alone in the matter of breaking their own records. Let's get together and see what can be done.

OTTAWA NOTES.

Hotel newstands strictly observed the Lord's Day Act in Ottawa Sunday, when for the first time in many years it was impossible for a person not the guest of a hotel to procure a newspaper or magazine at the hotels of the Capital.

Guests of the Russell and Windsor hotels were able to secure the papers and cigars they desired, but no sales were made to outsiders. The newscounter at the Chateau Laurier was closed tight as on the previous Sabbath.

During the debate on the coal and fuel question in the Commons last week, Mr. D. D. Mackenzie, M.P., urged the deepening of the St. Lawrence route to Port Arthur so as Nova Scotia coal could be supplied to the consumers in Ontario for domestic purposes, thus competing with American shipments. In return the people of the Maritime Provinces would get flour, corn, bacon, and manufactured goods from Ontario and the West.

Sir Thomas White stated that as soon as the war was over the deepening of the Welland Canal, as well as the deepening of the St. Lawrence canals would be proceeded with.

Canada's new House of Parliament may be heated with electricity instead of coal. The Hon. W. Pugsley said in the House last week that a plan was before Parliament whereby it was proposed to heat the new buildings now in the course of erection with electricity instead of coal if the new fuel could be procured as cheaply. He said that from the talks he had with engineers he judged the Ottawa River could be dammed and electricity cheaply generated.

One of the largest fires in the history of East Templeton caused a loss of upwards $75,000 and destroyed the sawmills and blacksmith shop of the J. J. McFadden Lumber Company, Wednesday night. A careless smoker is supposed to have been the cause of the fire. Through the efforts of the citizens forming a bucket brigade thousands of feet of cut lumber in piles were saved from destruction. The blaze apparently started in the shingle mill, and spread to the saw mill and later to the blacksmith shop.

What effect the adoption of conscription, as outlined by Sir Robert Borden, or even the enforcement of National Service in Canada will have on the pulp and paper industry is one that will take up considerable thinking time of not only employees but employers as well.

The big question that crops up in one's mind after the outlining of selective conscription is whether or not the pulp and paper manufacturing trade is to be considered an industry essential to the successful prosecution of the war? Where is the mill owner or operator going to get off at? Is he going to be granted protection by the government and left with sufficient labor to man his plant?

The return of statistics of National Service given in the House of Commons last week by Sir George Foster, showed that over one and one-half million of the cards sent out had been filled in and returned. Of this number 364,470 were military prospects, and 58,897 between the ages of 17 and 30 years were shown to be single and without dependents.

No mention was made of individual trades or industries, and thus it is an open question whether or not the pulp and paper making industry is to be considered as an essential industry toward the successful prosecution of the war.

Of the 364,470 military prospects, forty per cent were engaged in agriculture, mining, shipbuilding, or the making of munitions. The statement also showed that there were 58,897 men between the ages of 17 and 30 years, who were single and without dependents, but were engaged in agriculture, shipbuilding, mining or munitions work. Between the ages of 31 and 45, single and without dependents there were 11,624, engaged in the above described "military" work. There were 50,657 between 17 and 45 years single but with dependents. 92,469 between the ages of 17 and 45 were married with dependents, and 97,095 married and single with dependents, who were engaged in agriculture, mining, shipbuilding and munitions work.

TECHNICAL SECTION OF THE CANADIAN PULP AND PAPER ASSOCIATION.

The spring meeting of the Technical Section of the Canadian Pulp and Paper Association will take the form of a visit to some of the mills in the St. Maurice Valley, Que. The trip to the eight mills of the Niagara District last June was so successful that it seems to be a good plan to have the spring meetings each year take the form of visits to representative pulp and paper centres for the next few years at least. There will be no technical papers so that the whole time will be free for the members to become better acquainted while they are travelling together for the two days, and the visits to the mills should be just as valuable from a technical point of view as the reading of formal papers.

The Laurentide Company, Limited, Grand Mere; the Belgo-Canadian Pulp & Paper Company, Limited, Shawinigan Falls, and the St. Maurice Paper Company, Limited, Cap Madeleine, Que., are very kindly acting as hosts, and are hoping to entertain a representative delegation of the technical men in the Canadian pulp and paper industry. Their hospitality includes the paying of expenses for the two days, so that the members will have no expenses for railway tickets, sleepers and meals after reaching Montreal.

The time of the trip has been set for Friday and Saturday, June 15 and 16. The tentative programme is to leave Montreal at 11.55 p.m., on Thursday, June 14, and to reach Montreal on the return trip at 6.15 p.m. on Saturday, June 16. Friday morning will probably be spent in Three Rivers and Cap Madeleine; Friday afternoon and evening in Grand Mere, and Saturday morning in Shawinigan Falls. The scheme is to arrange with the C. P. R. for two or three sleepers and a diner so that our party can live on board for the two days, and come and go as we please without depending on local hotel accommodation. If possible, there will be a get-together dinner at the Laurentide Inn, at Grand Mere, on Friday evening.

It is very necessary that we hear from the members as soon as possible so that suitable plans may be made to accommodate all those who can take the trip. Please notify the Secretary at your earliest convenience, stating whether or not you will be able to come. In the near future you will receive another circular letter giving fuller details of the programme.

Mr. A. L. Dawe, Secretary of the Canadian Pulp and Paper Association, 801 Shaughnessy Building, Montreal, is handling the final arrangements for the meeting.

The Markets

CANADIAN MARKETS.

Toronto, May 21st.

All the news print mills have prepared their statements to be submitted to Commissioner Pringle when the investigation is resumed at Ottawa this week. The most important announcement is that Mr. Pringle has had his powers enlarged, and now has authority to deal with all kinds of paper. This creates no consternation in the mind of the book and writing paper men, who would gladly welcome an inquiry and show that they have not advanced prices to anything like the degree which the pulp manufacturers have.

"If the trade and technical paper publishers and the school book manufacturers want an inquiry into the price of book papers, we hope they will go ahead," remarked a leading book and writing paper producer this week. "We have nothing to hide, and will be only too glad of an opportunity to tell what we know, and give any statistics requested." The wish is expressed that if the inquiry is to go any further than news print, the probe will include not only all kinds of paper, but mechanical and chemical pulp as well.

The demand for news print keeps up, but with conscription going into effect, the future is viewed with some alarm, as the labor market is short, and wages are high enough at present. With many more young men taken from the ranks of the employees and the camps in the woods, affairs assume a more serious aspect than ever. What the result will be no one can foretell. It looks at present as if the outcome will be continued higher wages for those who remain at home, and operations in the bush curtailed to an extent never dreamed of. All this will have its reflex action in the increased cost of every kind. The universal opinion is that prices, high as they are now for many lines, will go higher, and that by fall there will be a shortage of many kinds of paper, a shortage so acute that the consumers in not a few instances will suffer. Large jobbers, who are concerned in the interest of their customers, are advising them to buy now, and buy heavily, as the future was never more precarious. Conscription will add an element of uncertainty which cannot be computed at present, but all the mills will let any men who desire to join the colors go.

Not one of them has discouraged recruiting, and an effort will be made to operate plants as efficiently as possible under the circumstances, and what business cannot be accepted will have to go by the board.

In regard to the cost of producing news print, a leading manufacturer says that the two and a half cents fixed by the Government is causing a loss of half a cent a pound in some mills, and the figure will have to be increased, or machines will be turned on to other grades of paper. The thinks the Government would be better engaged in appointing a food controller to restrict the price to the consumer of the necessities of life. The people have cried for bread, and the Federal authorities have given them a newspaper. The publishers will in the end suffer from their actions, as they have discouraged and prevented the establishment of new mills, which would in a comparatively short time have given them cheaper paper. They have grabbed at the prospect of low prices now, and will pay for it in the end by very much higher quotations and shortage of supply.

More weekly newspapers are raising their rate to a dollar and a half, and all those who have taken the step are loud in their praise of the success of the venture and the increased revenue, while very few subscribers have dropped off. Most of the dailies in Western Canada have decided upon a reduction in column width to twelve ems, which will take effect on July 1st, and mean quite a saving in news print.

The outlook for the next two or three years is that there will be a great shortage of news print throughout the world, more particularly in Canada and the United States, and it is said that plans are under way for the purchase of a vast area of Canadian wood lands by various pulp and paper companies operating in the United States. The mills in both Canada and the United States are anxious to insure themselves of a supply of raw material for many years to come. It is expected that it will be a long time after the war is over before there is any serious competition from abroad. In pulp wood it is reported that, at least, two Canadian plants are twenty per cent. shy of having sufficient to last them throughout the year, and, while most mills are protected for the next few months, they are wondering what they are going to do in 1917. The lot of the paper manufacturer to-day is precarious and difficult enough in the matter of labor, securing of supplies and increasing wages, without having interference in the price that he can get for his finished product.

There is no change to report in the ground wood or chemical pulp situation. Not many sales are being made, and purchasers are hanging back. Prices are, therefore, a little easier. In the wrapping paper line the mills are very busy, and while there was some easiness in kraft, several foreign orders have been secured to take care of all the surplus, and prices are firm again. Deliveries are none too prompt, and although business with the jobbers is good, stocks are not heavy now.

In the rag and paper stock market there is a very small demand from the mills for cotton rags, but roofing stock is in slightly stronger requisition. Everything has gone to the bad in the market for paper stock. There is no call at all for scrap or news, and other grades are scarcely moving. The mills are well stocked, and not disposed to buy even from regular shippers. Dealers are accordingly holding off buying as a result, with the exception from regular customers who have no storage space.

There is some speculation among paper and pulp men regarding the levying of ten per cent. duty in the War Revenue Tax Bill of the United States, which will apply to all kinds of pulp and paper up to five cents a pound, now entering the American market free. A feeling exists that the Canadian manufacturer has no cause to worry, as the demand from United States sources is likely to be as great as ever, and the consumer will have to pay the tariff. It will simply cost him that much more, as there is no intention on the

Tender for Timber Limits---Mill and Equipment

The following valuable property composing a going lumber manufacturing plant, is offered for sale in order that an Estate may be closed:

125 Square miles more or less, of timber limits under license from Ontario Government, conditions of which may be obtained from the Department of Lands, Forests and Mines, which permits cutting of all kinds of trees; composed of townships of Goschen, Carlyle, 67 and north half of Humbolt.

200 Acres of land at mouth of river on which are situated water-power saw mill and mill dam, box factory, yard with docks and tramways, store, boarding house, blacksmith shop, machine shop, storehouses, stables and about twenty houses for families. A steel tug eighty feet long, a steam launch and tow barge. Also camp equipment for two camps including sleighs, horses and all necessary rigging.

The territory is well watered and the river improved with dams, slides, etc. Blue prints may be obtained at the office of the undersigned.

Tenders for the purchase of the foregoing endorsed, "Tender for timber limits, etc.," addressed to the undersigned, will be received up to Thursday, 28th June, 1917.

Terms: Certified cheque payable to the undersigned, for 10% of the amount offered, must accompany the tender; 15% to be payable on the 1st of August, 1917; 25% on the 1st of November, 1917; 25% on the 1st of February, 1918, and 25% on the 1st of August, 1918.

Interest at 6% per annum from date of acceptance of offer to date each payment is made.

Cheques of unsuccessful tenderers will be promptly returned. The right is reserved to reject any or all proposals.

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part of the mills, who do an export business, to absorb any more costs. They state they have done this on raw material to too great an extent already, and are not getting a price commensurate, and no further concessions will be made.

Printers all over the country are asking for a very liberal increase in the matter of wages, owing to the high cost of living which, on the whole, has doubled during the past few years. The publishers in Toronto will be asked to pay fifty-five cents an hour from June 1st next. If the men do not get it there may be trouble, although there has never been a strike in Toronto. The wage will amount to twenty-six forty a week, while the present scale is around twenty dollars.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$45.00 to $47.50
Easy bleaching sulphite	$95.00 to $100.00
Sulphite, news grade	$85.50 to $90.00
Sulphite (bleached)	$160.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.75
No. 1 soft white shavings	$3.75
Mixed shavings	$1.00
White blanks	$1.80
Heavy ledger stock	$2.50
Ledger and writings	$1.80
No. 1 magazine	$1.05
No. 1 book stock	80c
No. 1 manila envelope cuttings	$2.75
No. 1 printed manila	$1.20
Folded news	80c
Over issues	$1.10
Kraft	$3.50
No. 1 clean mixed papers	60c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.60 to $1.70
Tailor rags	$1.40 to $1.50

NEW YORK MARKETS.

New York, May 19th.

In general, there seems to be a lack of interest in the many phases of the markets. Old timers in the trade are at a loss as to how this is to be explained, especially in view of the fact that there is absolutely no question that prices must go higher within the very near future. Ordinarily, under like conditions, there would be a great deal of buying ahead, to escape the increased prices. Judging from the debates in Congress, during the past week on the question of war taxes, there is no doubt that the paper trade will be compelled to bear a good burden. So far as the manufacturer is concerned, he will be compelled to pay an income tax, an excess profits tax, as well as hundreds of other smaller taxes. The same thing will apply to the pulp producers and to the lumber concerns. It does not take any sort of special accounting knowledge to recognize that the cost of production will be greatly increased—and it surely requires less insight to realize that every effort will be made to "pass it along." With regards to the proposed war revenue tax which provides for a ten per cent duty on articles now on the free list, nothing definite can yet be said. There has been considerable protest against this provision and it has been predicted by numerous, legislators that it would be materially changed before it came to the President for his signature. The claim is now general that it is unwise to tax raw materials, especially today when the very existence of many domestic industries are dependent on the supplies of raw goods which they get from Canada and other countries. However, with the Congressmen determined to raise a big sum of money, it is not unlikely that a few ridiculous items will be contained in the bill, even after it has passed through the process of criticism and culling.

Though the trade is patriotic in every respect, a little relief was felt when it was made known that

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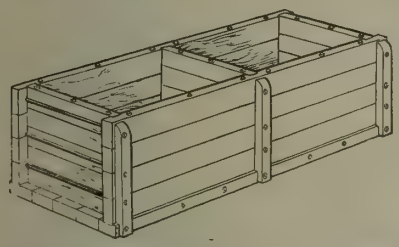


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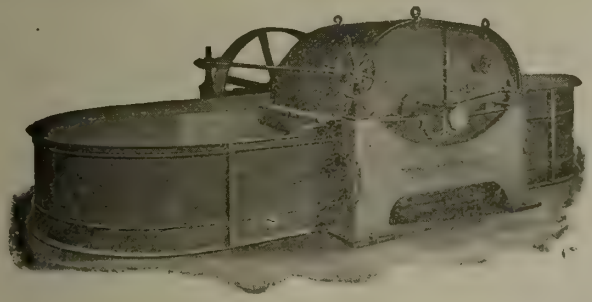
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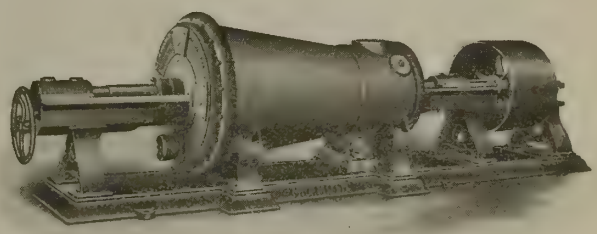
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WOOD PULP
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the actual work of conscripting men for the army would not begin until about September of this year. This is due to the fact that the various supplies which it would be necessary to take care of the increased force at the present moment are not available. As a result, there will be ample time for those who are wise, to make any necessary preparations for the coming fall. Another announcement—and a rather important one—is that, in the first call at least, such men as occupy positions of an executive nature, will be exempted from military duty. This means that superintendents and other responsible men of the paper and pulp plants, who are of the conscription age, will be allowed to remain on the job to keep their organizations intact.

It is not amiss, at this time, to state that every effort is being put forth to impress upon the nation that it is of the utmost importance to keep the machinery of industry in constant motion, in order to make it possible for the United States to do her share in the war. It is hoped that, through this appeal, business will be stimulated to a considerable extent.

Ground wood pulp continues very firm and considerable interest is reported from various sources. Available supplies for immediate delivery have not been increased. As a matter of fact, it is said that the future of this market is dependent greatly on the decision of Congress as to whether or not ground wood pulp will be assessed with ten per cent duty when imported in this country. A large delegation of publishers appeared before the Senate Finance Committee to explain that such action would ruin them. However, it is expected that some sort of tax will be put upon the commodity. In any event, it is believed that, while prices are now considered high, they will be forced still higher, if natural conditions are allowed to exert themselves. However, a new factor to be contended with is the fact that a bill has been introduced into Congress authorizing the Federal Trade Commission to set the maximum price of newsprint—**on the theory that newsprint is a public utility.**

There is a great deal of fear that this bill will meet with favor and that it will be enacted into law. can readily be seen that such an event would mean granting the Commission still greater powers. If it was permitted to control the price of newsprint, it would have to, of necessity, be able to fix the prices for which the ingredients of newsprint are sold. The general tendency seems to be toward granting the government the authority to control the various sources of supply for foodstuffs and other commodities of common use. This fact seems to be weighing on the mind of the trade—and perhaps justifiably. With regard to the supply of food for the pulp producers, this is still a matter of considerable worry—and is beginning to manifest itself more strongly all of the time. Aside from the fact that prices are high and are being advanced, there seems to be considerable difficulty in getting stock. Those pulp producers who have no forest lands of their own may be "up against it" before the end of this summer, according to opinions expressed in some trade circles.

A firmer tone is reported in the market for chemical pulp. The mills have not increased their buying materially, but there seems to be added confidence in the market. It is felt that the proposal to tax articles now on the free list at ten per cent. has had a greater effect on chemical pulp than on ground wood. The judgment of the trade is, that in the event this provision is adopted, prices will be advanced considerably over what they now are. And, in the event that the demand does not meet what the foreign producers believe it should be, the disposition to ship to the United States may be curtailed to a serious extent. Regardless of what happens, however, unless some one invents soon—and very soon—an instrument that will deliver the world from the menace of the German submarine, there is little possibility that we can look to Scandinavia for any great quantities of chemical pulp. The total stocks of foreign supplies in this country are said to be very low. In fact, whatever is in store is said to be on contract and on the way to consumption. The domestic mills are producing as well as they can. It is known that the railroads are making great preparations for increasing their freight service. However, comparatively little hope is held out that the trade will benefit any from this action, for the government will, most likely, claim precedence in every case, to the exclusion of other shippers.

Despite the confidence of the rag dealers and the heap of optimism that has been characterizing a good many of them for some time, the situation affords no relief thus far, to the lack of interest being displayed in the market by the consumers. Reports state that buying is comparatively poor, the disposition of the mills being to hold off or not to consider purchases at all. Apparently, supplies are plentiful and it is this fact that holds the consumers strong in their bear attitude. Collections, however, are said to be suffering from the fact that the rag pickers have diminished considerably in number and that it is difficult to get them to take up their time with this vocation, especially with the attractions offered by munitions and other similar plants. It has been predicted before and it has been repeated in the trade that the available supplies of rags are not sufficient to take care of any unusual demand. And the rag men are still hopeful —some of them are certain—that market conditions will pick up soon, in sympathy with the remarkable tide of business that is looked for in this country within the next month or so. The quotations for new white shirt cuttings of the better grade are at about 8c to 9c; old white rags are selling at from 4½c to 5¼c; house soiled white rags are quoted at 3c to 3¼c; street soiled, at 2¼c to 2¾c; thirds and blues, at about 2¼c to 2½c; roofing stock at as high as 1¾c.

No decided changes were noted in waste papers during the week. There seems to be no lack of interest, but, but for some reason, buying is not as active as some believe it ought to be. It may be, and probably is, that the debates in Congress regarding the coming war taxes are having some retarding effect. This reason has been advanced. However, it does not seem logical, for, in the face of advances—there must be advances after a number of taxes have been assessed on the dealer—it is to be expected that buying would take on a more active aspect. That this market will show up to splendid advantage in the near future, is the belief of those in the trade who are generally informed, not only among the dealers but among others. There is no question but that the tendency to lean toward the use of waste papers will increase even more than it has done within the past several months. While the prices for the lower grades have not bolstered up from their little slump, they are firm and tendnig upward. A good demand is reported for strictly overissue news, which

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of every description

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18 East 41st Street New York, N.Y

is quoted at about 1¼c and a little higher. Strictly folded is going fairly well at about ¾c to 1c. Mixed papers are still at a little over ½c. Hard white shavings are quoted at 4½c to 5c; soft white shavings, at about 4¼c to 4½c; magazine stock is fairly active, going at about 1½c; ledger papers have been bringing about 2c to 2¼c; old manilas have been going well and are as firm as ever, at prices ranging as high as 1½c. The price of old krafts seems to have suffered somewhat and is now down to about 3½c. A good demand is reported for a large number of kraft mills have been resorting to the reclaiming of pulp from the old paper.

As we have stated, the paper market is difficult to understand, because, while there are a good many taxes to be placed in the very near future and while it is certain that the placing of these taxes will reflect directly on the prices of the various papers, there does not seem to be any real inclination to buy. Apparently, the bear movement is still on—that is about all, for manufacturers have been holding to their prices. Today, when everyone is preparing to "pass along" the war taxes, breaking of prices is a thing unheard of. The demand for news print seems to be fair, most of the mills reporting that they are working at capacity. Of course, this particular commodity is so beset with troubles, that it is possible to make allowance for any unhealthy tendency. We have already stated the effects that the proposed ten per cent tariff on news print would have. To show that the government is in earnest, we note that Professor Taussig, recently appointed chairman of the new Tariff Commission by President Wilson, states that he is aiming to prevent the loss of revenue that results from the rushing in of imports when a higher tax rate is considered by Congress. He said: "For this there is a remedy and it is not far to seek. In Great Britain, as soon as the government proposes an added tax, it is collected at once, with the understanding that, if the legislation fails, refund will be made. We accordingly submitted to Congress, a report showing tthe embarrassments and difficulties which had arisen in the U. S. and are proposing a remedy considered flexible and believed to be practicable." Mr. Taussig remarked that allowance would be made for contracts made in good faith prior to the passage of the tariff legislation that might be under consideration. With regard to the other kinds of papers, there does not seem to be anything extraordinary in the way of activity. The fine writing papers have suffered considerably. As a matter of fact, it is not considered that these grades have very much prospects as long as the war lasts. Wrappings are going fairly well. Books are pretty well sold up at good prices. They are included in the bill now in Congress to fix the price on news print paper. Boards are moving, but at slight concessions.

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(These are a nominal range of prices):

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Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	5¼c to 5½c
Kraft pulp, f.o.b. pulp mill	6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c to 7c
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Foreign unbleached soda pulp, ex-dock, N.Y.	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
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News, contracts, f.o.b. mill	$3.00 to $4.25
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Book, coated	8c*
Tissues, good sulphite, bleached per ream	$1.20*
Tissue, ground wood, manila, per ream	$1.25*
Kraft	8½c*
Wood manilas	7c*
Jute manilas	10c*
News board, per ton, f.o.b. New York	$60.00
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R. W. Jolly.

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Another important Association has been lately formed in Quebec whose object is to assure the protection of the forest against the disastrous fires which ruin each year, many thousand dollars of timber.

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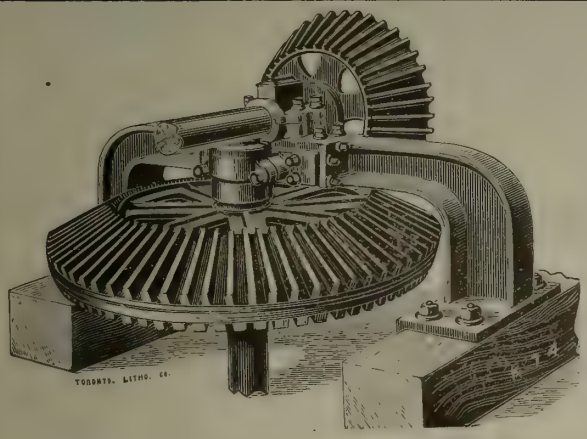
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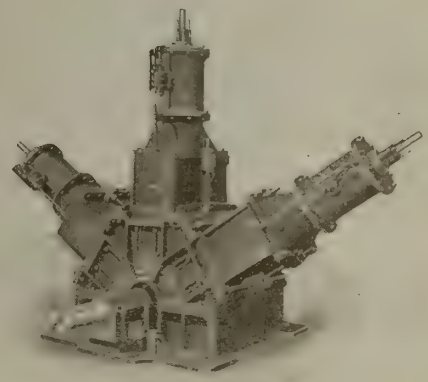
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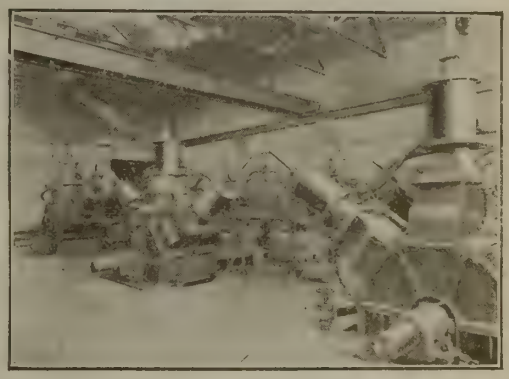
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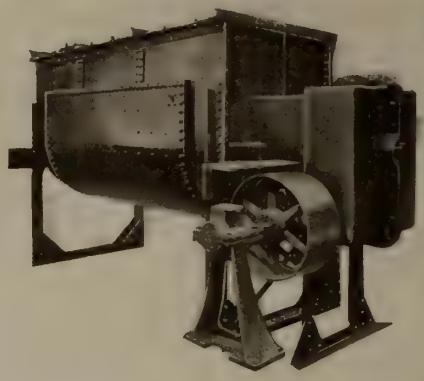
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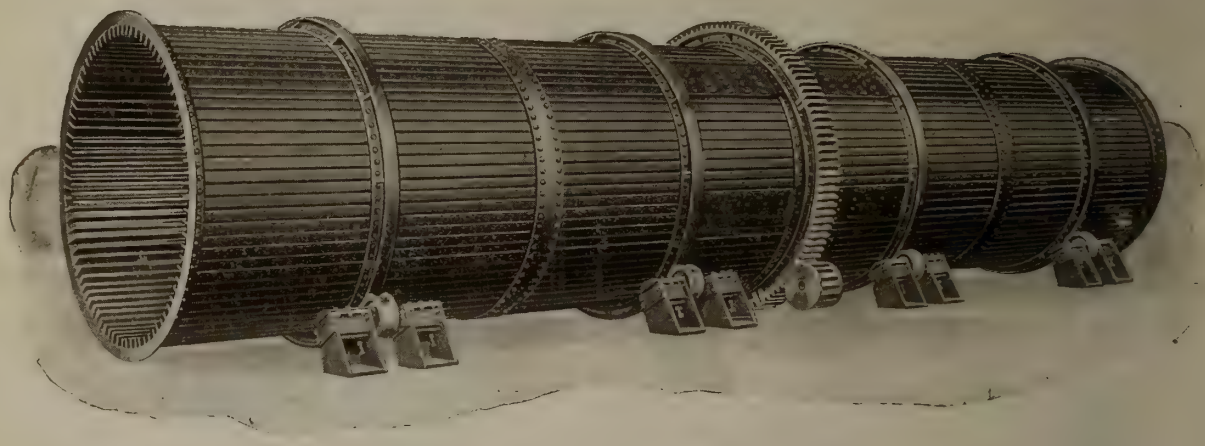
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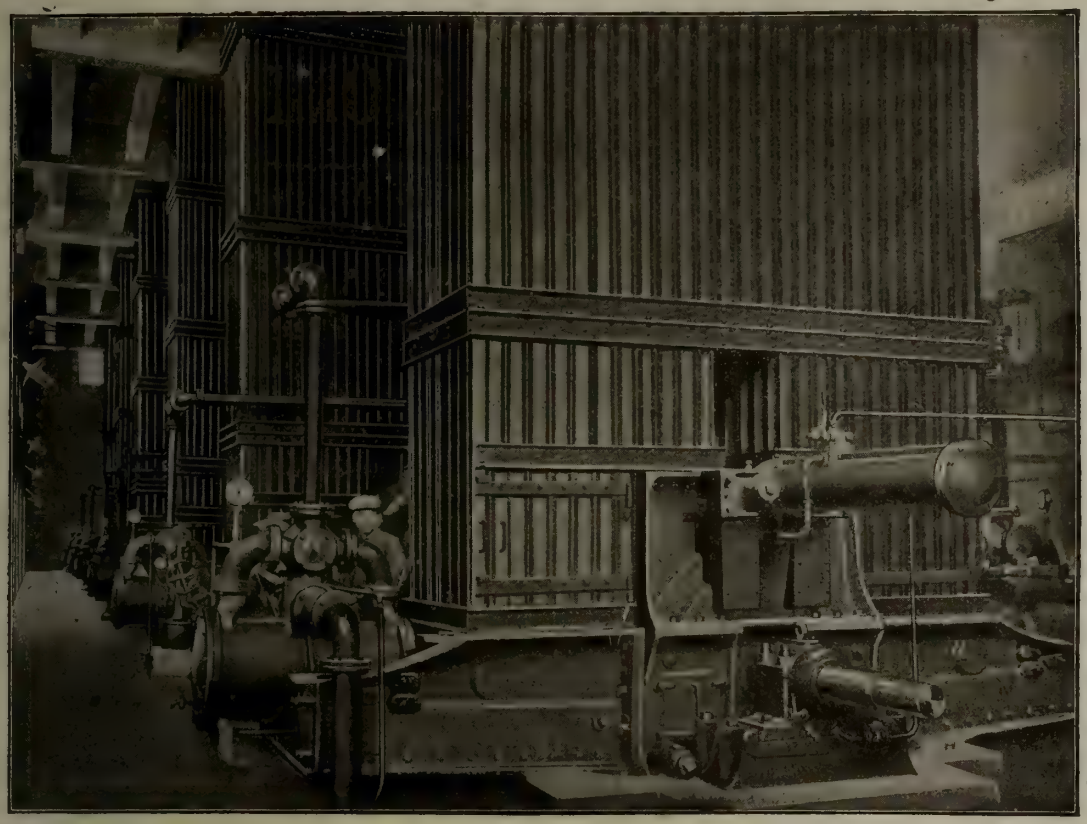
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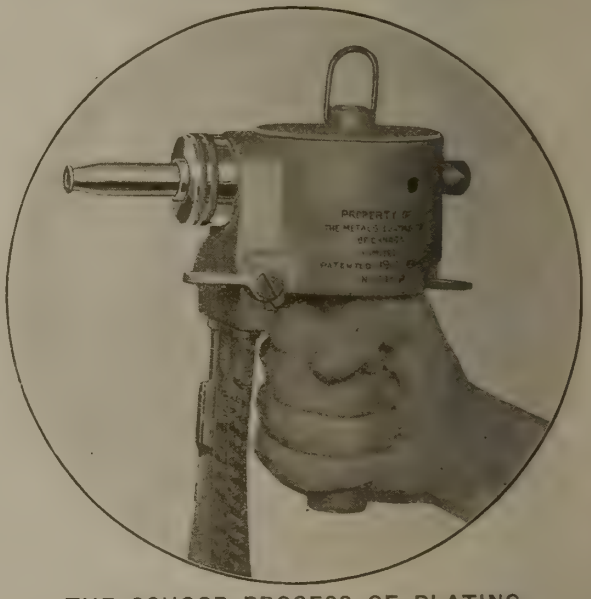
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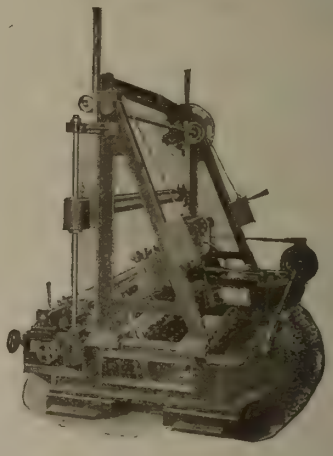
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EDITORIAL

A CANADIAN BUREAU OF INFORMATION.

On the invitation of The Industrial and Educational Press, Ltd., a number of gentlemen interested in the dissemination of industrial and commercial information assembled at dinner at the University Club on the evening of March the 5th, 1917. This was the beginning of a movement to establish a Bureau of Information in each of the principal industrial and commercial centres of Canada, with branches in the other industrial cities, towns and villages, each bureau and branch bureau to be equipped with a commercial library, museum and reading room, for the purpose of supplying information and literature on any subject and encouraging a greater general interest in and knowledge of Canada's resources, industries and commerce, as well as the preparation and education necessary to a career of the highest usefulness in their development.

Such an organization could thus supply the needs of most industrial communities by giving: (1) Something to look at in the museum or exhibit, which would in many cases create a desire to know more; (2) A commercial library and reading room where much of the desired knowledge could be obtained, and (3) Maintaining the means for conducting lecture courses and schools in harmony with the particular industrial atmosphere of the locality. There would be a resident librarian or local secretary who would take care of the museum, library, and reading room, arrange for meetings and lectures and serve as a connecting link between the local branch and the central bureau.

The central bureau would have a more complete equipment and could supply information of a wider range. As was remarked by one of the speakers, it would not be necessary to have an exceedingly extensive library in order to give adequate and satisfactory service. The principal thing is to create a desire for knowledge and then to know where to find the desired information. For instance, the enormous amount of material in the form of Government Bulletins need not be kept on file. It would be sufficient to have their titles.

The good that could come from such an organization as a Bureau of Information cannot be calculated. It is not a one-industry affair, such as the Pulp and Paper Association, Mining Institute, Fisheries Association, Textile Institute, etc., but is an inclusive, co-ordinating influence that would furnish a common ground on which to draw together the many industrial and commercial activities of the Dominion.

Some special phases of the meeting will be considered in later numbers of Magazine. The breadth of the movement is seen in the fact it was heartily approved in speeches by representatives of the mines, fisheries, railroads, textiles, pulp and paper, merchants. Great emphasis was put on the need for better facilities for industrial education, particularly for those who must leave school at the minimum age, and the possibilities in that line of the proposed Bureau.

The discussion crystallized in the following resolution:

It was moved by George Carruthers, of the Interlake Tissue Mills, Ltd., and seconded by D. T. Byrne, Past President of the Canadian Fisheries Association.

WHEREAS there is need in Canada for some movement calculated to give greater effectiveness to the facilities already provided, and to be provided, by the various government and municipal authorities for the collection and dissemination of industrial and commercial information, and for the promotion of technical education.

AND WHEREAS in the opinion of those present such a movement might arise from a co-ordinate effort on the part of existing technical, trade and professional organizations.

BE IT THEREFORE RESOLVED, that we here present, together with such others as may wish to join us, form ourselves into an organization to be known as the

"Canadian Bureau of Information."

The objects of this organization to be as follows:

First: To provide a central Bureau of Information which may eventually be equipped with a library, files and a staff capable of supplying information and advice concerning industrial and commercial matters, particularly those that have to do with domestic production and the domestic and foreign trade of Canada.

Second: To encourage, and where possible, provide material for the strengthening of the public libraries, and the libraries of secondary schools, with literature calculated to give their readers an up-to-date and reliable account of the industries, commerce, finances and resources of Canada, as well as a knowledge of the opportunities these sphere offer, and the preparation necessary to take full advantage of them.

Third: To encourage and assist in the establishment of museums for the exhibition of Canadian products and those of other countries that might be produced in Canada, as well as the products of other countries which are necessary to the industry and commerce of Canada.

Fourth: To provide, in so far as possible, and encourage the production of photographs, plates and other reproductions of scenes pertaining to Canadian industries and resources for use in schools and for public lectures.

Fifth: To assist in the establishment of trade and technical schools, as well as to encourage the people to take fuller advantage of such facilities for education and training.

BE IT FURTHER RESOLVED that the above mentioned "Canadian Bureau of Information" be under the control of a Board of Directors, composed of ten Directors elected annually by the members of the organization, together with the following ex-officio members, or such of them as may wish to act:

The Presidents of the:

Union of Canadian Municipalities.
Canadian Manufacturers' Association.
Canadian Bankers' Association.
Dominion Educational Association.
Canadian Mining Institute.
Canadian Fisheries' Association.
Canadian Pulp and Paper Association.
Canadian Textile Institute.
Retail Merchants' Association of Canada.
Canadian Society of Civil Engineers.

The Chairman of the Society of Chemical Industry.

Together with the President or other Chief Officer of any other Association, Society, or Institute, that the Board of Directors may decide to add from time to time.

OPEN HEARTS, MINDS AND DOORS.

The time was, and not so long ago, when there were few paper mills that a paper maker was invited to visit and to ask questions about. The doors of the mills in the Fox River Valley, Wisconsin, were open last week to the members of the Technical Association. This certainly shows the open-mindedness of the progressive manufacturer. The open-heartedness of these genial people was manifested in the generous and delightful way in which the visitors were entertained.

Great credit is due Mr. Mahler for the excellent arrangements he made for the meeting of the technical men at Neenah last week. The addresses were fine, the discussions lively, and the demonstrations and visits were very interesting and instructive.

The mill visits were a big feature of the meeting. About one hundred and fifty availed themselves of the opportunity to see and hear. The visitors asked all sorts of questions and if the guide did not happen to be familiar enough with any particular phase of the work to answer fully, he found someone who was.

It was interesting to observe that when a visitor asked about a certain point, the guide or someone else in the group would ask: "How do you do it?" And then would result a brief conference, in which all concerned got some new ideas. An Englishman once expressed surprise at being shown through a mill in Massachusetts by the owner. The owner said, "If you learn more from me than I do from you, I shall be surprised and you will be welcome."

The exchange of experiences, opinions and ideas is often as valuable to the owner of the mill as to the visitor. At any rate the opening of the doors of his mill is indicative of opening the doors of his mind, and where the one signifies co-operation, the other is a sign of progress. The age of the recluse was characterized by the getting of knowledge to keep. That was before there was any considerable use of paper. As the manufacture and use of paper increased, the desire to disseminate knowledge became a characteristic of the student. In what line of industry then is it more appropriate that open-mindedness among manufacturers should prevail than among paper-makers?

The paper-makers of Neenah said, "We have no secrets." As a matter of fact, they have a great secret, but it is one that each manufacturer must discover for himself. To our mind it is this: That success in making paper is not so much the putting together of inanimate materials according to certain directions and formulas as the intelligent endeavor of the whole organization to work for a common objective. To accomplish this it is necessary for each worker to understand why his work is essential and what relation it bears to the whole. This requires education and explanation.

Each man should be shown how to use his machine and why things are done in certain ways. The Kimberly-Clark Co. is doing much in the way of educating men for their jobs. Some other mills are. But there is still a vast amount of work being done unintelligently because a small amount of simple explanation is not encouraged or required.

For a superintendent to explain to a foreman, or a foreman to demonstrate to a workman how a job should be done and why it should be done in a certain way, has two results. In the first place, it insures a better job, and in the second place it accomplishes what is far more valuable a realization on the part of the workman that he has been given personal attention and is a human part of a family and not a mere mechanical part of a factory. The value of the personal touch was emphasized many times at the meeting.

Let the good work go on!

Paper Mill Ventilation

By E. A. BRINER, M. E.,

Carrier Engineering Corp., N. Y.

To those who think of ventilation as simply the supplying of fresh air, the following article from the "Paper Mill" of February 24th will be enlightening. To those who are interested in the health and comfort of employees as well as the economic operation of the mill, the article will be of service.

* * *

The subject of ventilation, as commonly understood in connection with crowded rooms, has very little connection with paper mill ventilation. An exceptionally large volume of air is nearly always available in proportion to the people employed. Nevertheless, the subject is filled with many problems solved by the use of air, including such problems as dust, excessive heat, cold, moisture, vapor, gases and odors. All these problems have to be met in various degrees of importance in most mills. An example of each kind will be taken to illustrate the principles involved. The average paper mill operator is not distinguishable by his ruddy good health. Whether this is partly due to the mill conditions, or to his former long hours is at present not easily distinguishable. At any rate the hours have been shortened, in most cases, leaving the mill conditions as the remaining factor.

A common way of looking at this subject has been to provide such operating conditions that the men do not complain. A serious complaint usually consists of employees leaving in small groups for jobs under more favorable conditions. It is fatal to improvement to accept the conditions as indigenous to the business. A much healthier attitude is to accept an owner's responsibility and make not merely a reasonable effort, but a determined effort to correct conditions capable of improvement instead of accepting either the men's standard, or the standard of other mills. There is no reason why an owner should not take as keen a delight in improving the conditions of his mill, which are daily with him, as he takes in the product which he ships to others.

Mr. J. R. Booth told me that the building of his immense plant at Ottawa had afforded him a great deal of pleasure. Such pleasure only comes from doing things well. My experience has been that in mills where men work under objectionable atmospheric conditions, one usually finds mediocre men and mediocre output as regards production. This is natural, because nowadays good men have a pretty free chance to pick desirable surroundings. The quantity of the production of any mill is largely influenced by the spirit of the men, which is apt to be a maximum under proper operating conditions, which place no curb on their physical endurance, or even mental activity. Where men work under hot and moist atmospheric conditions resembling southern and tropical climates, one usually finds corresponding mental and physical conditions. Such conditions do not foster activity, production or improvement, and is well pictured by the machine tender in a comfortable seat, protected from a dripping roof, while he watches the wheels go round, oblivious to anything but a break on his machine. You all know these conditions too well to require any further description. They all can be improved wonderfully. It is only a matter of first cost, because the operating expense is small. The system can be made to pay handsome returns on the investment, especially where waste heat is available for winter conditions.

Rag Room.

This room usually consists of some place where the rags are taken from the bale and fed or conveyed to the cutter with the assistance of an operator. Dust is raised in the conveyor and clouds of it are visible around the machine, especially at the cutter. In this class belong all rooms using cotton rags, old carpet, old rope, old bagging, etc. When the material is conveyed and falls, there are clouds of dust. The usual provision for ventilation in these roms consists in putting hoods over the various cutting machines and by means of a fan system exhausting the dust from the hoods of the machines. The layman usually makes the first step of removing trouble, but he seldom realizes that the void produced must be filled with something good. Sometimes sprays are used on the conveyors to keep this dust down. There is usually a separator for separating the dust from the air in this fan discharge. The air itself leaves the top of the separator into the outside atmosphere while the dust settles in a bin. It is an example of average practice. It is a poor job at best. The floors in these rooms are usually covered with about ½ inch of the vilest looking dust. The atmosphere is not fit to breathe. If the owner is able to keep help in that kind of a place he has to put up with a low grade of help, poor service, and at the same time pay a good price for what he gets. A while ago I noticed a negro whose duty it was to shovel the cut-up rags arriving through a chute into another chute going to the beaters. He was equipped with a sort of dog nozzle, such as is used by men handling grain. He was perfectly indifferent to his work and his surroundings. At my request he showed me the protection afforded him. His nozzle consisted of a fine mesh brass screen and a piece of cardboard probably arranged to avoid "mass plays" on the part of the dust. He said he had lost the sponge and replaced it with the cardboard and that "it worked just as well." Now the trouble with this rag room scheme is in the dry air and the dry dust. This material cannot be handled right under dry conditions. The loss of heated air sucked out with the dust makes rooms cold and drafty. The loss of warm air also makes the operation expensive. The system should be supplemented with a ventilating system consisting of a small fan with a good spray type of air washer. This fan would recirculate tempered air in the room, washing and purifying the atmosphere, and at the same time taking but a very little air from outdoors. The warm air from the exhaust fan instead of leaving the separator to outdoors should also be passed through the washer and returned to the rag room. Thus, the air makes a complete circuit, is washed and returned to the room practically without the loss of any heat, and with the proper degree of moisture. It would be better to convey the rags by means of a fan. The temperature and moisture may be automatically controlled if desired say at 70 deg. temperature and 70 per cent. to 80 per cent. humidity. As

water is usually plentiful around paper mills, this department could also be cooled to some extent in summer by the use of fresh cold water in the sprays of air washer. The waste water could be used in the beaters in summer and in winter it could be used over and over by recirculation in the washer. The recirculated washed air is thoroughly freed from all impurities such as flying dust or other organic matter. Such a department can be made a clean and decent department, where employees do more and better work by reason of enjoying a clean atmospheric environment.

Beater and Grinding Rooms.

Modern conditions of crowding as much apparatus as possible in a small space, has done a great deal to increase the vapor content of these rooms, which are dependent upon air to keep them dry. The capacity of air for moisture is 8 grains per cubic foot at 70 deg.—20 grains at 100 deg. and 70 grains at 150 deg. It is a decided advantage to have a fan heating and ventilating system with its distributing pipes in the grinding room as it keeps room free from steam generated by the wet logs in the grinding process. In this room the air is usually distributed near the floor and exhausted from vent shafts starting at the ceiling or roof. Good distribution of warm air coupled with the best distribution of the vent ducts will produce a nice uniform temperature. Such a system will also do much to dry up the sloppy condition of the floors. An ordinary heating system with steam pipe coils overhead and vent shafts to take moisture out does not meet the conditions. Unless warm incoming air is supplied by a fan system the warm air leaves the vent shafts with the mositure, and must be replaced by cold air leaking in. When warm air is supplied by a fan, the leakage is apt to be less.

The beater room should be treated about the same as the grinding room. Wherever there are large quantities of water used air is needed to keep down the miosture content of the atmosphere. At this point it might be well to state that the rapid deterioration in wood structures in paper mills, especially roofs, is not due to moisture alone, but to moisture coupled with an insufficient supply of air. There is one thing about beater rooms which is today demanding special attention during the winter. A good many mills find it advantageous to use hot water in the beaters, usually heating the water in the beaters. This water is often so hot that a heavy vapor leaves the beaters. In a cold room this shows up as steam. I have seen beater rooms that were filled with a fog in winter so that one could not see 25 feet ahead of him. For such room, it is desirable to provide a small hood over the breast of each beater roll, where the effect is intensified in a column of steam leaving the beater tub. These hoods over hot water beaters must be piped straight up to long high ventilators outdoors or be piped together into an exhaust fan. To avoid using too many fans I think it is better where possible to use ventilators. In order to make any ventilator effective it should not be dependent on the wind outside to make it so. It must have height so that it acts as a chimney. It is necessary to remember that the lower the temperature of the air, the higher must the flue be to create a draft. A swinging top on a roof ventilator may be a good thing to accelerate a draft but if you have to depend on it you will get fine results when the wind blows and little or nothing when it doesn't blow. My recommendation is to make ventilators large enough and tall enough so as to give a steady outflow independent of the wind and if possible to have a fixed head strictly neutral to the wind. This applies to ventilators of beater rooms, grinding rooms or machine rooms. Owners usually object to the looks of these high ventilators. They are unsightly. From my observation, if you wish to judge a ventilator by what it does, these high ventilators certainly are very effective. Take any roof ventilator that is weak and run it up twenty or twenty-five feet and it will do a marvelous amount of good. Please remember that most sheet metal ventilators on the market are almost useless without the assistance of the wind. They are not much better than holes in the roof with rain hoods. They are entirely dependent for action in still air upon the height of the building, plus the height of the ventilator flue. No particular shape or twist to any ventilator head will make a flue draw in still air. The factors that count in getting a constant flow of air are the height of the room and the height of the ventilator flue. The lower the room, the higher the ventilator flue should be to get some sort of positive draft. If the ventilator head is rain proof and neutralizes the action of the wind, its action is ideal. You then can make the height and area suit the volume and temperature of air which must be handled. I consider long high vent flues superior to disc fans or propeller fans for exhausters, wherever the use of such fans can be avoided.

Gases.

Gases are dispelled in much the same manner as vapor and moisture are gotten rid of, except that the process is usually a matter of dilution instead of absorption. Wherever gases are formed that leak out into a room there should be some kind of a hood with means of exhausting right at the point where it makes its appearance. The ducts, or flues, can be made out of several materials, which have served very well in practice in resisting acid attack such as asbestos building lumber, galvanized Toncan metal, or American ingot iron, painted with acid proof paint. Lead coated metal is also available. The galvanized ducts can be made to stand up for a good many years if they are painted once a year with acid proof paint. Another point in dealing with gases sis to supply fresh tempered air in winter at low velocity outlet, right next to the operatives. Put dampers on these outlets so that they can adjust the volume of fresh air to suit their own comfort.

Machine Rooms.

The big room in most paper mills is the machine room. Its ventilation has been a matter of years of study and it is only during the past four years that any decided progress has been made. I have seen a good many machine rooms that simply had a lot of 1 inch or 1¼ inch steam pipe, spaced about 2 feet apart, under the entire roof. Such a system is cheap, the most expensive in operating cost, and the poorest system as regards keeping the roof dry. It provides no fresh air to mix with the moist air of the room. When the machine is hooded it gives fair results. My opinion has grown stronger during the past three years in favor of the use of hoods over paper machines. I now consider use of hoods imperative for economy and proper room conditions. There can be no doubt that if one can get rid of 80 to 90 per cent. of the moisture rising from the machine by means of a properly designed hood and ventilator, by all means get rid of this 80 per cent. of the problem at once, instead of first letting the vapor float aimlessly around the room

with the hope of gathering it together again at definite points in the peak of the roof.

Another common system is to replace the steam pipes with hot air ducts run along the top sides of the room and blowing hot air under the roof toward the roof ventilators in the center. If this system is well designed in connection with a machine having a good hood, it accomplishes its purpose. The objection is, that like the overhead steam pipes, it is uneconomical. It simply heats the roof to avoid drip due to condensation of vapor under the cold roof in winter. Neither the overhead steam pipes nor the hot air system under the roof has any summer occupation. When no steam is turned on in summer, both systems are subject to more than the usual amount of deterioration. The principle of both these systems is wrong and sooner or later modern method will scrap them. They are designed to correct trouble for winter conditions at the roof where condensation appears instead of correcting it at its source. If the warm air in the "roof drying" system is applied to the sheet where the vapors form, you correct the trouble where it emerges, thus laying the axe at the root of the tree. The fan apparatus for applying air to the sheet is about the same, except that it is usually made larger for the purpose of increasing the drying capacity of the machine at the same time. This system runs both winter and summer in increasing drying capacity or saving steam. Applying air either over or under the machine has been done a great many years ago and is not very satisfactory; but helpful in clearing up the rooms. It does increase production to some extent.

The Vapor Problem.

The most successful method of getting rid of the vapor, making the drying more uniform, and increasing the drying capacity, has been accomplished by a fan system blowing warm air from galvanized iron pipes placed between the dryers and blowing directly on to the sheet. This system was patented in 1913, by Belcher & Wilson, of Chicago, and has since been installed in about 50 plants. It is always good for between 10 to 15 per cent. increased drying capacity and eliminates the appearance of all vapor at the dryers. It avoids all roof condensation where the mill has a reasonably good roof. The mill roof is a big factor in all ventilation problems in paper mills. A paper mill roof should be made of at least 3 inches of wood with some good roofing material on top. Such a roof should last 15 or 20 years with this improved method of paper drying applying air directly to the sheet. I wish to condemn right here, from a "business engineering" standpoint, the use of bare concrete, concrete tile, gypsum, and all this class of roofs for machine rooms unless supplemented with insulations of cork, layers of cinders and cement, or other equally good insulating material placed on top. Four inch concrete roofs have only half the insulating properties of 3 inch yellow pine. They double the problem of keeping the under side of roof dry. These facts on the subject of roofs also apply to drying rooms of coated paper molls. The heat that is lost from these concrete roofs is a very heavy and serious operating expense to the owner and is not compensated for, either by the fact that they may be cheap or durable. But if you add to the concrete roof, the cost of insulation on the outside, you can make a fine double roof. I wish to lay special emphasis on the elimination of vapor from the machine room, because I have observed that correcting these conditions where they are bound to be the worst results in a decided improvement in all other departments connected thereto. Today we can control the moisture in these machine rooms at any desired humidity. This is something new which is just now coming into use in paper mills. It is extensively used in the textile industry. In other words, you can maintain 30, 40, 50 or even 80 per cent. of moisture in the machine room at the will of the superintendent. He can change the setting every day, if he likes, to suit the weather.

Testing and Finishing Rooms.

If testing and fishing rooms are heated and ventilated by a fan system with air washer and humidifier, you can maintain a constant temperature and a constant humidity in summer and in winter. If this were done, it would be possible where paper has been accurately dried to retain a fixed moisture content in the finished product just as the moisture content in textile products is controlled within about one-half of 1 per cent. of a fixed point. Ideal conditions for finishing and testing are 70 degrees temperature and about 60 per cent. humidity. Under such conditions if the paper is in proper condition, it should neither pick up nor lose moisture.

First Cost.

All of the work described in this paper can be installed for less than 5 per cent. of the cost of paper machinery. I do not consider this much, when I know from experience that many installations have added 10 per cent. to the production of these mills by simply getting their machine rooms right. Paper mill ventilation is a safety first measure. Besides facilitating increased production, it saves deterioration of the mill, prevents slipping belts caused by moisture, and reduces possible dangers incident to men working in foggy atmosphere. If well done it will make for ideal operating conditions. The latest installations are reducing the steam used per ton of paper.

Operating Expense.

I judge that three-fourths of the ventilating systems, especially the vapor absorption systems, have been installed using about 80 per cent. heat in the shape of exhaust steam, which would otherwise go to waste. Thousands of pounds of exhaust steam are being utilized daily in various mills in this way. In spite of all the time and energy that has been devoted to economy and in spite of anything said to the contrary, one can go into any paper mill in the country and pick up anywhere from 50 to 300 or 400 horse power in the shape of low temperature waste heat, other than exhaust steam, that is of very little use for any other purpose than for drying and ventilation. I realize that this is a rather startling statement to make, but a little time will prove its truth by more extensive practical applications. By perserving, the manufacturers will be able to find these wastes; and be able to turn them into production by their proper utilization. The system of applying air to the sheet on the paper machine has now been used on machines making all kinds of paper from tissue to box board, and it is very successful. Let us hope to make better use of the opportunities afforded in this field, so attractive from a humanitarian and business standpoint and worthy of the aims of the paper manufacturers.

Accident Prevention --- Why and How

It is probable that during the last few years every employee in the pulp and paper trade has heard of Accident Prevention, which has been more or less commonly known as Safety First, but we wonder if each of us really understands the real reasons why the Accident Prevention movement was started, and why it has grown to such proportions in so short a time. Until recent years no statistics concerning the number of people killed and injured through accidents were available, and as accidents had not been analyzed as to their cause and as to the responsibility for them they were considered inevitable and in many cases "an act of God." But when we began to analyze these accidents, we found that many of them were due to the act of man and could be prevented.

Why—An accident is far reaching in its results. In the first place, the man who is injured is the one who is directly affected and he is the one who must suffer the physical pain. If there is a permanent disability, the injured man must go through life a cripple —with his earning power impaired. Next, his family suffers through worry, anxiety and the struggle to get along on the decreased income during the injured's period of disability. If the accident results fatally the family are the direct sufferers. In many cases it means that the mother of several children is left as their sole support and must take on outside work that she may support them and keep them in school as long as possible. At an early age the children leave school without the education that they otherwise might have had, that they may help eke out the family existence, and thus are handicapped throughout their lives.

It is to prevent the needless physical suffering of the injured, to keep sorrow, worry and anxiety out of our homes and to make them brighter and happier, and that our children may be better clothed, better fed and better educated, and to eliminate helpless human wrecks and cripples, that we want to prevent accidents. Is there anyone who is not personally interested in Accident Prevention? We think not.

An analysis of the accidents occuring to the employees of this Company during years 1915-16 has borne out the results obtained by the analysis of the accidents of other companies, namely, that eighty per cent of the accidents are due to the human factor and twenty per cent to the physical conditions of the property and equipment.

How then can accidents be prevented? According to our analysis twenty per cent of them can be prevented by remedying physical hazards. We can guard machinery and equipment, provide safe passageways and good floor conditions and otherwise remedy the physical hazards, but this will only prevent one-fifth. The other eighty per cent are entirely in the hands of the men on the job—the men who are injured or their fellow-workmen. In every instance the exercise of forethought, caution, and good judgment will help to eliminate accidents. Knowing this, is it not time that we awake to the situation, take this matter in our own hands and prevent these accidents that are occurring daily and all too frequently? In another column we show an analysis of the accidents as they have occurred in the various departments. A study of this analysis will show where the greatest number of accidents are occurring and where the most work needs to be done, but if there are **any** accidents in your department, and even though there has been none, this same degree of caution must be exercised in order to prevent accidents in the future. Therefore, study your work carefully, **think,** do the right thing at the right time. We will shortly do all we can to eliminate the mechanical hazards. Let us also do all we can to eliminate those accidents caused by indifference, thoughtlessness and carelessness.

Analysis.

A careful study and analysis of the accidents which occurred in the three mills during the years 1915 and 1916 has been made with the results below tabulated. It will be noticed that the greatest number of accidents occurred in the Wood Room, except at Espanola, where more occurred in the Machine Room; also that a large number occurred in the Wood Yard at the Soo and Sturgeon Falls. It will also be noted that the greatest number of accidents occurred to Paper Makers. In the causes of accidents the greatest number have been charged to "Caught between objects." This class of accident includes crushing of fingers between blocks of wood, between a block of wood and the machine, hands caught between trucks and doorways or side of cars, hands or arms crushed between rolls of paper. The class of accident, "Cut by knives," occur largely on the barkers. These are practically eliminated by the use of the drum barker. In every industry a large number of the accidents are caused by falls from elevations and with very few exceptions these accidents can be prevented only by the injured person. A careful study of these causes should be made by every employee and in a future issue further detail will be made regarding each of these causes.

How Accidents Occur.

Cause.	Soo Mill.	Espanola.	Sturgeon Falls.	Total
Caught between objects	53	29	31	113
Cut by Knives	25	13	9	47
Falls	27	8	6	41
Slipping and Tipping	22	7	2	31
Falling Wood and other Objects	14	4	10	28
Caught in Gears, Sprockets and Pulleys	13	3	8	24
Gaff-Hooks and Spears	19	..	1	20
Handling Tools	9	5	2	16
Caught in Winder	7	7	..	14
Caught in Rolls	4	6	1	11
Caught in Calendar	4	4	..	8
Floor Openings	2	2	2	6
Falling Laps	..	..	6	6
Replacing Belts and Chains	5	..	1	6
Falling Material	..	4	2	6
Sliver in Hand	3	1	..	4
Flying Objects	2	..	2	4
Caught on Set Screw	2	..	1	3
Nails	2	..	1	3
Struck by Fellow Workman	3	..	..	3
Moving Machinery	..	3	..	3
Locomotive Cranes	1	..	1	2
Electrical Contact	2	..	..	2
Hot Cinder	1	1	..	2
Emery Wheels	..	2	..	2
Struck by Governor	..	..	1	1

Kicked by Horse	1	..	..	1
Struck by Crank	1	..	..	1
Sliding Skid	1	..	..	1
Caught in Elevator	1	..	..	1
Breaking of Machinery	..	1	..	1
Steam Hose	..	1	..	1
	224	101	87	412

Where Accidents Occur.

Department.	Soo Mill.	Es-panola.	Sturgeon Falls.	Total
Wood Room	71	14	25	110
Machine Room	33	37	5	75
Grinder Room	34	16	11	61
Wood Yard	34	8	17	59
Finishing and Loading	20	9	1	30
Machine Shop	7	13	2	22
Press Room	3	..	14	17
Boiler House	8	2	5	15
Sulphite	8	..	2	10
Beaters	1	2	4	7
Board Mill	2	..	..	2
Engine Room	2	..	..	2
Generating Room	..	..	1	1
Cutter Room	1	..	..	1
	224	101	87	412

To Whom Accidents Occur.

Occupation.	Soo Mill.	Es-panola.	Sturgeon Falls.	Total.
Laborer	78	25	41	144
Paper Maker	28	34	..	62
Barker	38	6	15	59
Mechanic	19	16	10	45
Grinderman	18	14	7	39
Trucker	16	..	6	22
Foreman	11	3	..	14
Electrician	5	..	1	6
Fireman	..	2	3	5
Oiler	2	..	2	4
Chipman	3	..	1	4
Engineer	2	1	1	4
Teamster	2	..	..	2
Watchman	2	..	..	2
	224	101	87	412

SAFETYGRAMS.

Help prevent accidents.

Vigilance and watchfulness insure safety.

To avoid danger, adopt the safe course.

One careless act may cause a lifetime of suffering.

It is easier to do a thing right than explain why you did it wrong.

It doesn't require any intelligence to take a chance. It takes brains to be careful.

If you don't understand any part of your work, find out about it before it is too late.

A NEW ASSOCIATION.

For years past the Association of Wholesale Stationers has been in existence, and excellent work has been accomplished in working in conjuction with the Papermakers' Association and other organisations in promoting the interests of the trade and good relations with consumers.

It has been felt by the leading London houses closely identified with wrapping and like papers and boards that the original body viz., the Association of Wholesale Stationers, was not sufficiently comprehensive, that is to say, attention was more particularly given to the white branch of the industry and the brown trade was somewhat neglected.

During the war, the paper trade crisis, the necessity of representative action of all interests has been clearly demonstrated. In dealing with official bodies it is highly essential that any particular branch of the trade should speak with one voice, as little or no satisfaction is likely to result from individual action.

Wrappings and boards form — or did in pre-war days — a formidable item of import into this country, and the break in regular supplies, despite the laudable attempts of home mills to step into the breach, is likely to affect most disastrously a number of manufacturing and consuming industries.

The drastic regulations now governing imports, and the difficulties created in respect to licenses, combined with other matters, have led the wrapping and board interests to unite forces, and at a meeting in London on Tuesday last, it was decided to form the Wholesale Stationers' Association (Wrapping Paper and Board Section).

The objects of the Association will be to safeguard and promote the interests of the trade; to watch and consider all legislative measures and proposals. Government regulations or orders; to take concerted action if and when necessary; to affiliate with other like associations, etc., etc.

The new Association is being strongly supported by the London trade.

Mr. J. R. Brough has been appointed president; Mr. J. M. Dalton, vice-president; Mr. F. W. Berry, hon. treasurer. The members of the council (provisional) are Messrs. Coucher, Davidson, and Lindsay Poulter.

Undoubtedly there are many important matters that the Association will be able to deal with, and beneficial results are likely to be achieved by working in unity.—World's Paper Trade Rev.

ROLLING FRICTION IN S-K-F BEARINGS.

All good engineers are aware that rolling friction is far less than sliding friction. This is especially true in putting a load in motion. How the principal of rolling friction is applied to machinery bearings and hangers is told in the catalog of the Canadian S-K-F Company, Limited, Toronto, Ont. Besides illustrating details and installations of these bearings, the catalog contains much valuable information on lubrication, testing lubricants, measurement of transmission losses and several handy tables.

Copies of the catalog can be obtained from the S-K-F Company or the Canadian Fairbanks-Morse Co.

Finding Fires With Aeroplanes

By W. E. BOEING,
President, North-west Aero Club.

(In view of the great interest taken throughout Canada in the possible employment of the aeroplane in forest fire detection, the Canadian Forestry Journal reproduces a most interesting paper read by W. E. Boeing, President of the Northwest Aero Club, before the Logging Congress of the Western Forestry and Conservation Association at Portland, Oregon. There are included, also, the questions which were put to Mr. Boeing and the answers he gave.—Editor.)

"We will now take up the question of the feasibility of the aeroplane in connection with forest fire patrol. Under clear weather conditions the origin of smoke is very easily detected, in fact, smoke emanating from a chimney or bonfire often serves the pilot in determining the direction of the wind near the surface on which he is going to land, as it is good practice only to land coming into the wind. The presence of a minute amount of smoke is readily discernible from the higher altitudes, as it is one of the most conspicuous objects against the land which presents itself to the aviator when at a considerable altitude.

"In corresponding with the State Conservation Commission of Wisconsin, to ascertain the results obtained by L. A. Vilas, who volunteered his services and his machine for aeroplane patrol purposes in 1915, Mr. Moody, a member of the commission in reply enclosed copy of some notes which he read before the Forest Fire Conference at Boston last winter, which are of considerable interest. They are in part as follows:

Can See Sixty Miles.

" 'At an elevation of 1,500 feet on a clear day, a fire 60 miles away in any direction is visible to the naked eye. It is not a case of finding the fire, but to locate it correctly is the job. Smoke will show up very plainly from the air. Mr. Vilas reports that during a flight across Lake Hichigan from St. Joseph to Chicago, he was completely out of sight of land or anything for that matter for over three-quarters of an hour at an altitude of 4,600 feet. The first thing that he saw was the smoke from the Chicago rolling mills. This was in sight over ten minutes before any shore line was visible at all. People often ask what a country looks like from the air. It is difficult to describe it except that it looks like a large painted map on a small scale without section lines. The efficiency of an aeroplane in spotting a forest fire is without doubt as practicable as any use to which it could be put. I was very much surprised with what ease a fire could be spotted and located, and there is no question in my mind but what the aeroplane will practically do away with some of the observation towers.

" 'The use of the aeroplane in the European war in the way of spotting and locating gun fire, armies of men, supply trains, etc., is well known; all of which objects show up comparatively small in comparison with forest fires.'

"The observations of Mr. Vilas are most interesting coming from the only one who has actually undertaken work of this character.

Study Maps First.

"A pilot can familiarize himself very readily with the country which he has to patrol. A careful study of maps before making his first flight will give him a very good working idea of the country which he is to cover. After seeing the land from the air he should be thoroughly familiar with it, provided he has sufficiently studied his maps.

"The more conspicuous objects which are used from on high to determine location, are railroad lines, highways, streams and lakes. These are all shown on the maps and are very conspicuous from the air. As he becomes more familiar with his surroundings, building or groups of buildings and clearings, after they have turned brown during the late summer and early fall months, will also serve in determining location. It may be interesting to add that hills and mountains from the greater altitudes flatten out and look like level country, otherwise it is sometimes impossible to distinguish between forests and pastures. The aeroplane used for fire detection or fire spotting would be of considerable value in being able to penetrate by observation distant sections of the country which are sparsely inhabited and difficult of access, and where the chief menace probably comes from campers.

Wireless of Small Value.

"The use of the wireless has been suggested, but is not to be advised; it would only tend to add weight, complicate paraphernalia and require someone skilled in its operation. Owing to the speed at which an aeroplane travels and the resulting small amount of time required to return to a base to report, nothing would be gained by such an installation and would have no value in this particular connection.

"It is somewhat difficult to estimate the cost of an aeroplane patrol service, however, the following figures will throw some light on the subject: The initial outlay for each machine required in this service would be in the neighborhood of $8,000 to $10,000. In addition it would be necessary to provide housing and appliances for the maintenance at the station from which the machines would be operated. The building and appliances could probably be installed at from $50 to $1,500, depending upon their character and permanence. As the work done in this connection would be during the summer months, temporary housing of canvas might be sufficient, which would very materially reduce the expense. It would be advisable to maintain two machines from each base in order that there would be no interruption of the service. The approximate monthly expense of maintaining a station would be as follows:

Salary of aviator	$200
Wages two mechanics $100 each	200
Gasoline, 15 gals. per day, 30 days	90
Oil approximately 1 gal. per day	15
Miscellaneous supplies $20 and upwards.	20
Total	$525

"The above fuel and oil cost is based on two hours flight per day, or an average distance of 140 miles. Possible breakage to the equipment would also have to be considered."

Discussion.

Q. How would the roughness of our territory affect the proposition? As I understand it, one would not circulate aimlessly looking for fire, but make a fairly straight course high enough to see in all directions.

A. At a mile high a man could glide five or six miles, thus could reach one of two landings 12 miles apart.

Q. Would that be too high for locating fires?

A. No, about right. And he would want to be at least 3,000 feet on account of topography.

Q. How about mountain air currents?

A. We generally figure the air affected by obstacles on a plant surface to a height 2½ times the obstruction, but it would be nothing like that with mountains. I think by keeping abreast of the higher peaks there would be no trouble.

Q. A mountain lookout sees through a smoke blanket obliquely. Could an aviator, by looking straight down, penetrate smoke that would trouble our lookouts? If so, perhaps we could solve the weakness of the lookout system of detecting fires?

A. I have not had experience in smoke, but this is true of fog. Often when it seems very dense on the ground we can see through it from above.

Q. How fast must a machine travel to keep up.

A. It depends on the type; probably fifty miles an hour.

Q. What is the rate of depreciation on machines?

A. Possibly more than on Fords.

Q. Could a man go up every day for two months with reasonable assurance against breakdown or accident?

A. Oh, yes. The modern machine is about as safe as an automobile or boat unless you try to do something spectacular.

Q. How large an opening in the woods is required for landing?

A. Very few acres would do to land in, for you can spiral in coming down. It takes more room to get up again.

Q. How long would it take to get down and report after finding a fire?

A. Figure it 75 miles an hour to the reporting place.

Q. How closely could you identify the location of a fire?

A. I think the aviator would soon learn his country well enough to locate closely by reference to known landmarks. Topography appears flattened out to an aviator. He does not work by reference to hills and valleys like a man on the ground, but by having every other feature but these very much more evident than to the man on the ground. It is more like looking at a map. Buildings, roads, streams and openings are conspicuous, and their position with relation to each other is clear.

Q. How would you communicate when you found a fire; drop a message at a telephone point, or stop?

A. Both are practicable, but I should say best stop. Remember you wouldn't need a telephone at all landing places because it don't take long to fly 30 or 40 miles.

Q. Are electrical storms, such as cause many fires, dangerous to flyers?

A. They would not interfere at all.

Q. It still strikes me that this would be only an intermittent service. With the fixed lookout you can report immediately by telephone; you can probably get two bearings on the same fire and locate it accurately; you are there to get new fires as in the case of an electrical storm when I have known 19 to start one after another; and you are there all the time. The aeroplane begins to lose valuable time as soon as it finds the first fire. And as to the smoke obstacle, I think it has been exaggerated.

A. The point is that none proposes to replace the lookout system. The thought is that every protective unit may have an aeroplane as an auxiliary; not used at high expense when lookouts are adequate, but to help keep in touch with the situation in bad times when the whole system is overtaxed—when men on the ground are overworked, when lookouts cannot see, when the whole system is breaking down and we feel helpless. That is when fires cost money and when any help pays, even at high expense.

FORESTS DANGEROUS IN SPRING.

So far as Canadian forests are concerned, spring is one of the worst times. The dead leaves of last season and the dead twigs and branches on the ground are more brittle and dry in the first few days of spring just after the snow leaves than at any other time in the year. Those who go into the woods for any purpose are, therefore, cautioned to be careful with their camp fires and with matches. They should also see that any cigar or cigarette stubs are dead out before they throw them away. Observance of these precautions will do more for conservation than many meetings and conventions ten years from now and this duty is urged on all patriotic citizens.

Another cheap form of forest fire insurance is to break one's burnt matches before throwing them down. In this way one is immediately informed whether there is any possible danger of a flame later on. A moment's discomfort is well worth the saving of a life-time of regret.

FIREPROOF PAPER.

An English patent has been taken out by T. J. I. Craig and others, of Manchester, on a method of fireproofing paper. According to an abstract in Journal of the Society of Chemical Industry, in the process of rendering materials non-inflammable by means of sodium aluminum carbonate, these materials in which the proofing agent cannot conveniently be precipitated in situ, may be treated by mixing or coating with a preparation of the double carbonate.

ACCIDENT REDUCTION BY SAFETY FIRST CAMPAIGN.

A decrease of 33 per cent in the total accidents per 1,000 employees and 82 per cent in serious accidents per 1,000 employees is the result of the safety first campaign which was inaugurated at the Berwick, Pa., plant of the American Car & Foundry Company, July 1, 1913. The first six months after the safety department was established the monthly average of accidents per 1,000 employees was 52 and there were 17 serious accidents per month per 1,000 employees. For the first six months of 1916 these figures were reduced to 35 and three respectively. In the past three years there have been only two fatalities in the plant and permanent injuries are almost a thing of the past.

Technical Meeting Successful

(Despatch to Pulp and Paper Magazine).

NEENAH, Wis., May 25.—The eighth meeting of the Technical Association of the Paper and Pulp Industry, which has been held in Neenah the past two days came to a close this afternoon when one hundred and fifty men in this branch of the paper business left the city after having one of the finest gatherings in the history of the association.

The meetings yesterday at the E. F. U. hall were of deep interest to paper makers.

The morning session was taken up by the reading and discussion of committee reports. A lively interest was taken in the matters of abstracting literature, education and the formation of a new committee on Light, Heat and Power. Secretary T. J. Keenan announced a membership of 306. In the afternoon after a complimentary luncheon given by the pulp and paper makers of the Fox River Valley at Menasha. Mr. C. W. Rieser gave a talk on "Testing Sulphite Pulp." This created a lively discussion. The Association then visited the plant of the Fiber Textile Co. and saw paper rugs manufactured, after which a demonstration lecture was given in the laboratory on a new method for determining bleached and unbleached sulphite. This paper was prepared by Mr. C. G. Bright and read by Mr. Paulson. Last evening the gentlemen gathered around the festive board at the Valley Inn where the annual banquet was held. The choicest menu was served after which F. J. Sensenbrenner called the meeting to order and welcomed the gentlemen to the new hotel and to the city. He introduced H. P. Carruth, of Holyoke, Mass., president of the association, who acted as toastmaster.

S. F. Shattuck was introduced and gave a very fine talk on "Safety First and Human Development in Paper Mills." The talk was full of timely suggestions for the safety of the employer and employe.

Others called upon to give short talks were Ernest R. Behrend, of Erie, Pa.; G. H. Harvey, of Middleton, O.; Dr. Hugh P. Baker, dean of New York College of Forestry, of Syracuse, N. Y.; Dr. Otto Kress, of the Forest Product Laboratory, of Madison, Wis.; H. E. Fletcher, of Alpena, Mich.; W. J. Lawrence, of Kalamazoo, Mich.; Fred Curtis, of Dayton, O.; and O. F. Bryant, of the Canadian Forest Laboratory, of Montreal, Canada. Each spoke on certain phases of the technical association, its benefits and work.

On Motion of Secretary Thos. J. Keenan, of New York, a rising vote of thanks and appreciation was extended to the members of the Kimberly-Clark Co. and other paper makers of the Fox River Valley for the fine time enjoyed and the success of the meetings. Three cheers for Neenan and these gentlemen were given.

Those of the gentlemen who did not attend the meetings made themselves at home about the beauty spots of the city, giving high praise to this locality. Many of them took advantage of the opportunity to see the several manufacturing plants and went on tours of inspection, finding many interesting places to visit.

After breakfast this morning the visitors were taken to Kimberly and Appleton to inspect the mills after which a lunch was served at the Sherman House.

Following the luncheon the party divided. Some went to the Fox River Valley and other paper mills while the rest enjoyed a concert by the Minneapolis Symphony Orchestra as guests of Mr. Thos. W. Orbison.

Our group leaves tonight in a special sleeper for Madison to inspect the Forest Products Laboratories, while other special cars go to Chicago with those bound East.

There were nine representatives from Canada, Mr. Mures of Hawkesbury, Messrs. Mason and Wardle of Grand Mere, Mr. Taylor of Sault Ste. Marie, Ont., Mr. Thickens of Bathurst, Prof. Keay and Messrs. Bryant, DeCew and Stephenson of Montreal.

SUMMER MEETING OF TECHNICAL SECTION.

Through the invitation of three of the paper mills operating in the St. Maurice Valley, the Technical Section will have the opportunity of meeting together and visiting the plants of the Laurentide Company, the Belgo-Canadian Pulp and Paper Company, and the St. Maurice Paper Company.

It is planned to travel together in two special cars and diner, which will be attached to the various trains covering the points visited. The revised schedule is as follows:

Leave Montreal at 11.55 p.m., June 14th.
Arrive at Three Rivers 3 a.m., June 15th.
Visit the St. Maurice Paper Company plant.
Leave Three Rivers 12.50 p.m., June 15th.
Arrive Grand'Mere 2 p.m., June 15th.
Visit to the mills of the Laurentide Company; dinner at the Laurentide Inn.
Leave Grand'Mere 7.10 a.m., June 16th: arrive Shawinigan Falls 7.30 a.m., June 16th.
Visit to the mills of the Belgo-Canadian Pulp and Paper Company; leave Shawinigan Falls 2.15 p.m., June 16th, arriving at Three Rivers 3.10 p.m.
Leave Three Rivers 3.28 p.m., arriving at Montreal 6.15 p.m.

Through the courtesy of the companies who are acting as hosts, it has been arranged to serve meals on the train so as to avoid inconvenience of changing at junctions.

So that arrangements may be satisfactory to every one it is necessary that each member advise the Secretary on the special card that has been sent out, as to his intentions.

The last gathering was so successful in every way that the Technical Section may look forward to a two days trip well spent in the exchange of ideas and discussion on subjects of mutual interest.

APRIL PRODUCTION.

Canadian mills during the month of April produced 257 tons per day more newsprint than during April, 1916, despite the fact that relative productive capacity this year was only 100 tons more per day.

The demand for newsprint in the United States increased, but the supply was diminished, mills declining about 20 tons per day in their output.

English books may soon appear in paper covers, owing to the high cost in strawboard and a famine in cloth for binding purposes.

The Great Northern's Great Dam

By LAWRENCE T. SMYTH.

A MILLION-DOLLAR dam that combines three lakes and four ponds into a miniature inland sea has just been completed in the remote heart of the Maine wilderness for the Great Northern Paper Company. This corporation has big mills at Millinocket and East Millinocket, owns a million acres of timberland, employs thousands of paper makers and woodsmen, and produces about 500 tons of precious news print daily. The company expects to double its output within ten years—and the dam is part of the program.

This dam is regarded as an engineering wonder work. In the first place, no railroad runs within forty miles of the site. The 26,000,000 pounds of cement, the thousands of tons of iron and all the other materials had to be hauled through the woods from Moosehead lake to the head of Ripogenus Gorge, on the West Branch of the Penobscot river, a distance of thirty-one miles. To make this transport possible, the entire summer and fall of 1914 were devoted to the complete rebuilding of the old corduroy "tote" road from Moosehead to the West Branch. It is now a broad, smooth highway hardly surpassed in all Maine. Over this forest avenue a fleet of seven five-ton motor trucks have been engaged since the early spring of 1915, in carrying materials for the big dam and supplies for the hundreds of men employed in the construction gangs.

The Ripogenus barrier rears its huge mass of reinforced concrete in striking contrast with its rugged setting. It is nearly a thousand feet long, 75 feet from base to spillway and 92 feet in total height. The upper seventeen feet were added to make an ornamental bridge with a sixteen foot roadway across the top of the structure. The dam is 64 feet thick at the base and tapers to eleven feet at the top. Standing at the head of Ripogenus Gorge, a narrow canyon through which the turbuelnt West Branch of the Penobscot rushes upon leaving Ripogenus lake, the towering pile of concrete will, when its gates are shut, create a new "head" of seventy-five feet. It will roll back the floods for forty miles up the river and merge Ripegenus, Chesuncook and Caribou lakes with four big ponds into one body of water, twenty-five miles and nearly fifty square miles in area. The land thus flooded was two years ago covered with a dense forest, and sporting camps were scattered about it. Forests have been leveled, and the camps demolished to make way for the deluge. Within a few weeks land spacious enough for the building of a city will be submerged and commerce will have placed a new lake on the map of Maine.

Primarily, the dam was intended for storage, as a giant barrier to prevent the Penobscot's vast floods from running away uselessly in the spring. It will save the water from gradual release in the dry months of summer and early fall. For generations there have been spending money lavishly in the creation of storage much water in spring and too little in summer; for years the great pulp and lumbering corporations have been spinding money lavishly in the ceration of storage basins to remedy the situation. The reservoir that has been created by Ripogenus dam is the greatest dam in Maine, 4th largest in America and 7th largest in the world. It will increase the water storage capacity of Penobscot system by upward of 25,000,000,000 cubic feet.

Useful as this hoarding of water will be in keeping up the pitch needed for the operation of the mills at Millinocket, 35 miles down the river, and in insuring plenty of water for the log drives, there is another interesting aspect of this Ripogenus enterprise. Vast power is to be developed there. In the three miles between the dam and the foot of the gorge there is a drop of nearly 270 feet. The gorge is very narrow, crowding the river between solid rock walls that vary from twenty to one hundred feet in height. It forms a gigantic rock sluice through which the Penobscot rages furiously on its course from the lakes. It is proposed to utilize the force of the water's fall by cutting a tunnel through the hills at one side of the gorge—a monster penstock driven through the rock to carry the water directly from the dam's high level to the wheel pits of power houses at the gorge's lower end. The power that would be developed would run all the mills on the Penobscot river.

Maine railroads in normal times spend from $2,000,000 to $2,500,000 annually on coal. At the lesser figure of two millions, the railroads pay for coal every year a sum equal to five per cent upon forty millions of dollars—and forty millions of dollars would pay enough hydro-electric plants to run twice the number of trains now operating in Maine.—The Nation's Business.

BRITISH PAPER MAKERS NEED SCIENCE.

The question of mill costing is closely engaging the attention of the various Paper Associations in the United States. We have on previous occasions pointed out the need for scientific method and accuracy in the matter of arriving at mill costs for the various departments and operations. In our own mills the costing is worked out too much by guesswork and rule of thumb. The future development of the papermaking trade is largely dependent on the control of production and cost. Without going the whole hog of sicentific management, which in its most drastic form plans the movement of the man and machine, it must be admitted that there is a distinct necessity for the adoption of some measure of scientific application and control in the smaller mills of this country.

We do not lack, and never did lack, the services of fully trained and extremely capable paper mill operatives, but what we have never fully grasped is the need for qualified chemists and technical managers. Progress in the near future will principally consist in the increase of production per man and per machine, the economy of material and by-product, the application of new discovery and improvement, and the development of the specialist. The basis af this all-round development will rest essentially on the systems or costing, recording and control. These matters, along with others, such as the establishment of research colleges and training and testing institutes for the papermaking trade, should be planned in advance of the war's end to come into direct services immediately the shackles of industry are released.—H. A. M. in World's Paper Trade Review.

GET INTO PAPER GAME IF YOU WOULD LIVE LONG.

It would seem that the one way to enjoy a remarkably long, busy and active life is to have something to do with the manufacture, sale, handling, or printing of paper of any kind, whether it be news print, book, writing, bond or ledger.

At first, this may seem a rather extravagant statement to make but when one considers the veterans who are identified with paper and print shops in Canada, the truth of the assertion that paper conduces to length of days and happy, energetic old age is self evident.

Here is a partial list–Sir Mackenzie Bowell, publisher of a newspaper, is now in his ninety-fourth year and the only living charter member of the Canadian Press Association, which was organized fifty-nine years ago. He has been going to work every day in the Belleville Intelligencer office for the unparalleled period of eighty-four years, starting in as a printer's devil when ten years of age. In addition to his newspaper labors, Sir Mackenzie attends to his legislative duties in the Senate at Ottawa and is taking part in the great production campaign, by cultivating a garden at his home in Belleville, and every fine morning is out with his hoe and rake.

Next comes J. R. Booth, of Ottawa, the millionaire manufacturer of paper, who is in his ninety-first year and as vigorous and aggressive as he was at fifty. He has been in business for himself in the capital city for over sixty years.

Richard Brown, head of Brown Bros., Limited, stationers, account book manufacturers and book binders, Toronto is in his eighty-fourth year and has been coming down to his own business for over sixty years.

Rev. Dr. William Briggs, book steward of the Methodist Book and Publishing House, Toronto, the largest concern of its kind in the Dominion and the pioneer publishing firm in Toronto, is on the job every morning and afternoon and is in his eighty-first year.

Adam Brown, post-master of Hamilton, for over a quarter of a century, has been handling paper, dailies and weeklies and letters since 1891, and before that wrapping paper when he was in the wholesale grocery line. He is in his ninety-second year with no thought of retiring.

George H. Millen, President of the E. B. Eddy Co., Hull, Que., now in his seventy-ninth year has been making all kinds of paper for over fifty-one years, and a visitor can find him at the office every day.

Another pioneer in the paper arena is William Southam, of Hamilton, who is in his seventy-fourth year and has owned the Hamilton Spectator ever since 1877. He and his sons who are widely known to the printing and publishing trade, have a controlling interest in daily newspapers in Edmonton, Calgary, Ottawa and other places, besides operating large job establishments.

W. R. Davis, another veteran, has been proprietor and editor of the Advocate, Mitchell, Ont., for fifty-seven years and only withdrew the other day owing to ill health. He is in his seventy-sixth year. The business will be carried on by his son H. D. Davis.

Of the eight gentlemen mentioned, Messrs. Bowell, Booth, Adam Brown, Richard Brown, Rev. Dr. Briggs, Millen, Southam and Davis, the latter although one of the youngest is the first to retire. The others are all enjoying good health, and after long periods of service, which put to blush the records of the present day when men step aside after thirty and forty years, association with an institution, they have no thought of letting go and still find pleasure and contentment in their daily work.

While there may be other avenues of employment and investment, which yield larger monetary returns than the paper game, there is evidently none so conducive to continuation of days and sprightliness of disposition. If one doubts this assertion let him again look over the roster and ask Sir Makenzie Bowell at ninety-four, J. R. Booth at ninety-one. Adam Brown at ninety-two, Richard Brown at eighty-four, Rev. Dr. Briggs at eighty-one, George H. Millen, at seventy-nine and William Southam, at seventy-four. It must be the healthy smell of printers' ink and the making, handling or sale of paper that invigorates the physical frame of these gentlemen, whose elasticity of step and erect bearing as they go to and from duty, with never a thought of a prolonged holiday, that causes them to be the wonder and admiration of their friends. They all demonstrate that the strenuous life and daily grind, of which so much is heard, does not tend to shorten the earthly pilgrimage if one will only get into the paper game in some form or other.

FUTURE PAPER MILL CHEMISTS.

The paper mill of the near future will be more reliant upon its chemists than has hitherto been the case. Economy, efficiency and development will be attained through the introduction of paper mill chemistry, helped by mechanical science. There is ample and accumulating evidence that the struggle for commercial supremacy, interrupted by the war, will be renewed after the coming of peace with a fierceness and energy equalling anything displayed in the war. Education will win, provided that it is backed up by character. As we now stand, we have the character, but lack the education. Germany has the latter, but lacks the former. Let the Government solve the education problem, but let the paper trade fix its own ideals in the trade application of education. Scientific papermaking will ultimately command the world's market.

INDUSTRIAL ACCIDENTS IN PENNSYLVANIA IN 1916.

Eight deaths every day, exclusive of Sunday and holidays, was the approximate average toll of industrial accidents in the State of Pennsylvania in 1916. According to reports made to the Bureau of Statistics and Information of the Pennsylvania Department of Labor and Industry, the total number of killed and injured workmen was 251,488 of which 2,587 died from the injuries. The records for the year show that on an average approximately 215 industrial workers were killed every month as a result of industrial accidents in the State and almost 21,000 others were injured. The greatest number of fatal accidents occurred in the month of October when 287 workers were killed, and the total number of workers killed and injured was largest in March, the figure for that month being 26,971.

School children should be taught fire prevention.

Balsa wood, found in Central America, is said to be the lightest known wood. It is lighter than cork and has an average specific gravity of only .104.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Sawdust for Fuel Purposes.—Thomas Wilson, Timber Trades J., oVl. 81, (1917), No. 2, 122, p. xxi, from Eng. Survey. — Describes three boiler plants of the Singer Manufacturing Co., with a total of 8,016 boiler horse-power, in 18 units, consisting mostly of small water-tube boilers provided with plain grates and arranged for burning coal and sawdust. The method used obviates danger of unevenness of the fuel supply and excess of either air or fuel. A super heat of 560° F. is attained; an evaporation of 4.33 lb. of water per lb. of fuel as fired, and an equivalent evaporation per lb. of fuel from and at 212°F. of 5.09 lb. of water. The efficiency of boiler and furnace combined, based on dry fuel, was found to be 64.9%. Diagrams are given.—H. N. L.

Forest Tree Planting Camp.—J. S. Illick, J. of For. Vol. XV, (1917), No. 4, pp. 394-409.—Tree planting has increased greatly in the U. S. in recent years. In 1916 more than 80 million trees were planted for forestry purposes. During 1916 the state of Pennsylvania operated 11 camps, which set out 2,781,540 trees at a total cost of $13,499. Such problems as the proper location of camps, organization, supplies, species of trees to plant, and the like are fully discussed.—H.N. L.

Computing Volumes in Period Allotment. — T. S. Woolsey, J. of For., Vol. XV, (1917), No. 4, pp. 431-4. —H.N.L.

Determining the Quality of Standing Timber.—Swift Berry, J. of For., Vol. XV. (1917), No. 4, pp. 438-445. The quality of the stand, as measured by the grades of lumber it will produce, is one of the most important entering into the appraisal of the stumpage value of a timber tract. On the basis of mill-scale studies, in which logs are scaled and graded and a record kept of the amount and grades of lumber sawed from each log, tables are drawn up. With these tables an appraiser may examine sample strips and secure much more accurate results than by such methods of guessing as are often used.—H.N.L.

Reproduction of Black Spruce.—W. H. Kenety, J. of For., Vol. XV, (1917), No. 4, pp. 446-8.—A cereful investigation showed that black spruce naturally reproduces by layering, not by seedlings.—N.H.L.

A Decimal Classification for Forestry Literature.—C. F. Korstian, J. of For. Vol. XV., (1917), No. 4, pp. 449-62.—A complete systematic scheme for the classification of forestry data.—H.N.L.

New Patents.—(Courtesy of Chemical Abstracts).—**Acid solution of magnesium sulfite for extraction of cellulose.**—J. L. Jardine. Fr., 480,933, Oct. 10, 1916.—In a process of preparing an acid solution of $MgSO_3$ for use in extracting cellulose from fibrous vegetable materials, the liquid is maintained, during the formation of the solution, at a temperature so high that the SO_2 dissolves only a desired portion of the base, greater than that which is dissolved at the normal temperature (10-21°).

Safety paper.—E. E. Schmidt. U. S., 1,217,076, Feb. 20.—Safety paper suitable for use for checks and other valuable documents is formed by impregnating paper with ox-gall, $MgSO_4$ and $K_4FeC_6N_6$ which gives an indelible combination with ordinary commercial writing inks.

Extracting alcohol from the sulfite lye.—Aktieselskabet Sulfit-Sprit. Holl., 1,763, Jan., 15, 1917. — To the lye is added milk, skim milk, or whey, then the mass is slightly acidulated, heated, the casein-lignin precipitate filtered off, acid is added to filtrate, and the liquid heated to hydrolyze, cooled to fermenting temperature, and fermented with ordinary ferment.

Obtaining volatile products from sulfate lyes.—O Olsson. Swed., 41,755, Dec. 27, 1916. — The sulfate waste lyes are concentrated in multiple apparatus, and the uncondensed vapors are removed from suitable points in the evaporator and led to a condenser. The condensate is further treated to extract valuable products.

Dull-finish paper coating containing barium sulfate.—R. H. McKee, U.S., 1,216,338, Feb. 20. — Inferior grades of $BaSO_4$, pigment which would give a glossy coating on paper are converted into dull-finish pigment by treatment with concentrated H_2SO_4 (which exerts a partial solvent action on the particles) and by gradually diluting the acid before separating the pigment from it. The smaller particles of $BaSO_4$ are dissolved by this treatment and reprecipitated on the larger particles.

Tests for alum, rosin, rosin size and bleach. Max Cline. Paper Vol. 18, No. 9, pp. 11-15 (1916).—Provisional analytical methods of the Tech. Assoc. of the Pulp & Paper Industry are as follows: **Aluminum sulfate sampling**: Sample 5% of the packages in case of ground alum. Chip 12 pieces from an ingot in case of ingot alum. Insoluble matter. Dissolve 25 g. in 200 cc. hot distilled water, filter by suction, dry and weigh. Al_2O_3 and Fe_2O_3. Dilute filtrate from above to 500 cc. Take 100 cc. and dilute to 500 cc. Remove 50 cc. of this and dilute to 150 cc., precipitate with NH_4OH in the usual manner, ignite to constant weight over a No. 4 Meker burner or blast (about 30 min.) and weigh. **Iron**: Take by pipet 100 cc. of the diluted filtrate from the determination of the insoluble matter, reduce in Jones reductor and titrate with $KMnO_4$. For alums containing less than 0.1% iron a slight modification of the colorimetric method of Stokes and Cain (**J. Am. Chem. Soc.** (29, 409-47 (1907)) is recommended and described. Sulfuric anhydride. Precipitate a 50 cc. portion of the filtrate from the determination of insoluble matter (after dilution to 200 cc.) with $BaCl_2$ in the usual manner. Free sulfuric acid. See **J. Ind. Eng. Chem. 7,** 1059. **Analysis of rosin**: Sampling. Sample 5% of the bbls. and reduce to 2 lb. laboratory sample. Grade. Cast into cube in an Aluminum mold after melting at low temperature and compare to standard sample. Dirt and foreign matter. Dissolve 25 g. in warm alcohol and filter through tared paper. Saponification no. Boil 2 g. 2 hours in 300 cc. Erlenmeyer flask with 25 cc. o.5 **N** KOH, using reflux condenser and shaking frequently. Titrate the unconsumed KOH with o.5 **N** acid. In each case run a blank on the KOH solution. Acid no. Titrate 1 g. rosin dissolved in alcohol with 0.5 **N** alcoholic solution. of KOH, using phenolphtalein. Unsaponifiable matter. Saponify 5 g. rosin by boiling 2 hours with an excess of 0.5 **N** alcoholic solution of KOH. Evaporate most of the alcoholic, add 100 cc. water and extract in a separatory funnel with acid-free ether as in the determination of free rosin in rosin size. Ash. Ignite 5 g. in Platinum to a white of light gray residue.

UNITED STATES NOTES

The New England Paper Jobber's Association held a meeting last Thursday, May 24th, at the Boston City Club. Aside from the regular business, President Proctor gave some interesting information concerning the "Liberty Loan." President Proctor recently attended a meeting of representatives of various lines of business, called by officers of the Federal Reserve Bank for the purposes of explaining the real status of this loan and he explained to the members of the paper trade the patriotic call for subscriptions and the necessity for making it easy for their employees.

The National Sulphur Company has just been incorporated at Hornell, N.Y., to manufacture and refine sulphur and to deal in chemicals. The capital is $900,000, and the incorporators are: C. B. Zabriskie, 119 E-19th street; H. L. St. John, 270 Riverside drive, New York City; A. E. Beggs, 876 Carroll street, Brooklyn.

It is understood that the Huthworth Paper Company, of Mittinlagne, Mass., will hereafter run its plant entirely by electricity, and steam will be used only for heating purposes. The contracts for the change in equipment have been let.

Arthur A. Coffin, of Chelsea, Mass., has been appointed research chemist in the laboratories of the West Virginia Pulp and Paper Company, 200 Fifth Avenue, New York.

The Nashua Gummed and Coated Paper Company, of Nashua, N.H., on Monday, may 21, advanced the wages of more than 700 employees of the two mills. It is the second advance the company has given this year, the other being last January.

The National Paper Trades Association held a meeting on May 22, at the Waldorf-Astoria, New York City. Only members of the Association attended. It is understood that only general conditions of the paper and pulp market were discussed.

Advices from Kaukanua, Wis., state that the Badger Tissue Mills have taken over the entire outfit of the Kimberly, Clark Company, of Neenah, Wis., consisting of machinery used in the manufacture of toilet paper and paper towels. The Badger Mills will build a large addition to take care of this new equipment, which means that their output of paper towels and toilet paper will be considerably increased.

The Snyder pasteboard plant of Albany, N.Y., was destroyed by fire several days ago. The loss was estimated at about $90,000. The blaze originated in a paper storehouse and is believed to have been the work of an incendiary.

The Hampton Roads Paper Company, Inc., of Richmond, Va., has amended its charter so that its capital stock can be increased from $50,000 to $100,000.

The Ryther and Pringle Co., of Carthage, N.Y., is building a rossing plant on wheels after the Meig's Pulpwood Company, of New York, to be used in the Adirondacks and Canada. The equipment consists of machinery on a train of three cars, which can be shifted from place to place to suit convenience. The first car is a regular boiler house outfit and is known as the power car. It is equipped with a 150 horsepower boiler, a compound engine with a direct connecting generator of 75 K.W. capacity, switch board, water tanks, steam pumps, etc. The second car is a combination of slasher and storage. The third car is equipped with 4 foot motor driven rossing machines. This wood is delivered to the rossers from the storage car by conveyors, and a second conveyor delivers the rossed wood to cars ahead.

Two storage buildings of the Winona Pulp and Paper Company of Winona, Minn., were destroyed by fire several weeks ago. The origin of the fire is still unknown, but it is reported that a man was seen running away from the building shortly after the flames were discovered. The loss is estimated at $10,000.

The annual meeting of the St. Regis' Paper Company was held at Watertown, N.Y., on May 21. The stockholders elected the following: Floyd L. Carlisle, Dewitt C. Middleton, David M. Anderson, Frank A. Empsall and Celestine C. Burns, all of this city, and Alvah Miller, William K. Dick, Jonathan Bulkley, and J. Adolph Mollenhaur, of New York. The directors later elected: Floyd L. Carlisle, president; Alvah Miller, vice-president; Frank A. Empsall, treasurer, and C. C. Burns, general manager.

The Champion Paper Company at Carthage, N.Y., has just started extensive improvements at its plant. When the work is completed the capacity of this mill will be greatly increased. Ground has also been broken for the adding of a two-story concrete addition which will house four new grinders. Two of these will be installed at once while the other two will be added later.

The Ideal Coated Paper Company, of Brookfield, Mass., held its annual meeting in that city recently and elected the following officers: President, and Secretary, William Wallace MacLaurin; Vice-President, George Goodsir; Treasurer, John MacLaurin.

James W. Sewall, of Oldtown, Me., is starting out crews for the summer work. He has sent recently R. L. Whitney with a number of men to make a survey of townships on the lower Allegash waters in Maine. Mr. Whitney reports but little snow left in the woods in spite of cold weather. Mr. Sewall says this season is opening up even more busy than last and last year was his banner year. The war has apparently had little effect on active interest in wild lands, especially in pulp lands.

News despatches from Detroit, Mich., state that The Central States Paper Dealers' Association and the Michigan Press Association, held a joint smoker on Saturday night of last week at the Cadillac Hotel, in Detroit.

The U.S.A. Department of War has seen fit to place the paper industry in the catalogue of non-essential industries for war purposes. This means that the government does not recognize employment in this industry as an adequate excuse for non-enlistment, and in the event of actual necessity all men will be subject to conscription.

The first American daily newspaper was published in Philadelphia in 1784.

SAY FUTURE OF AMERICAN DYE INDUSTRY IS AT STAKE—QUESTION OF PRICES CONCERNED.

(Special by ROWLAND W. JOLLY).

New York, N.Y., May 26, 1917.

Many branches of the trade are interested in the efforts of the Manufacturing Chemists' Association to secure additional legislation in the War Revenue Bill, putting protection on the following classes of dyes: Specific natural and synthetic alizarin and dyes obtained from alizarin, anthracene carbazol, and natural and synthetic indigo and all indigoids, whether or not obtained from indigo. According to the plea of the chemists, the future of the dye industry is largely dependent on the action taken with regard to these colors and, incidentally, future prices on a great many dyes used by the paper trade are said to hinge on this question.

To encourage the dye industry in this country, the paper trade, with other trades interested, last year used its influence to enact into law a bill imposing 30 per cent duty on colors and dyes. This law imposed for a period of five years or more a special duty of 2½ cents per pound on intermediates and five cents per pound on finished colors and dyes, but an exception was made of the dyes mentioned above.

In a brief field with the Senate Finance Committee, the organization states that the class of colors thus excepted from the operation of this law constituted 27 per cent in money value of all the dyes sent out from Germany to the United States in 1913 and German exports alone represented more than 80 per cent of the American consumption of all colors in that year. "The colors thus excepted to the manifest advantage of foreign color makers," the brief states, "come into direct competition with the alinine colors. Dr. Beckers testified before the Ways and Means Committee at their hearings on the bill that it must not surprise you to find that German ingenuity has developed this line of colors (alizarin) lately to such an extent that the importations grew, as per table of commerce and navigation from 3,163,487 pounds in 1911, to 5,448,749 pounds in 1912, and 8,186,592 pounds in 1913, or in money value to about one-third of the whole importation of coal tar dyes. These alizarin and alizarin derivative colors coming in duty free are gradually replacing the aniline colors which are under 30 per cent duty. You will see, gentlemen, that we, before long, will arrive at a point where the European manufacturers will be in a position to import these highly manufactured products of their chemical plants in quantities sufficiently large to supply the greatest part of the requirements of this country and crush the American manufacturers to the wall."

"The duties provided by the act are, at best, barely sufficient to offset in normal times, the handicap of German priority and pre-eminence. The range of duties as fixed upon the anilines was adopted with the approval of representatives of the consumers of this country as being just sufficient to offset the German advantages of labor costs and the like. As for the color manufacturers themselves, some are hopeful that such will be the case, but many others are of the opinion that these duties are insufficient even in the case of anilines. Time only will tell. But all will agree that if makers of anilines are now to be made to meet the competition of these excepted colors paying no surtax, the whole scheme of dyestuffs protection will have been jeopardized. The industry is in a particularly promising condition at this moment, because, owing to the cutting off of all foreign supplies through the war and the consequent high prices, manufacturers have been able for the first time to make colors from start to finish, and to lay the foundations for a permanent industry both as regards colors and as regards high explosives. But these promising efforts are likely to be subverted if the aniline colors to be protected only for five years under the act are to be exposed after the war to the competition of this excepted class of colors not paying the protected surtax. We venture most earnestly to express the hope that this very intelligent and promising effort to establish the coal tar industry in this country be made effective and logical by the striking of the exception in the section complained of.

COMPLIMENTS FROM JAPAN.

That "the resources of Canada are boundless and that Canadian Pulp Mills far surpass those of any other country as regards equipment and output," was the remark made yesterday by Mr. Kikuro Goto, a pulp and sulphite engineer of Tokyo at the Chateau Frontenac, to the Telegraph.

Mr. Goto, is taking a course in electro-chemistry at the Columbia University and during his stay on the American continent is visiting the important pulp mills both in Canada and the United States. Mr. Goto further says "the concentrated labor condition is a factor that is in favor of Canada. The American market cannot compete with the Canadian market as the forest wealth and also the wage question, which is paramount, tend to make Canada the greatest pulp producing country in the world.

"Our country and other countries realize the great advancement that Canada has in this way and therefore our big companies send men over here to acquire your perfect methods of handling this commodity.

"While our pulp resources are also great, still the supply at the present time is greater than the demand and the peculiar market conditions enable us to ship pulp to the United States. We buy a great deal of our raw pulp in British Columbia and manufacture it in the finish product which we export to China and other near-by countries, but as I mentioned to you before, the enormous price of newsprint paper in the United States has opened another market for us."

FOREST FIRES RAGING.

Forest fires, raging all through the organized and unorganized districts around Fort William and Port Arthur, are destroying large areas of timber and uncut pulp wood. Bush fires have been raging in fully a hundred sections west of Fort William since last week, and great strips of forests in the unorganized sections of Commee and beyond have been left blackened wastes.

Frank Wise, of Toronto, manager of the Macmillan Co., of Canada, Limited, publishers, attended the recent Win-the-War Convention in Montreal. It was decided to make the organization permanent and the new name is to be The Win-the-War and Canadian Unity League. Mr. Wise was honored by being made secretary of the league.

PULP AND PAPER NEWS

The Kinleith Paper Co., St. Catharines, are having the old wooden floors of the two machine rooms torn up and replaced by reinforced concrete. W. J. Trimble is the contractor.

The many friends of Mr. T. A. Weldon, of the Provincial Paper Mills Co., Ltd., will be sorry to hear that he is not his happy usual, having contracted a cold which confined him to his home for a day or so.

Mr. Kikuro Gota, of the Mitsubishi Paper Mills, Takasago, Japan, was a visitor at the "Montrose Division" of the Provincial Paper Mills Co., Ltd., last week. Mr. Gota has been travelling through the United States for the past seven months, with the purpose of procuring ideas, and investigating the latest methods in the manufacture of pulp and paper. Before returning to Japan he intended making a call at some of the larger mills in Canada. He bore a letter of introduction from the firm of F. C. Huyck & Son, Albany, N.Y.

This week's casualty list contains the name of Pte. J. F. Marsland, who was formerly employed by the Kinleith Paper Mills. He died of congestion of the kidney on May 11th, somewhere in France. His father is at present employed at the mills.

The mills bordering the old Welland canal will be closed down on Saturday, June 2nd, at midnight, for a week or ten days, when the water will be drawn off for its annual repairs. Many of the mills are planning to take advantage of the shut-down for repairs to race-ways and inside work, which they could not do at any other time. Some of the mills are also planning to keep their finishing departments running by securing outside power.

Good progress is being made with the construction work of the sulphite mill of the Port Arthur Pulp and Paper Co., Port Arthur. The foundations have all been poured and this week brick work started.

Extensive improvements and repairs are being made to the plant of the Don Valley Paper Co., Toronto, which has been closed down for a few days but will resume operations next week.

Duncan Chisholm, Toronto, President of the Mattagami Pulp and Paper Co., and E. P. Shove, of Colorado Springs, Col., Vice-President of the Company, have returned from a visit to the plant at Smooth Rocks Falls, on which splendid progress is now being made with the construction.

J. J. Carrick, M.P., and Lieut.-Col. Hogarth, of Port Arthur, spent a few days in New York recently in connection with the large pulp mill which Mr. Carrick will soon erect at Port Arthur.

It is understood that good progress is being made by those interested in the erection of a hundred and fifty ton pulp mill at Fort William on the site adjoining the government railway docks. A charter will soon be applied for, and the work proceeded with. A hundred tons newsprint mill will also be erected and a sulphite mill of like capacity.

In addition to the half yearly dividend of three per cent, the Toronto Paper Manufacturing Co. has declared a bonus of two per cent on the stock for the six months ending June 30th next.

The plant of the Provincial Paper Mills at Mille Roches will be overhauled in a few days. The drive for the 136 inch machine will be changed and a new suction roll installed on the Fourdrinier, as well as other improvements carried out.

In the big Y. M. C. A. campaign in Toronto last week to raise $200,000 funds, to continue its service at the front and in the training camps, among the paper and paper box men, who were team captains and worked enthusiastically were: F. L. Ratcliff, of the Ratcliff Paper Co.; T. Albert Brown, of Brown Bros., and A. Jephcott, of the Dominion Paper Box Co., Toronto.

V. T. Haney, sales manager of the Rolland Paper Co., Montreal, spent a few days in Toronto this week, calling upon the trade.

A. G. Pounsford, general manager of the Port Arthur Pulp and Paper Co., Port Arthur, Ont., was in Toronto this week on business.

The many friends of T. H. McDermott, manager of the Toronto branch of the Lincoln Paper Mills Co., Limited, will sympathize with him in the death of his mother, which took place on May 26th. The late Mrs. McDermott was the widow of Michael McDermott, and was sixty-six years of age. She had been ill for several weeks. The remains were interred at Port Robinson, Ont.

At the fifty-ninth annual meeting of the Canadian Press Association, which will be held in Toronto, on June 14th and 15th, it is expected that over three hundred members will be in attendance. Col. Hugh Clark, M.P., of Kincardine, will be among the speakers and will give an address on "The Press and the War," while J. W. Dafoe, of the Winnipeg Free Press, will speak on the "Responsibility of the Press in Connection with the War," and Oswald Mayrand, of Montreal La Presse, will have as his subject, "The French Canadian View Point."

A charter has been granted to the Midland Wood Products, Limited, with a capital stock of two hundred thousand dollars and headquarters in Midland, Ont. The company is empowered to carry on the business of timber merchants and lumber manufacturers and to own and deal in timber limits, etc. Among the incorporators are James Playfair, D. S. Pratt, D. J. Turner, N. L. Playfair and M. J. Bray, all of Midland.

A charter has been granted to the Biggar Press, Limited, Toronto, with headquarters in Toronto, and a capital stock of thirty thousand dollars to carry on a printing and publishing business. E. B. Biggar is at the head of the new company, which has started the publication of a new technical monthly paper called the Chemical Engineer.

The Markets

CANADIAN MARKETS.

Toronto, May 28th, 1917.

Newsprint prices, which were arbitrarily fixed at two and a half cents at mill by the federal minister of finance, will continue at this figure for another month, by which time it is expected that Commissioner Pringle will have completed his investigation and something definite will likely result from the next sitting of the Commission which will be held in Ottawa about June 20th.

It is generally conceded that the newsprint manufacturers have made out a strong case as to why they should receive more for their product and the evidence of Messrs. Booth, Chahoon and Bothwell at the inquiry presented the facts in a clear and forcible manner. They showed unmistakably that at two and half cents per pound the mills were losing money. The lowest cost returned by any of the producers, in answering the questionnaire, was that the expense of making a ton of newsprint to-day was fifty-one dollars when everything is taken into consideration. Some plants estimated that the outlay was as high as seventy-eight dollars a ton. Much, of course, depends on the location of the mill, abundance and proximity of pulpwood, manufacturing facilities, etc.

There is one source of satisfaction in all branches of the paper trade and that is the investigation will extend to every kind of paper including pulp, and as the manufacturers have nothing to hide, they will be found ready and willing to give evidence to the fullest extent. In the meantime, the mills are all busy and while market conditions are shifty and orders spasmodic, the producers are making the best of matters and wondering if things will ever become normal.

One point, which has been raised by the manufacturers is well taken, and that is the probe is unfair when only the newspaper publishers are taken into consideration. Most of the mills are inviting their customers to order all kinds of paper that they need now in anticipation of higher prices. The causes which are leading up to loftier quotations are that workers are becoming scarcer all the while owing to conscription, and that wages, which are from twenty-five to fifty per cent higher now than last year, are increasing all the time and are likely to go much higher owing to advancing cost of living.

All the materials entering into the manufacture and finishing of paper are still soaring in price, while coal is not only uncertain in the matter of supply, but the cost has doubled in many instances. Many pulp mills will not contract at all for any lengthy period and the quantity of chemical and mechanical pulp is limited.

Other reasons pointed out are, that Scandinavian importations have been absolutely stopped by the submarine warfare and there are not enough rags in the country, or being imported, to make up the deficiency. There is thus bound to be a scarcity of paper of all kinds and some manufacturers go so far as to state that it will not be a question at all of price, but of supplies, as there will not be sufficient paper to meet the demand. All these facts should convince the buyer of the advisability of placing his business now and not hang off in the hope that figures will recede.

One paper company, which has sent nearly two hundred men to the front states that, although they have the three tour system, many of the men are working two ours in order to help the plant out and keep things going. The labor problem is growing more acute every day and, if conscription extends to the pulp and paper plants, it looks as if some will have to shut down owing to lack of help.

The demand for pulp has fallen off considerably and prices are still easier than they have been for some time, but this is thought to be only temporary. All the new sulphite product, which will come on the market will not tend to keep down prices as, with European importations shut off, the home consumption will be great enough to take up all added tonnage. This has been demonstrated by figures obtained from various sources. Warehouse business is quiet at present and may continue so for a while.

In the rag and paper stock market business is very dull. Mills are not interested in any offerings and practically no sales or shipments are being made. One dealer reports that he is held up on shipments of news and mixed scrap altogether and may be in this condition for a few days yet. The demand for cotton rags is still small and the only redeeming feature in the whole arena is that roofing stock is picking up slightly.

One agent for a leading pulp mill stated that he had one thousand tons of ground wood for sale which he had been offering for some time at forty-two dollars, f.o.b. mill, but had no takers at this figure.

The whole paper and pulp business is just now in a state of uneasiness, which makes the mills not know which way to turn. The investigation at Ottawa, the conscription measure, the ten per cent tariff on paper and pulp entering the United States under the war tax levy, the shortage of help and the uncertainty of supplies all combine to make the lot of the paper manufacturer anything but a bed of roses.

Mills are able to take what business is coming and to make deliveries within two and three weeks, whereas some time ago they could not promise deliveries within two or three months. The future is uncertain and while there is no disposition to cross bridges until they come to them, the trade in general do not know where they are at present. There are no important changes in prices, and while many predictions are made, no one can foretell what shape things are likely to assume. The one conviction is that prices will under no circumstances be lowered.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00

xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$42.00 to $46.00
Easy bleaching sulphite	$95.00 to $100.00
Sulphite, news grade	$85.50 to $90.00
Sulphite (bleached)	$160.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.75
No. 1 soft white shavings	$3.75
Mixed shavings	$1.00
White blanks	$1.80
Heavy ledger stock	$2.25
Ledger and writings	$1.80
No. 1 magazine	$1.05
No. 1 book stock	95c
No. 1 manila envelope cuttings	$2.75
No. 1 printed manila	$1.25
Folded news	$1.60
Over issues	$1.10
Kraft	$3.50
No. 1 clean mixed papers	60c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.25
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.00
Flock and satinettes	$1.60
Tailor rags	$1.50

NEW YORK MARKETS.

By ROWLAND W. JOLLY.

NEW YORK, N.Y., May 26th.

As passed by the House of Representatives this week, the War Revenue bill omitted wood pulp and white print paper from the list of those articles on the free list, which would be compelled to stand a ten per cent tariff. This was undoubtedly due to the influence of the newspapers. True, a sigh of relief, regarding this particular point, is being heaved for it was felt that such a duty would have materially affected conditions in the market for pulp and news print. Thus far, however, the bill contains a section which provides for an increase in the second class mail rates. This increase is not as great as was originally asked, but it is sufficient to do material harm to the publishers of the country, if it were to go into effect. It is understood, however, that the Senate Finance Committee is planning to eliminate this particular section and to substitute in its stead a clause providing that all advertising shall be taxed two per cent. It is believed that through this means the revenue desired will be obtained—at the same time, it is felt that the burden of the tax will be so distributed that it will not be felt to any great extent by anyone. Thus far, this arrangement seems to be generally satisfactory, for it is not felt this tax will in any way hurt the volume of advertising now pouring into the publishing offices of the country. As a matter of fact, through the combined efforts of the newspapers and the advertising organizations, it is hoped to make the coming figures for advertising greater than ever before. The principle behind this is that now is the time for everyone to boom prosperity, to urge normal buying and to instal confidence in the people—and the only way to do this is through space in the newspapers of the country.

This is the view of prominent men in the business world. Some advertising men, however, think along different lines. They say that concerns make appropriations for the entire year to take care of their advertising. After this appropriation has been made, it is seldom it is possible to get more money from concerns than that which has been alloted for the purpose of advertising. In other words, they say that if the tax is placed on advertising, the newspapers will suffer for the advertisers will take only as much space as their appropriations allow them.

Considerable interest is being taken—and with good reason,—in the course of the prospective tax on profits which Congress is bound to levy. As the bill now stands, after having passed the House of Representatives, it places a tax of 16 per cent on the profits over 8 per cent upon the capital invested in the respective businesses taxed. True, every concern in the industry is willing to pay its share to the maintenance of the present war, but there is no use bearing unnecessary burdens if they can be avoided. It must be remembered that, to a good many—we will say a very large percentage of the concerns in the industry—the year 1916 was perhaps the first in a very long time that profits were anywhere near "respectable." For a number of

SURROUND YOUR BUSINESS WITH NEVER-FAIL BELTING



"Strength of Gibraltar," while not our phrase, aptly applies to the rubber belting made by us and sold under the name **"Gibraltar Redspecial."**

It would be interesting to us if you, as a user of belting, would, before making your next purchase, get a verdict on **"Gibraltar"** from some of your friends.

Ask them if a stronger belt than **"Gibraltar"**—one giving more service with less loss of power—can be obtained anywhere; if any other product will survive heavy loads better; and, if, in withstanding the jerky strains consequent on fluctuation of power, any other belt can show a higher quality of friction in uniting the plies than **"Gibraltar Redspecial."**

We have evidence aplenty, in the form of voluntary testimony which shows that for strength, durability and general service **"Gibraltar Redspecial"** is matchless. In the Biggest Saw Mills, Biggest Pulp and Paper Mills, Biggest Manufacturing Plants, one "driving force" is nearly always in evidence—Dunlop **"Gibraltar"** Belting.

For Drives, Rotaries, Edgers, Lath and Shingle Machines, or any kind of Transmission work, there is nothing better than Dunlop **"Gibraltar Redspecial"** Belting.

And what Dunlop **"Gibraltar Redspecial"** means to users of Transmission Belting, Dunlop **"Samson"** ensures to users of Conveyor or Elevator Belting.

D26

NO LOAD TOO HEAVY — DUNLOP "GIBRALTAR" BELTING — NO SERVICE TOO EXACTING

Dunlop Tire & Rubber Goods Co., Limited

concerns, it was the first year that they were able to pay any dividends to their stockholders. To call this business normal and base the "excess profits" tax on the figures for 1916, would be unjust in every respect. It is for this reason that great interest is being manifested in the new scheme now proposed by the Senate Finance Committee, which it is thought will be embodied in the bill before it leaves the upper house. Under the proposed system, the normal profit of various businesses and industries of the entire nation in peace time would be calculated by taking from three to five normal peace years and dividing the total of the annual percentage of profit by the number of years cited. Against this normal rate of profit would be set the super profits of the war profits thereby established. The rate will be the same as that of the House.

It may be that the uncertainty with regard to the coming taxes and other little matters is tending to dampen the ardor of jobbers and others, thus making buying somewhat light. At all events, there seems to be a continuation of the lull reported sometime ago. In Mechanical pulp, while the market is firm and tending to grow firmer, active interest for the present seems to be somewhat milder. This may because of the fact that efforts to get stock for immediate delivery have proved rather unsuccessful. As a matter of fact, the reports that continue to come in from the various grinders, show that most of the machines are going at capacity and that production is sold ahead for some time to come. Transportation troubles have not been remedied thus far. As a matter of fact, it was noted this week that the Senate Committee on Interstate Commerce has reported favorably on the Newlands Bill. This bill would put the President of the United States in control of the freight situation in the country. It would give him the power to give preference to whatever freight he saw fit—as a war measure. It would practically give him control over the distribution of the various commodities throughout the country. According to this contracts with railroads would be worth naught, for the President could, at his discretion, utilize cars to meet the needs of the government. It is felt that while some efforts will be made to keep the mills well supplied with wood, because of the influence of the newspapers, that it is inevitable that freight conditions will be come much more acute than they now are, largely through the exercise of the Newlands Bill. No improved hopes can be held out for the situation in pulp wood. There seems to be no question that the cut this season will be far behind that of the recent cuts—and that, as a result, prices will be much higher with considerable difficulty attached to obtaining sufficient supplies regularly. The quotations reported about the city range from about $42.50 to $45 and in a few instances over—these figures are all f.o.b. at the mill. There is no doubt in the minds of the grinders and others handling ground wood that the price must advance to higher levels within the next few months. Perhaps the only thing that stands in the way of advances is the possibility that the Federal Trade Commission will be given power to control the price of news print and, in order to effect such control, will be allowed to use power over the raw materials going into the manufacture of news print. In this way, it might be likely that the government might force figures down. However, as we have often stated here, the government may force the value of a commodity down, but unless the manufacturers see their way clear to covering overhead under the present conditions, it not likely that they will continue in the same line.

There has been no tendency for added life in the market for mechanical pulp this week. Reports of slackening in orders from paper mills in various parts of the country, seem to account for the situation in chemical pulps. It is apparent that the bear movement of the jobbers of paper has been succeeding to the extent of forcing the manufacturer to cut down his production accordingly. So, with this condition, and with many paper mills reclaiming stock from old waste papers, it has been possible for them to keep out of the chemical pulp market for some time. Somewhat over 5,000 pounds of pulp were reported at the Port of New York, as coming from Copenhagen, this week. It is said that this stock has been in transit for some time, and that it is all going into immediate consumption so that it has practically no bearing on the market. Advices from abroad do not show any cupidity on the part of Scandinavian producers to dispose of their stock in this country, for they do not care to take the chances of losing their stock by reason of the U-boat menace. It must be remembered that this is the season when the Baltic Sea is about opened for navigation and, ordinarily, large shipments of pulp are on their way to this country. No definite reports of such shipments have yet reached this country. As a matter of fact, the newspapers this evening report that there is now likelihood that Denmark will go into the war on the side of the Allies, which fact would further lessen chances of getting foreign pulp for Denmark would have to commandeer all of its ships for military and naval purposes. Activity among domestic mills continues, with the manufacturers hopeful with regard to the future.

There has been no added interest in the rag market this week. The poor sale of rag papers is said to be responsible, in part, for the manner in which the consumers are buying this stock. On the other hand, it is known that the paper mills cherish hopes of lower prices on rags, based on the belief that stocks are in abundance. Rag dealers point to the fact that, ordinarily, the biggest part of the spring collections of rags has been put on to the market by this time. The collectors go through the rural sections about the middle of April and, by this time, have put out enough stock to bear the market considerably. This year, however, the additions to the market have been far from normal, with the result that dealers see no reason for coming down on prices. On the contrary, they feel that because this condition exists, rags should have a certain premium. More than that, it is maintained that, if the demand for rag papers should pick up, as is expected any moment, there would be a sudden shortage of stock, with the accompanying higher prices in such a situation. New white shirt cuttings are selling at about 8c to 9c; old white rags are quoted at 4¾c to 5¼c; house soiled white rags, at 3c to 3¼c; street soiled rags, 2¼c to 2¾c; thirds and blues, at 2¼c to 2½; roofing stock is going fairly fell, with figures ranging as high as 1¾c. In bagging, interest is becoming slightly more lively. Mills are realizing that there is a shortage and some are having a little difficulty in getting the supplies they need. The consequence is that it is expected prices will rise sometime within the very near future. Gunny is quoted at 3½c to 4c; bright bagging has been going at 3c to

High-Grade Paper Finishing Machinery

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THE HIGHEST GRADE BABBITT METAL MADE

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When melted, flows freely.

WILL NOT SHRINK.

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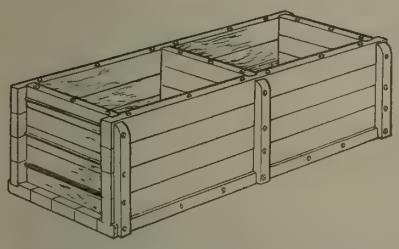
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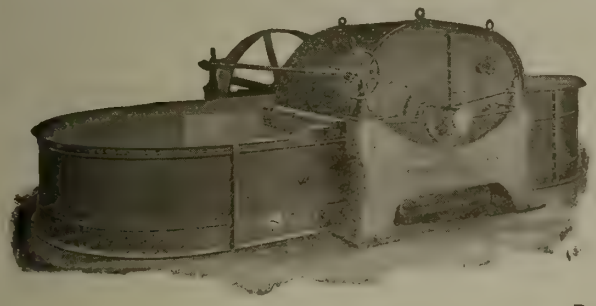
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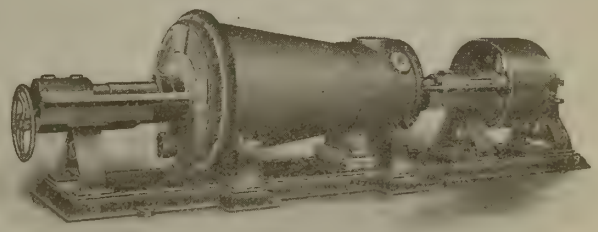
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EXISTING PLANTS ALTERED AND IMPROVED

3¼c; sound bagging, is reported moving at 2½c to 2¾c; mixed bagging, at 2¼c to 2½c. Manila rope is firm, with quotations ranging around 6c.

The lull in the paper market seems to have had somewhat of a severe effect on waste papers. Several of the large consumers have been out of the market, with the consequence that dealers have been offering concessions to get rid of their stock. It is hoped that this condition is only a temporary one. Hard white shavings are holding as high as 5c; soft white shavings are ranging around 4¼c to 4½c; magazine stock is said to be moving at about 1½c; ledgers are quoted at 2c to 2¼c; Manila cuttings are in fair demand, with the prices as strong as ever, going as high as 1½c; krafts are being quoted at as high as 3½c, somewhat lower than it has been, but still considered a good price; strictly over-issue news is quoted at around 1¼c and a little higher; strictly folded news has dropped to about 85c to 90c per hundred pounds; while mixed papers are going at 50c to 60c per hundred pounds.

With regard to the paper market, there does not seem to be any especial change. There is still noticeable the bear movement, with the result that buying is far from what it should be at this season of the year. The attitude of the manufacturers continues strong, and there has been comparatively little shading done by any of the mills. Of course, it is being pointed out that there is absolutely no possibility of lower prices on papers and that the wisest stroke one could pull would be to buy now while stock is available at the present prices. With transportation problems growing more uncertain, with Congress planning taxes for the manufacturers, and with the possibility of production curtailment because of labor shortage, paper makers say decreases in price are out of the question. Jobbers are interested in the plan now being perfected, which provides that licenses will have to be secured for all export orders. This is along the lines followed in the other belligerent countries. It is felt that, with enough red tape, it would be possible to hurt the export trade of the manufacturers to the extent of bearing the market here. It is not known just what the government will require, but it is felt that the tendency will be to protect home trade—that wherever the export of an article is likely to make the home market acute, attempts will be made to keep the commodities at home. In this event, jobbers may do their best to keep paper from going abroad during the war. News is going well, thus far, with the publishers taking all they can get. In some of the other lines, however, reports are not so satisfactory.

New York Quotations.

(These are a nominal range of prices):

Ground wood f.o.b. mill	$42.50 to $45.00*
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	7¼c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	4¾c*
Kraft, pulp, f.o.b., pulp mill	5¾c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	11½c†
Best grade writings	21c*
Regular superfine	19c*
Ledgers papers	11½c†
News, contracts, f.o.b. mill	$3.10 to $4.25
News, spot lots	$4.00 to $5.00
Book, super	8½c*
Book, coated	8½c*
Tissues, good sulphite, bleached, per ream	$1.20*
Tissue, ground wood, manila, per ream	$1.20*
Kraft	8½c*
Wood manilas	7c*
Jute manilas	10c*
News board, per ton, f.o.b. New York	$60.00
Strawboard, per ton, f.o.b. New York	$55.00*
Chip board, per ton, f.o.b. New York	$55.00

(*)—And higher. (†)—And way up.

R. W. Jolly.

CANADIAN CHEMICAL MARKET.

There have been no important changes in the Canadian Chemical market during the past week. Soda ash has declined slightly in the American market with a corresponding decline in the Canadian market. Spot quotations for small quantities are reported at 2¾c @ 3c.

The following are the prices in the Montreal market for not less than car load lots.

Alum, ammonia lb.	5½c @ 6½c
Alum, potash, lb.	7c @ 7½c
Blanc, fixe-paste, lb.	4c @ 4½c
Blanc, fixe-powder, lb.	5c @ 5½c
Bleaching powder, lb.	5c @ 5½c
Brimstone, f.o.b. mines, long ton	$35.00
Casein, lb.	25c @ 30c
Caustic soda, 76 per cent., lb.	6c @ 7c
China clay, imported, ton	$30.00 @ $40.00
China clay, Canadian, No. 1 white, ton	$20.00
China clay, Canadian, No. 2 white, ton	$15.00
China clay, Canadian, No. 3 white, ton	$12.00
Lime, ton	$7.25 @ $8.00
Sal soda, bags, 100 lbs.	$1.25 @ $1.30
Sal soda, barrels, 100 lbs.	$1.35 @ $1.40
Salt cake, 100 lbs.	85c @ $1.00
Soda ash, lb.	3c @ 3½c
Starch, pearl, in bags, lb.	6½c @ 7c
Sulphate alumina, technical, lb.	3½c @ 4c
Sulphate alumina, iron free, lb.	5c @ 5½c
Talc, American, ton	$13.00 @ $18.00

TETANUS IN CARTRIDGE PAPER.

Professor C. Sherrington, speaking at the Royal Institution, said that physiologically the higher parts of the brain did not seem to be affected by tetanus. At present the bacillus was frequently found in paper used for cartridges, so that a bullet might easily be the means of introducing it.

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A paper umbrella, for use in emergencies, which its makers claim is rain and wind-proof has recently been put on the market. It is designed to be sold at news stands, elevated railroads stations, restaurants, cigar stores, etc. The article consists of a metal frame of special design to give it unusual flexibility, a wooden handle, and oiled paper covering. It is light and folds compactly, while with ordinary care it can be used several times.—Popular Mechanics.

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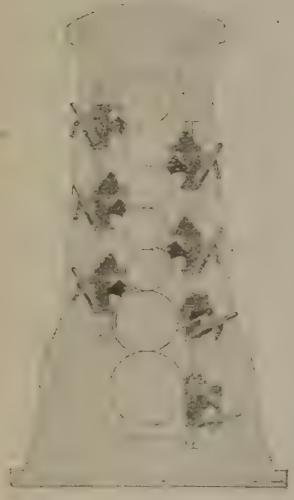
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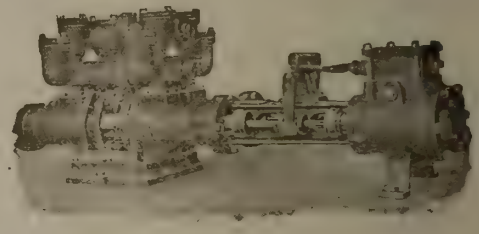


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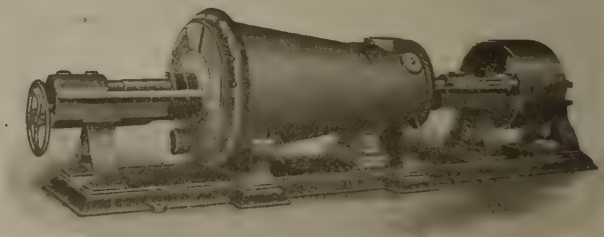


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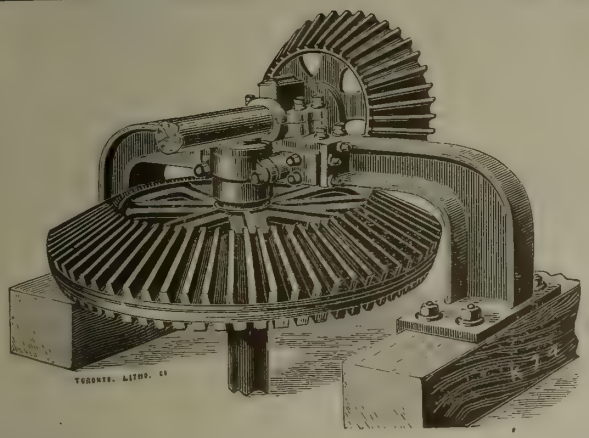
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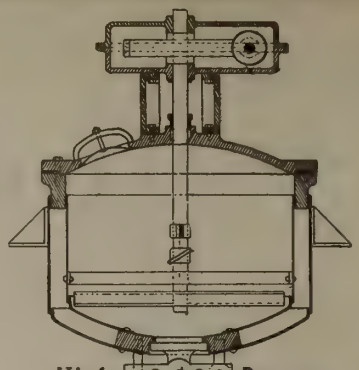
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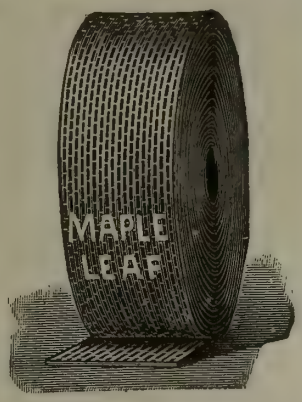
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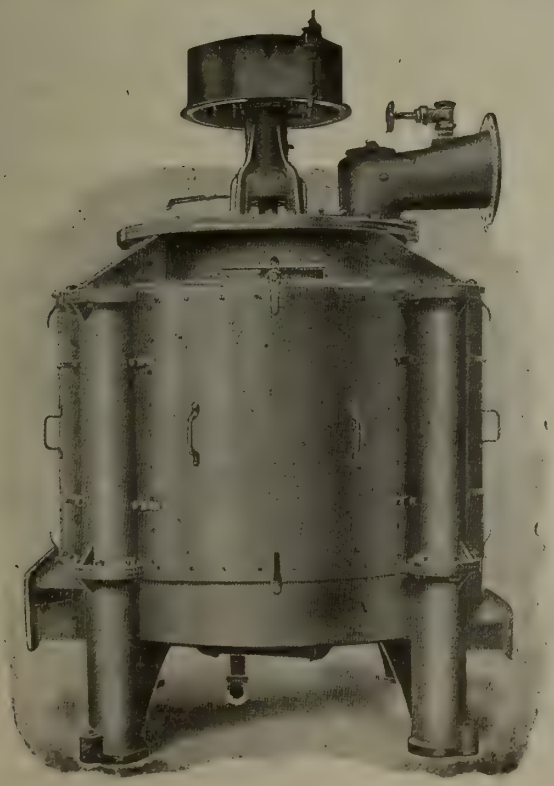
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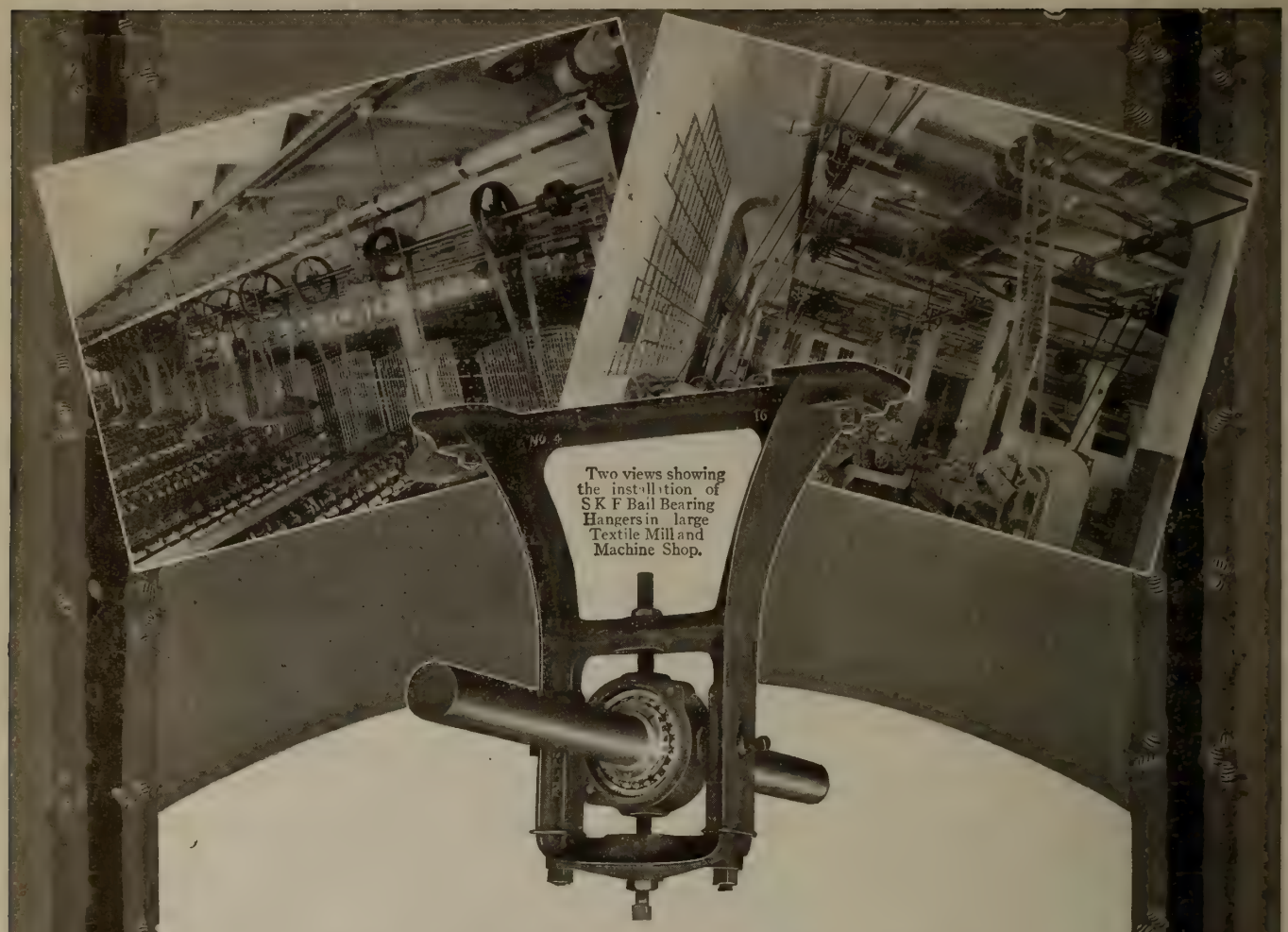
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EDITORIAL

TESTING WOOD PULP IN ENGLAND.

In the last number of the Paper Maker's Monthly Journal, published in England, this statement appears:

> "Now that considerable quantities of wood pulp are being imported into this country from Canada and the States, the question of testing becomes important. It is clear that the methods in use and the source of production may not be applicable to bales of pulp on arrival in England with its free exposure to air."

This is just the situation that has been anticipated by the Technical Section of the Canadian Pulp and Paper Association, and the Technical Association of the Pulp and Paper Industry. Both organizations have communities at work on methods of testing moisture in pulp. The determination of moisture content is not so simple as it looks to be, but the establishing of a standard method that is reasonably accurate will be accomplished. The testing of methods in use by buyers and sellers of pulp will show which are reliable. When such a method is then approved by the technical organizations of the industry, it then becomes the duty of the business members of the industry and trade to adopt the method and use it.

The acceptance of a satisfactory method of testing or analysis by the pulp and paper trade and industry will make it a standard, just as the acceptance of the foot or the meter makes these units standards. The fact that a meter is not absolutely equal to a certain fractional part of the earth's circumference does not detract from its value as a standard unit of length. Its value lies in the fact that the world accepts it and uses it as it is.

Refinements in units of measurement have been introduced from time to time, and refinements in methods of testing will also appear. The main thing is to get the best we can and begin to use it. Changes can be agreed on as the need arises. That is the way the atomic weights of the elements are handled. An international committee agrees on certain values, and these figures are accepted by chemists all over the world.

The English paper trade periodicals have been lamenting the lack of a technical organization. Here is a specific problem for them to begin on. It is a problem that is bound to become of more and more concern as an international feature of the paper industry. We would suggest that if there are any special factors in the problem that affect it in England differently than on this side of the Atlantic, our English friends will do a service to both themselves and the industry here if they will give details to the committees now at work on this side.

The question is not how much moisture is in the pulp, but how much pulp is in a shipment. The pulp that is shipped will arrive, regardless of whether it then is accompanied by more or less moisture. A method that will accurately determine the percentage of pulp in the cargo as originally weighed and as subsequently received is all that is required. The principal factors in a successful solution are first, a reliable scheme of sampling, and second, a careful following of directions.

PRESENT PRICES TO PREVAIL.

Mr. R. A. Pringle, K.C., the Commissioner investigating the newsprint industry, has intimated the present prices 2½c f.o.b. mill will remain in force for another three months.

Of course, there is no hurry about the matter; the manufacturers of newsprint are making so much money that they can well afford to turn out their product at cost or below, and still maintain their dividends and put away huge reserves! In the meantime, however, the food speculators in the Dominion, the munition manufacturers and other poor starving corporations of similar nature are waxing fat on their huge profits that they are able to make without let or hinderance on the part of the Paternal Government at Ottawa.

The Dominion Government picked on the newsprint manufacturers as the "horrible example," and regulated the price at which they should sell their output. The consumers of newsprint in Canada number but a few hundred, but have a tremendous voice which they use to good advantage. Everybody in the Dominion is affected by the mounting costs of foodstuffs, by the increasing prices we are forced to pay for fuel, clothing and other commodities entering into our daily lives, but the Government does not raise a hand at the prices which the speculators and get-rich-quick artists in these lines see fit to charge. Mr. Pringle wants to be on the safe side, so is not going to allow the newsprint men to get away with any fancy profits; he is going to see that the present absurd prices prevail until manufacturers get discouraged and either stop making newsprint or else quit the paper-making business altogether. Certainly the Government has a fine way of encouraging industry.

DON'T LET GEORGE DO IT.

There is a great tendency these days to "let George do it." Among members of the Technical Section there is an increasing number of opportunities for each one to do something himself.

Just now comes an opportunity which no one wants to pass off on another. We refer to attendance at the summer meeting. This takes the form of a visit to the pulp and paper mills of the St. Maurice Pulp and Paper Co. at Three Rivers, the Belgo-Canadian Pulp and Paper Co., at Shawinigan Falls, and the Laurentide Co. at Grand Mere. These good-hearted people are the hosts of the Section, and are generously paying all the expenses of the trip from Montreal till the return to that city. As stated in the announcement last week, the main party will leave Montreal Thursday night in special cars, and arrive in Three Rivers Friday morning, to be joined there by members from the East and North. Monday morning will be spent at the St. Maurice Mill, the afternoon at the Laurentide plant, and Saturday morning at the Belgo-Canadian Co. A get-together dinner and informal meeting is planned for Friday night at the Laurentide Inn.

You must enjoy this trip yourself; "George" can't do it for you. If you are going, send word at once to A. L. Dawe, Secretary, 801 Shaughnessy Building, Montreal.

See final notice on page 567.

TWO AND TWO DO NOT MAKE FOUR.

An old Quaker once said to his wife "Everybody is queer but me and thee, and sometimes I am a little in doubt about thee." The newsprint manufacturers and the newspaper publishers seem to think each other a little queer about some things. They really ought to understand each other better than they do.

Now, to consider the arithmetic. According to statements made in connection with the indictment of certain gentlemen in the paper business, there is not a real shortage of print paper, but only an artificial condition. But if "Derb." quotes correctly the paper expert of the Publishers' Association, there is a shortage of 400,000 tons. That looks a bit exaggerated, but it is confirmation from the publishers of statements made by the paper makers early in the paper crisis.

We read further that "not all mills can make a profit on $50.00 news print." But all mills are expected to sell at $50.00 a ton. If this is not restraining trade, then please press the right hand button; we want more light. Another statement quoted in the Paper Mill is that Mr. McIntyre expects prices to go higher "because of increased cost of production."

Now, here is where our arithmetic seems to be faulty. We have a copy of the "Editor and Publisher," for April 28th, in which is a chart said to be prepared from figures furnished by the Federal Trade Commission. This shows the total cost of a ton of newsprint from 1913 to July, 1916, built up by the principal items. According to the diagram the cost of the sulphite decreased, groundwood decreased, fillers, alum, etc., decreased, labor decreased, felts and wires, repairs, belting, lubricants, miscellaneous, remained stationary, fuel and power increased a little, depreciation, administration, taxes and insurance increased very slightly. The cumulative curve shows a decrease in total cost per ton from $33.70 in 1913 to $32.10 in 1916. The most rapid change occurred between July, 1914, and June, 1915.

These curves may be true, that is, they may represent the average condition in the average mill for each factor. But there is a very great likelihood that they are misleading, first, because the average mill does not, or did not, know the "per-ton" cost of many items mentioned, and second, that many estimates of cost were probably based on prices paid for stuff long in stock or bought on old contracts, and not on replacement value. Everyone in the industry knows that paper stocks began to climb in the spring of 1916, and one can readily see that if new stocks were not bought till July, the new prices would not appear on the books. Paper makers were aware that these higher prices must affect future contracts for paper, and acted accordingly.

Such a sudden change of conditions should be mentioned. The chart is thus misleading in what it leaves unsaid, and many people are thus misinformed. It is not stated what percentage of sulphite is assumed in the composition of the paper, though in another connection a 15 per cent. content is intimated. This is less that good news print, made on a fast machine, will contain. Raising this to 20 per cent., a common amount, would add about three dollars to the cost of paper with sulphite at the price of $55, which history says once prevailed.

There seems to be a possibility that even the figures of the Federal Trade Commission can be presented in a misleading form.

A newspaper despatch from Calgary says that the Finance Minister "does not care to interfere" in the matter of requiring newspapers to cut out wastes. There did not seem to be any hesitation about interfering with the manufacturers of this same paper which the publishers waste. There is an old proverb which says: "Sweep the dirt from your own door step first." We commend these words of wisdom to the wasteful publishers of newspapers.

WE BEG YOUR PARDON.

A good friend has called our attention to an amusing mistake on page 435 of this Magazine, in the issue of May 3rd. In line 20 from the bottom of the second column, the solution should not be "declared off," but "decanted." Line 11 from the bottom should read:—weighing and will also prove extremely useful, inas-

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Remember the T. S. Meeting, June 15 and 16.

Present and Possible Products from Canadian Woods*

By JOHN S. BATES, A.M.,Can.Soc.C.E.

(Superintendent, Forest Products Laboratories of Canada.)

Introduction.

The intention is to give a general survey of forest products including those actually manufactured in Canada and those which it is possible to obtain from Canadian woods by processes operating in other countries. The accompanying "Diagram of Forest Products from Canadian Tree Species" furnishes the basis for the discussion and only the more significant facts are touched upon.**

There are several general conditions which should be kept in mind by every Canadian. Canada is considered to be the third country of the world in value of forest resources; Russia is first and the United States second on the list. Contrary to popular impression forest surveys indicate that Canada's present supply of merchantable timber is only one-fifth or one-quarter of the supply still available in the United States.

There is real necessity for the extension of adequate protection of our present forests, wise utilization of the timber when it is cut and foresight in planning for natural and artificial reproduction. Trees are coming to be regarded more and more as a forest crop and with proper system there is no reason why our forests should not be a source of expanding and permanent wealth. It is estimated that about 60 per cent of the land area of Canada below the sixtieth parallel of latitude is non-agricultural in character and for the most part available for the growing of trees.

In the list of Canada's natural resources agricultural field crops hold first place in value of production with an estimated total of from $700,000,000 to $800,000,000 annually; forest products come second with a total of about $175,000,000 for the primary products and this figure is considerably increased if paper and other manufactured products are included. In 1916 the exports of products from wood amounted to approximately $100,000,000, not including the minor proportion of specially manufactured wood articles, showing the place which our forest resources will take in helping to overcome the war debt. According to the census of 1911 the capital invested in timber and re-manufactures amounted to $259,889,715 in 4,999 establishments, this being the highest figure on the list. In addition the paper and printing trades accounted for an invested capital of $62,677,612 in 773 establishments.

*Paper presented before the Canadian Society of Civil Engineers, Montreal, on April 19, 1917. (Slightly abridged.)

**For more detailed information those interested are referred to the Forest Products Laboratories of Canada, 700 University St., Montreal. These laboratories were organized in 1913 under the Forestry Branch of the Department of the Interior and are established in co-operation with McGill University. Scientific work is being carried on to supply authoritative data on the mechanical, physical and chemical properties of Canadian woods and to furnish experimental information on industrial processes for the utilization of wood.

Wood Used as Such.

By far the most important and extensive utilization of wood consists in the manufacture of lumber and other products by mechanical processes, whereby the wood still retains its identity.

Under the heading of wood used in the rough, firewood takes first place and in value accounts for about 30 per cent of the primary wood products. Air-dry wood has a calorific value rather more than half that of coal, pound for pound. The annual normal consumption of railway cross-ties in Canada is about 20,000,000 with an average value of about 45 cents each. In order of importance the Canadian tie woods are jack pine, eastern cedar, Douglas fir, hemlock, tamarack, western larch and small quantities of other species. Hardwoods such as birch and maple are now coming into use, as creosote treatment successfully overcomes the low durability of hardwoods, and the ties have the advantage of high mechanical strength.

The annual consumption of round mine timber is over 53 million linear feet with a total value of $524,000, while the mines consume sawn timber to the extent of 23 million feet board measure valued at about $304,000. About 140 coal and ore mines in Canada use timber, the leading woods being Douglas, fir, spruce, balsam fir, lodgepole pine, jack pine and hemlock. Spruce and other piling is used quite extensively in Canada, and forms an important export item.

The term lumber is used to include a wide range of material and constitutes the most important manufactured product. A large proportion goes directly from the saw-mill into general building and construction without passing through an intermediate wood-working factory. In 1915 the lumber cut in 3,239 mills totalled 3,842,676,000 feet board measure with a total value of $61,919,806, which includes a good deal of structural timbers.* The term "structural timbers" covers wood so used that its strength is a factor of first importance and includes timbers for mill construction, trestle and bridge timbers, wharf timbers, larger ship timbers, etc. The Canadian species in order of merit and resources are Douglas fir, western hemlock, eastern hemlock, western yellow pine, western larch, red pine and eastern larch. Douglas fir** is fully equal to southern longleaf pine as a heavy structural timber, and with the tremendous untouched resources in British Columbia is destined to become Canada's most important tree.

The rough manufactured products are too well known to require such discussion.

Wood flour or wood meal is the fine, fluffy, absorbent fibre made by grinding wood chips in a stone mill or steel burr roller mill with a limited amount of

*The recently published Forestry Branch Bulletin No. 59 "Canadian Woods for Structural Timbers" covers this subject in detail.

**Forestry Branch Bulletin No. 60, now in press, gives a detailed account of tests made on Douglas fir at the Forest Products Laboratories of Canada.

water. It is used in the manufacture of dynamite, inlaid linoleum, oatmeal wall paper and wood plastics. Canada imports considerable quantities from Europe and the United States chiefly for the manufacture of dynamite and there is no reason why the industry should not be established in Canada for both local and export trade. Wood wool is a fine excelsior used in Europe for surgical dessings, filtering, stuffing mattresses and as a substitute for cotton waste.

Specially manufactured products include hundreds of different kinds of articles wholly or partly constructed of wood. In Canada this group probably accounts for 15 per cent of the total wood cut. An economic principle underlying the proper use of wood is that each species of wood has a legitimate field of usefulness within which it should be employed. Custom, prejudice and lack of information frequently prevent the use of a species for some purpose for which it is naturally adapted. A large amount of accurate data still remains to be established and there is a wide field for technical research in determining the mechanical, physical and chemical characteristics of Canadian woods.

Special mention should be made of the by-products of the lumber industry since they constitute an enormous amount of wood material which for the most part is now going to waste. Utilization is retarded in Canada on account of the scattered population and limited markets as well as the technical nature of many of the processes. It is estimated that the logging waste which is left in the woods represents about 25 per cent of the original tree. Obviously the opportunities for utilization are limited and the main problem in Canada at present is to rigidly enforce the proper burning of slash in the wet seasons to remove this serious fire hazard and leave the woods in better condition for seond growth. Other losses in the forest are due to fire, insects, fungi, wind, thick growth, scattered growth, local predominence of inferior species, mature trees not up to cutting standard, inaccessible timber and land-clearing operations. These are some of the problems which confront the forester and the importance of the forest protective movement is emphasized when we remember that forest fires in Canada have destroyed perhaps ten times as much wood as has been taken out by the lumbermen. The federal and provincial forestry branches and the various associations have done a great deal to safeguard our wide-spread forest resources and to secure the co-operation of the public in overcoming carelessness in the woods.

Saw-mill waste amounts to about 40 per cent of the original tree, so that the finished lumber on the average represents from 30 to 35 per cent of the tree. New developments in the utilization of wood waste are being made continually but it is false economy to handle waste unless the by-product industries can be carried on at a profit. Effective utilization calls for a variety of chemical and mechanical processes which must be adapted to the form, species and quantity of wood waste available at any point. Slabs, edgings and trimmings represent 15-17 per cent of the tree. Among the more common uses are fuel, laths, box shooks, small slack cooperage, small wooden articles, kraft and sulphite pulp, excelsior, wood flour, wood wool and producer gas. Sawdust accounts for another 11 per cent and is used to some extent for fuel, producer gas, briquettes, polishing metals, insulating, packing, bedding in stables, floor sweeping compounds, composition flooring blocks, linoleums, improving clay soils, smoking meat and fish, blasting powders, wood flour, plastics, porous bricks, mixing with mortar and concrete, distillation, ethyl alcohol, oxalic acid and carborundum. Bark amounts to about 10 per cent of the tree. It is usually used as fuel, although hemlock and oak barks are important in the tanning industry. A recent development is the use of spent hemlock bark for mixing to the extent of about 30 per cent with rag stock in the manufacture of roofing felts. Experiments on its use in wall board, indurated pails, conduits and wall paper give promises of success. In the manufacture of special wood products a good deal of wood is lost during seasoning by decay due to poor methods of storage and also by warping and splitting. There is a large waste in converting wood into desired shape for the finished article. Proper co-ordination with plants making small wooden articles brings about a great economy of material. Shavings find use as fuel and to some extent for packing, bedding, drying wet land and manufacturing fibre board. Beachwood shavings are required in large quantity by vinegar factories but this is another case where specially cut wood is usually used instead of relying on by-product wood from various plants.

Pulp and Paper Industry.

The pulp and paper industry has expanded very rapidly in Canada during the past ten years and it appears that Canada is destined to become perhaps the leading country in the world in the manufacture of pulp and paper products from wood. This is largely because of our extensive natural resources of water-powers and suitable tree species. It is important to point out the opportunities and responsibilities for Canadian engineers in this technical industry. The consumption of paper increases so rapidly from year to year in the more highly developed countries that there is no indication of slackening development, at least for some years to come. Canada now has a total of about 90 mills many of which are large and of modern design. The export figures for the calendar year 1916 show that pulpwood, wood pulp and paper have increased to nearly $50,000,000, or about half of the total export value of all forest products with the exception of the small proportion of specially manufactured articles.

The softwoods are the most important species for papermaking, spruce and balsam fir accounting for the bulk of the woods used with hemlock, jack pine, tamarack and other conifers coming into more extensive use. Poplar and basswood representing the "soft hardwoods" are valuable for making soda pulp and a variety of hardwoods such as birch and maple are used in smaller quantity. In 1915 total reported pulp wood consumption amounted to 1,405,836 cords with an average value of $6.71 per cord. In addition Canada exported 949,714 cords of pulpwood, which quantity has remained fairly constant for several years while the consumption of pulpwood in Canada has rapidly increased.

The groundwood process is the simplest method of manufacture, involving the wet grinding of pulpwood blocks. In 1915 this process accounted for 52.9 per cent of the total pulpwood consumption. An important direct use of groundwood pulp is in the manufacture of wallboard such as ordinary "Beaver Board" and the thicker "Insulite" board used for insulating cold storage rooms and refrigerator cars. Fibreware, represented by indurated pails and tubs, moulded egg cases and pressed milk bottles impreg-

nated with paraffin, is composed mainly of groundwood pulp. Paper pie plates are cut and pressed from sheets of this pulp, or moulded on forms.

The sulphite process is the most important of the chemical processes and in 1915 used 33.5 per cent of the total pulpwood. The wood is chipped and steamed in large digesters with a solution of calcium (and magnesium) bisulphite containing free sulphurous acid, which dissolves out the lignin and other non-cellulose material amounting to about one-half of the dry weight of the wood. Production of sulphite pulp has now reached about 1,000 tons per day, over half of which is used in the manufacture of paper in Canada. An important development is the increase in manufacture of bleached sulphite pulp for high-grade papers.

News-print paper is by far the most important manufactured product in the pulp and paper industry and is essentially a mixture of about 75 parts of groundwood pulp and 25 parts of sulphite pulp with suitable loading, sizing and coloring materials. Canadian production now totals about 2,100 tons per day which is now over half the production of the United States. Only a small proportion is needed for Canadian newspapers so that about 89 per cent is available for export chiefly to the United States. Other products made by mixing groundwood and sulphite pulps are hanging paper (wall paper), the cheaper grades of wrapping paper and book paper, container board for paper boxes, liners for cars and boxes, paper for posters, etc.

Sulphite pulp in the unbleached state is used for making many papers of the higher grades including print paper, book and writing, tissues and wax paper. Recent attention has been given to production of imitation parchment and grease-proof papers such as glassine. Sulphite pulp is well suited to the moulding of plastics such as toys and novelties by incorporating binders. Vulcanized fibre or hard rubber substitute is usually made by treating pulp with zinc chloride and mixing with red ferric oxide, with the addition of glycerine if a pliable product is desired. Some of the paper wheels and pulleys come under this head. A sample of surgical cotton substitute from Europe turned out to be an excellent product from bleached sulphite pulp and it is reported that large quantities are being used by Germany during the present cotton shortage. Viscose is one of the artificial silk materials which can be readily made from wood pulp. Bleached sulphite pulp is first converted to alkali cellulose by treating with strong caustic soda and then to soluble cellulose xanthate by the addition of carbon disulphide. After pressing into threads through dies or moulding into heavier articles the material is readily converted back to stable cellulose in the form of artificial silk, films or moulded articles. It is also used for sizing textiles and paper. There are several plants in the United States and undoubtedly the industry will be established in Canada. The best gun cotton is made from purified cotton, but good grades have been made from bleached sulphite pulp in England and at the present time to a large extent in Germany. Cellulose acetate is ordinarily made from cotton and it is doubtful if bleached sulphite pulp will be used in America until the process can be improved. The non-inflammable and water-proofing qualities of cellulose acetate make it more valuable than nitro-cellulose for aeroplane varnish, films, artificial silk and celluloid substitutes. In some industries a filter mass of sulphite pulp has been successfully used in place of cotton fibre.

Waste sulphite liquor is one of the most frequently quoted industrial wastes, as millions of gallons are turned into the rivers every day carrying half of the original pulpwood substance together with most of the lime and sulphur used. Recovery of by-products is difficult and costly but it is safe to say that Canada will begin to practice recovery in the near future. In Europe and the United States evaporated liquor is used quite extensively as a binder for briquetting fuel and as core binder in foundry work, and to some extent for sprinkling roads in place of oil. The tannin-like substances are separated and incorporated with true tannins in preparing sole leather. Sweden has taken the lead in recovery of ethyl (grain) alcohol and produced in 1916 over one-half million Imperial gallons of 95 per cent alcohol for industrial purposes, motor fuel and potable spirits. It is reported that Germany has established this process in fourteen sulphite plants in order to conserve potatoes which are the usual source of alcohol in that country. Waste sulphite liquor contains about 1.5 per cent of fermentable sugars which are produced from the wood during the cooking process and these sugars are fermented to alcohol by yeast. The direct recovery of sugars and other organic matter makes available a fairly good cattle food. Recent processes aim at the precipitation of the lignin content for use as fuel and a number of new plants are going up in Norway. Minor processes are the recovery of destructive distillation products, fertilizer and mordants for dyeing. There is also the possibility of recovering sulphur compounds which however do not originate in the wood.

The sulphate process used 13.1 per cent of the Canadian pulpwood consumption in 1915. This process is a development of recent years and produces a remarkably strong flexible fibre by the combined action of caustic soda and sodium sulphide on the softwood chips. The value of kraft pulp is most noticeable in the brown, strong, thin wrapping papers which are now so widely used. A variety of ingenious uses for this pulp have been worked out in Europe and elsewhere. Paper twine is made by cutting kraft paper into narrow strips and spinning into a coarse strand now largely used for wrapping parcels and for binder twine. The threads may be assembled to produce first-class rope. By weaving there is obtained bagging material to replace burlap, carpets and matting which can be purchased in several Montreal stores, coarse cloth for upholstering furniture or even for wearing apparel, and also belting which is now used in Europe. By wrapping layers of kraft paper on a core and impregnating with tar binder conduits are made which can be turned and threaded; these are especially useful for underground electrical conduits and acid-resisting water pipes. Kraft pulp is also used for making imitation leather for suitcases, as well as counters and heels for boots and shoes.

In Europe the sulphate process is sometimes modified to give more fully cooked sulphate pulp which can be bleached and used for higher-grade papers such as book and writing.

The spent liquor is always evaporated, incinerated and causticized for the recovery of alkalies which are used again for cooking. One Canadian mill is now recovering so-called "rosin oil" which separates from the spent liquor. Turpentine and small quantities of other light oils may be recovered from resinous woods by distilling with steam during the cooking operation and rosin soap separates from the spent liquor on cooling. This applies particularly to the manufacture of kraft pulp from longleaf pine in the Southern States,

Methods have been proposed for the production of methyl alcohol, acetone, acetic acid and higher oils by the destructive distillation of the evaporated liquor with simultaneous recovery of alkali and perhaps oxalic acid from the residue.

The soda process in Canada is for the most part limited to the treatment of poplar and basswood and accounted for only 0.5 per cent of the pulpwood used in 1915. The wood is cooked with caustic soda alone to produce a short fibre which can be bleached and used as filler in some of the higher-grade papers. Soda pulp is used in conjunction with rag pulp or sulphite pulp to give bulk and smooth finish to book and magazine papers, lithographic and art papers and to give desirable qualities to lower grades of blotting paper.

The spent liquor is treated much the same as in the sulphate process for the recovery of alkali. It would be possible to obtain the same destructive distillation products and in case resinous woods were used turpentine and rosin oil might also be recovered.

Distillation Industries.

The destructive distillation of hardwoods is the only important distillation industry in Canada where wood is used as raw material. There are now 11 plants in Ontario and Quebec and the industry is well organized. It is gratifying to note that manufacture is carried beyond the stage of the crude products, where so many of Canada's industrial activities cease, and that the specially refined and derived products are produced in Canada for local and export trade. In the limited list of chemicals which are regularly exported from Canada there are only three of much importance, namely, calcium carbide, acetate of lime and methyl alcohol, the last two of which are entirely produced by hardwood distillation. It is important to remember that practically all of the wood alcohol and acetic acid which are so essential to modern civilization are produced by the destructive distillation of hardwoods. The Canadian plants together consume over 500 cords of wood per day. Maple, beech and birch are the main species used, although oak, hickory and other hardwoods are suitable if they can be obtained. The primary distillation process is rather crude, the cordwood sticks being run into retorts on cars and the retorts being heated externally by fire which is controlled to some extent. The crude decomposition products which are driven off go through a series of refining operations for the separation and purification of the valuable products.

The crude wood alcohol is collected at central refining plants where distillation products are separated in accordance with market demands at the time. The methyl acetone or acetone-alcohol solvent is a mixture of methyl alcohol vapour with air in thep resence of of methyl acetate, acetaldehyde and other compounds and is a valuable solvent in the paint, varnish, leather and other industries. Methyl alcohol (wood alcohol) in the pure state (Columbian spirits) or containing more or less acetone is widely used as solvent, fuel, denaturant for industrial alcohol and in many chemical industries. Formaldehyde is produced by oxidation of methyl alcohol vapour with air in the presence of heated copper gauze and is in strong demand at the front for disinfecting purposes.

Te acetic acid distilled from the wood is recovered in the form of gray acetate of lime and before the war America exported over half of the production to Europe for the benefit of foreign chemical industries. The main peace uses are for the production of acetic acid by distilling with sulphuric acid and in turn the manufacture of white lead, iron and aluminum acetates, used as mordants in dyeing, and a variety of other acetates. Methyl acetate solvent is made from acetic acid and methyl alcohol. Acetic anhydride is another derivative of acetic acid and its production in Canada has been developed since the outbreak of war for the manufacture of aspirin in Montreal and elsewhere. It is also used for the manufacture of cellulose acetate which is becoming of more and more importance. The war has brought about a very radical change in the disposal of acetate of lime on account of the tremendous demand for acetone as a solvent for gun cotton in the manufacture of cordite, which is the most important British propellant explosive. Canada has played a large part in the furnishing of this solvent not only by hardwood distillation but also by developing new chemical processes on a commercial basis. By decomposing acetate of lime in suitable retorts acetone is the main product and the higher ketones and ketone oils are refined for use as solvents in the artificial leather industry and elsewhere.

Hardwood charcoal is the other valuable product and is mainly used as household fuel and for manufacture of charcoal iron. The wood gas is of rather low heating value and is burned under the retorts. The hardwood tar is also used as fuel at the plant in most cases as the constituents have not the inherent value of the more widely-known coal tar; however, the recovery of certain by-products has important possibilities. The various creosote oils which are obtained in the course of separating the wood alcohol and the acetic acid from the tar are at present of minor value but recent investigations by the Forest Products Laboratories of Canada indicate that they are suitable for the flotation of Cobalt and other Canadian ores. So-called beechwood creosote is a standard article in the drug trade and is made by chemical treatment of hardwood creosote oils.

Destructive distillation of resinous woods is a much different proposition and aims mainly at the recovery of turpentine, pine oil and pine tar oil together with softwood charcoal. The industry has had a more or less checkered career in the Southern States where the very resinous "lightwood" of the longleaf pine is available. The wood is destructively distilled in retorts designed somewhat differently from hardwood retorts in order to give better temperature control. The uses of turpentine are well known and pine oil is valuable in the drug trade and for flotation of ores. The crude tarry fraction is large in quantity and as "pine tar oil" commands a fairly good price for impregnating ropes, staining shingles, etc. The yields of methyl alcohol and acetate of lime are much smaller than in the case of hardwoods and by present methods recovery has not been found profitable. Experiments have indicated that the resinous stumps of western yellow pine in British Columbia compare very favorably with southern pine in yields of distillation products and the old red pine stumps of Ontario contain a good deal of resin and some turpentine. When the industry becomes more highly developed it will no doubt be established at certain points in Canada.

Wood waste of various kinds can be used in place of coal for the generation of producer gas and this method of utilization is practiced in Europe and to some extent in the United States. The increased efficiency of the producer and gas engine over the boiler and steam engine is a well-known advantage in the hand-

lings of fuels. In Canada wood waste occurs in such large quantities and is so easily used as fuel directly under steam boilers that there is not so much occasion for installing the more complicated large-scale gas producers. In line with the manufacture of producer gas it is important to mention the destructive distillation of wood waste modified to yield the maximum amount of wood gas. A number of centres in America are now using wood gas for heating and illuminating purposes and as motor fuel.

The steam and solvent process applies to resinous longleaf pine in the Southern States. The selected wood waste is hogged or chipped, steamed to drive off most of the turpentine and pine oil and then extracted with gasoline or other volatile solvent for the recovery of rosin. The extracted wood is used in the manufacture of composition flooring blocks and is also suitable for manufacture of pulp. The resinous wood material in Canada is limited in quantity and not very high in quality, so that economic recovery of products is a more difficult problem.

By steam distillation of the leaves and twigs of certain trees which contain essential oils, products are obtained for the drug trade. Most of the cedar oil is produced by distilling the waste cedar wood in pencil manufacture and this particular species 'Juniperus virginiana' does not grow commercially in Canada. Ordinary eastern cedar provides a small amount of cedar-leaf oil, and spruce oil is of some importance. A number of the essential oils which are well known in the drug trade are supplied from European tree species. Birch oil is mainly oil of wintergreen, which is now made synthetically.

Minor Industries.

There are a variety of other processes for recovering products from trees, only a few of which are of importance in Canada at present.

Of products which are directly taken from the living trees maple sap holds quite a large place. The maple sugar industry in Canada furnishes products worth over two million dollars per year, over half of which comes from the Province of Quebec. Calcium bi-malate has been recovered from the "sugar sand" in boiling down the syrup and is considered by the MacDonald College authorities to be superior to cream of tartar or other acid materials used in baking powder. Malic acid can also be produced from the malate of lime and is a high-priced chemical. Canada balsam and spruce gum are well known products which are obtained from balsam fir and spruce respectively. Some of the fruits, nuts and flowers come from forest trees, although it is not intended to include the whole fruit industry, for example, under this head. The naval stores industry of the Southern States provides the bulk of the turpentine and rosin used throughout the world and involves the "chipping" of long-leaf pine trees. Experiments are now being carried out on western yellow pine in British Columbia with some prospect of commercial success.

Solvents are used in various ways to extract valuable products from certain kinds of wood material. In Canada hemlock bark is used directly in the tanneries and at one plant in New Brunswick for the manufacture of concentrated tannin extract. Oak bark and chestnut wood are of minor importance owing to the limited range of these species in the southern sections of Canada. The recovery of potash from wood ashes was at one time the main source of potash in Canada but for many years the cheap potash salts from Germany have overshadowed all other sources. Since the outbreak of war there has been some revival of potash recovery in Canada owing to the great advance in prices. Hardwood ashes are the richer for treating but in any case wood ashes should reach the land as fertilizers. The extraction of resinous woods with solvents and the separation of the turpentine and pine oil from the rosin by distillation is not a promising industry for Canada on account of the limited supply of sufficiently resinous woods as already explained. This also holds true of extraction with weak alkali solutions whereby turpentine and pine oil are distilled with the steam, the rosin recovered from the solution in the form of soap by "salting out" with more alkali and the extracted wood cooked with the strengthened alkali to produce paper pulp. Dye woods are of but little importance in Canada. The extract of black oak is used partly as a tanning material and partly as a dye, while walnut and butternut extracts give a brown coloring material and the flowers of sumac a red dye which is at least used locally throughout the country. The laboratory of the United States Forest Service has made an interesting discovery that western larch contains from 6 to 8 per cent of water-soluble material which is mainly galactose sugar. Various products including table syrup, ethyl alcohol and mucic acid which may be used as a constituent of baking powder can be manufactured therefrom. It may be that a small industry can be established in western Canada.

Hydrolysis of sawdust or hogged wood-waste is carried out by dampening with a certain proportion of dilute sulphuric acid and steaming under pressure for a short time. Part of the wood substance is thereby converted into sugars, most of which can be fermented by adding yeast to the neutralized water extract with recovery of ethyl alcohol (grain alcohol). The yield from softwoods is about 20 U.S. gallons of 95 per cent alcohol per ton of dry wood and it is estimated that the cost of production can be reduced to 15-20 cents per gallon. Two plants are operating in the United States, each consuming several hundred tons of wood waste per day. Undoubtedly the industry will be established in British Columbia or at other large sawmill centers in Canada when the economics of the process are more definitely established and when Canada joins the other civilized countries of the world who have given their chemical industries the necessary factor of tax-free industrial alcohol. Cattle food as a substitute for hay can be recovered by removing the acidity from the hydrolyzed wood mass and in some cases mixing with waste molasses.

By heating softwood sawdust at moderately high temperatures with a strong solution of caustic soda and caustic potash a large proportion of the wood is converted into sodium oxalate. The valuable product, oxalic acid, can be recovered by precipitation of the extract with lime and treatment of the calcium oxalate with sulphuric acid. One plant has been established in the United States but it is doubtful if the industry will assume large proportions on account of cheap production of oxalic acid by other chemical methods, especially in Europe.

A descriptive diagram of wood and its uses follows on the next page.

DIAGRAM OF FOREST PRODUC

(Products indicated in plain type are r
in *italic type* are those which
in some cases re

T F

WOOD USED AS SUCH

ROUGH

FIREWOOD
CROSS-TIES
MINE TIMBERS
POLES
PILING
FENCE RAILS

ROUGH SAWN

LUMBER
STRUCTURAL TIMBERS

ROUGH MANUFACTURED

SHINGLES
LATHS
OUTSIDE FINISH
BOXES & CRATES
BARRELS
SHIP & BOAT TIMBERS
TANKS & SILOS
VENEER
EXCELSIOR
WOOD PAVING BLOCKS
WATER PIPE
WOOD FLOUR
WOOD WOOL

SPECIALLY MANUFACTURED

SASH & DOORS
FURNITURE & FIXTURES
FLOORING & INSIDE FINISH
AGRICULTURAL IMPLEMENTS
VEHICLES & SUPPLIES
RAILWAY CARS
MUSICAL & SCIENTIFIC INSTRUMENTS
COFFINS & CASKETS
HANDLES
WOODENWARE
PATTERNS
LAUNDRY APPLIANCES
MACHINE CONSTRUCTION
REFRIGERATORS
SPORTING GOODS
MATCHES & TOOTH PICKS
PULLEYS & CONVEYORS
TOYS & NOVELTIES
TRUNKS & VALISES
DOWELS & PEGS
SHUTTLES, SPOOLS & BOBBINS
PLUMBERS' WOODWORK
BRUSHES
PICTURE FRAMES & MOULDINGS
SHADE & MAP ROLLERS
BUNGS & FAUCETS
SEWING MACHINES
TOBACCO BOXES
BOOT & SHOE FINDINGS

BY-PRODUCTS

LOGGING WASTE

TOPS
STUMPS
BRANCHES
CULL LOGS
LEAVES
TWIGS
ROOTS

SAW-MILL WASTE

SLABS
EDGINGS
TRIMMINGS
SAWDUST
BARK
CULLS

MANUFACTURING WASTE

SEASONING WASTE
SHAPING WASTE
SAWDUST
SHAVINGS
CULLS

DISTILLATION INDUSTRIES

DESTRUCTIVE (HARDWOODS)

CRUDE WOOD ALCOHOL

METHYL ACETONE
METHYL ALCOHOL
FORMALDEHYDE

ACETATE OF LIME

ACETIC ACID
ACETIC ANHYDRIDE
METHYL ACETATE

ACETONE
METHYL ETHYL KETONE
WHITE KETONE OIL
YELLOW KETONE OIL
KETONE RESIDUE

CHARCOAL
GAS
HARDWOOD TAR
CREOSOTE OILS
BEECHWOOD CREOSOTE

DESTRUCTIVE (RESINOUS WOODS)

TURPENTINE
PINE OIL
LIGHT OIL
PINE TAR OIL
PITCH
CHARCOAL
GAS
METHYL ALCOHOL
ACETATE OF LIME

PRODUCERS (WOOD WASTE)

PRODUCER GAS

STEAM & SOLVENT (RESINOUS WOODS)

TURPENTINE
PINE OIL
ROSIN
EXTRACTED WOOD

STEAM (ESSENTIAL OILS)

CEDAR OIL
SPRUCE OIL
HEMLOCK OIL
PINE NEEDLE OIL
BIRCH OIL

MA
MAPL
MAPL
MALT

M CANADIAN TREE SPECIES

in Canada; products indicated
m Canadian woods and
be established)

S

PULP AND PAPER INDUSTRY

ND WOOD PROCESS	SULPHITE PROCESS		SULPHATE PROCESS			SODA PROCESS	
WOOD PULP	SULPHITE PULP	WASTE SULPHITE LIQUOR	KRAFT PULP	SULPHATE PULP	SPENT LIQUOR	SODA PULP	SPENT LIQUOR
NEWSPRINT PAPER HANGING PAPER WRAPPING PAPER BOOK PAPER CONTAINER BOARD LINERS POSTERS	PRINT PAPER WRAPPING PAPER WRITING PAPER BOOK PAPER BAG PAPER TISSUE PAPER PAPER TOWELLING WAX PAPER GREASEPROOF PAPER IMITATION PARCHMENT PLASTICS *VULCANIZED FIBRE* *SURGICAL COTTON* *VISCOSE* *GUN COTTON* *CELLULOSE ACETATE* *FILTER MASS*	*BINDERS* *TANNINS* *ETHYL ALCOHOL* *CATTLE FOOD* *FUEL* *DISTILLATION PRODUCTS* *FERTILIZER* *MORDANTS*	WRAPPING PAPER *PAPER TWINE* *ROPES* *BAGGING* *CARPETS* *CLOTH* *BELTING* *CONDUITS* *IMITATION LEATHER*	*WRAPPING PAPER* *WRITING PAPER* *BOOK PAPER*	ROSIN OIL TURPENTINE *ROSIN SOAP* *METHYL ALCOHOL* *ACETONE* *ACETIC ACID* *OXALIC ACID* *HIGHER OILS*	BOOK PAPER LITHO PAPER WRITING PAPER BLOTTING PAPER	*METHYL ALCOHOL* *ACETONE* *ACETIC ACID* *HIGHER OILS*

MINOR INDUSTRIES

FROM TREES		EXTRACTION WITH SOLVENTS						HYDROLYSIS (Wood Waste)	ALKALI FUSION (Wood Waste)
	NAVAL STORES	WATER (Bark & Wood)	WATER (Wood Ashes)	VOLATILE SOLVENTS (Resinous Woods)	ALKALIES (Resinous Woods)	WATER (Dye Woods)	WATER (Western Larch)		
FRUITS NUTS FLOWERS	*TURPENTINE* *ROSIN*	TANNING SOLUTIONS TANNIN EXTRACTS	POTASH	*TURPENTINE* *PINE OIL* *ROSIN* *EXTRACTED WOOD*	*TURPENTINE* *PINE OIL* *ROSIN SOAP* *PAPER PULP*	*BLACK OAK EXTRACT* *BUTTERNUT EXTRACT* *WALNUT EXTRACT* *CANADIAN SUMAC EXTRACT*	*GALACTOSE* *MUCIC ACID*	*ETHYL ALCOHOL* *CATTLE FOOD*	*OXALIC ACID*

FOREST PRODUCTS LABORATORIES OF CANADA, MONTREAL.
APRIL 16, 1917

Grading, Decay and Preservation of Mill Timber

(Special Report for Pulp and Paper Magazine).

The kind of roof to be kept over one's head depends on what else is under the roof. Some conditions induce very rapid decay of wooden roofs, and as these are most used in paper mills, the following brief report of papers, dealing with decay in mill roofs will be appreciated by paper makers. The assistance of the experts at the Forest Products Laboratories in locating the cause of decay in timbers and presenting a remedy is offered in this invitation:

The Forest Products Laboratories of Canada at McGill University, will be glad to know of any cases of rot in Canadian mills in order that the conditions causing the trouble may be investigated. The Laboratories have been informed that in several cases Douglas fir has proven to give equal or better satisfaction than southern pine in mill construction.

At the annual meeting of Cotton Manufacturers held in Boston, on the 25th of April, a number of Government experts and engineers presented papers dealing with the grading, decay and preservation of timbers and especially of roofs in mill buildings. Since much the same conditions occur in pulp and paper mills as in textile plants the subjects taken up are of particular value to the pulp and paper industry.

The following states briefly the main points of the papers presented:

Dr. Hermann von Schrenk, scientific expert for the Southern Pine Association described the methods of grading timbers, and illustrated his discussion with a large exhibit. He stated that there are over 270 billion feet of high grade longleaf pine still standing in the southern States and declared that the prevalence of dry rot at the present time, in many New England mills is due, first to changed conditions, and second, to the quality of timber which is being used. Most of the trouble is due to the presence of sapwood, and the amount of resin in the wood has little relation to resistance to decay, according to Dr. von Schrenk.

H. N. Lee, microscopist at the Forest Products Laboratories of Canada, described methods of identifying the exact species of fungus which is causing decay in any given mill.

C. T. Humphrey, pathologist of the United States Forest Products Laboratories said that he was much surprised in a recent trip through New England to find dry rot so prevalent in paper and cotton mills. He was convinced that in most cases the lumber itself was not at fault but that improper use of the lumber and poor ventilation were responsible. Faulty specifications resulting in the use of inferior grades of timber, and the lack of attention to architectural and engineering details resulting in wood being put in place wet and with no chance to dry out, have been the causes of several bad cases of dry rot which Mr. Humphrey has investigated. With the knowledge now available most of these faults can be very easily avoided.

R. J. Blair, pathologist of the Forest Products Laboratories of Canada, described the important work just started at his institution to determine the moisture limits between which timber can be safely used without danger of decay. Mr. Blair emphasized the fact that moisture must be present in wood to enable fungi to cause decay or rot. The absorption of moisture by the walls of woody tissue is proportional to the relative humidity of the air surrounding the wood. In certain mills examined by Mr. Blair, timbers in one particular spot were found to be badly decayed while timbers within a few feet were entirely unaffected. Investigation showed in every case that the relative humidity of the air was high in the immediate vicinity of the decayed spots. Sometimes this was caused by a cold water pipe and sometimes by cold air lowering the temperature of the atmosphere in some particular part of the mill and thus raising the relative humidity. A change of only a few degrees of relative humidity often makes conditions favorable or unfavorable for the development of rot. As the result of his experiments Mr. Blair expects to be able to state very definitely just what these moisture limits of decay are, so that architects designing mills may see that the more durable woods are used in places where conditions are most liable to permit of rot.

Clyde H. Teesdale, in charge of the section of wood preservation of the United States Forest Products Laboratory at Madison, Wis., stated that he believes the chief cause of the increase in the rotting of wood in cotton mills at the present day over what occurred years ago, is because of changed conditions which have resulted in higher relative humidities in the buildings. Under the severe conditions existing in certain cotton mill roofs it is not practicable to use any kind of timber unless it has been given a preservative treatment. High grade timbers under most conditions should give satisfaction for basements, floors and columns although a brush treatment with creosote or mercuric chloride may, in some cases, be desirable. For wood which is to be placed under conditions favorable to the growth of fungi, Mr. Teesdale recommends the use of coal tar creosote or sodium fluoride, either one to be injected into the wood by pressure treatment. Mercuric chloride or zinc chloride may be used, but both have certain disadvantages for use in mill buildings. If the conditions are properly taken into consideration and only treated wood used where rot is likely to develop there is no reason why wood should not give perfect satisfaction in mill construction.

Arthur N. Sheldon, of F. P. Sheldon and Son, mill architects, of Providence, R.I., described some very interesting experiments concerning the insulating properties of wooden roofs. If the temperature of the underside of the roof coincides with the dew point for the particular humidity and temperature in use, there will be condensation of moisture. It is an easy matter to determine in advance how to design a roof in order to prevent condensation on the underside. In comparing wood with concrete Mr. Sheldon showed that roof plank a trifle over three inches thick will give, approximately, the same insulation as concrete four inches thick, plus one inch of cork board, and the wooden roof will cost much less. Where wooden roofs are used the planks should be treated with some preservative if the humidity within the building is high.

"Reducing Condensation under Concrete Roof," was the subject of Charles H. Bigelow, chief mechanical engineer for the Millville Manufacturing Company, of Millville, N. J. Mr. Bigelow showed that proper insulation not only prevents precipitation of water from the underside of roofs on to goods, but also decreases the amount of heat necessary to keep a building up to the required temperature. Mr. Bigelow stated in part:

"In a three inch concrete slab with 5-ply Barrett specification tar and gravel roof the B. T. U. trans-

ferred per hour per square foot per degree difference is 0.07. The same roof with ⅞ inch pine lumber treated and placed on screens bedded in the concrete giving about one inch air space between the concrete and the tar and gravel roof, reduces the B. T. U.'s lost to about 0.217. The same roof with one thickness of Cabot 3 ply quilting composed of stiff paper with dried eel grass (which is vermin and moth proof, difficult to burn, possesses innumerable air spaces and is practically indestructible), being inserted between the boards and the concrete, reduces the B. T. U. loss to 0.139. Applying these figures to a specific case where increased cost of the better insulated roof is $4,000, about $3,000 is saved, in one year, on heating alone, making such construction very attractive aside from prevention of condensation and the fact that the roof is rot-proof."

F. J. Hoxie, special engineer of the Factory Mutual Fire Insurance Companies of Boston, presided at the meeting. The papers referred to above are published more or less completely in the American Lumberman and various textile journals, and will be published in full in the Proceedings of the National Association of Common Manufacturers.

IS THE PROBE A CHRONIC AFFLICTION?

By EVERETT ANDREW.

Are the filing of statements in the form of "Official Forms," which the newsprint manufacturers furnished and compiled at the request of Commissioner R. A. Pringle, K.C., for use in the newsprint probe, going to amount to anything at all? This question asserts itself in the face of the reported statements made by the Commissioner at Calgary last week, where he is said to have stated that when the newsprint probe resumes its sitting at Ottawa, on June 19, the mill operators and publishers will be invited to get together on the question of a selection of a Canadian auditor of standing, who would go exhaustively into the cost of newsprint.

While refusing to commit himself definitely, Mr. Pringle, in answer to a question by R. L. Richardson, held it out that no increase of the present set price was likely until such an audit had been completed, and had shown that the cost of production did not permit manufacturers a reasonable profit at the present figures.

So far as is known, and is vouched for by the various statements of newsprint manufacturers throughout the country, the mill owner has little or nothing to fear through his books being gone over in relation to his cost of producing newsprint. That his profits before the "fair and just" price went into effect may have been large or even abnormally large, can be borne out, because the manufacturer, seeing the rising price of his supply market, charged accordingly for his product whilst drawing upon reserves, which did not cost him what the prospective market price indicated would be charged. Through an operation of this kind his books will show a big profit, and quite an increase in the price of his product. But if he used pulp-wood that was cut in 1912 or 1913, when labor was much cheaper than it is to-day, and chemicals and machinery were in accord with price, why has he not got the right to charge such a price? As when war terminates, materials, labor,etc., will fall in price, but before the readjustment of that price begins to tell on the newsprint manufacturer, one, two, or perhaps three years will have passed by. Thus on an equitable basis it appears that the profits that the newsprint man was making before the two and one-half cents a pound went into effect, were but "savings" to insure against "losses" —at the same selling price, that would accrue when the European conflict had ceased.

Meanwhile the manufacturer sells at the Government's price, because the Commissioner has announced that the $2.50 rate has been extended by an Order in Council for another three months, and told western consumers that if they were charged above two and one-half cents per pound, that the mill would have to make a refund.

Mr. Pringle took occasion to warn the publishers present at the hearing in Calgary that imposition by the Dominion Government on Canadian mills of a selling price in Canada substantially lower than they could get for their product in the United States imposed a countervailing obligation on the publishers thus relieved to limit waste in paper. He did not desire to interfere in that matter, and would welcome any agreement of their own initiative covering the situation by the western publishers themselves, but he said that the present wasteful consumption of newsprint could not be permitted to continue.

HE DISAGREES ON RAILROADS.

(To the Editor of Pulp & Paper Magazine.)

I have read with interest your several editorials in your issue of May 17th.

In your editorial on "Making Two Bites of a Cherry" I certainly do not agree with you on the question of Government Ownership of the Railways in Canada.

Government ownership is bad, and operation under Government ownership has proved a failure on this Continent. We have only to study the results of the operation of the Intercolonial Railway in our own country. Nationalization of the roads in Great Britain is an entirely different problem.

It is true Canada has spent hundreds of millions of dollars on railways, given millions of acres of land and guarantees. The trouble here, however, is the Government went too far, subsidizing, or building, or causing to be built, parallel lines and lines that will not be required for many years to come. Now the Government is obliged to do more to make right the wrong already done.

A remedy is required, and suggestions are the order of the day:—

Eliminate the Canadian Northern Railway entirely, it has "non raison d'etre."

Keep the Canadian Pacific Railway intact. This is a grand institution, a credit to the country and its success was due to good management.

Reorganize the Grand Trunk Railway and turn over to this company such lines of the Grand Trunk Pacific, west of Winnipeg, and of the Canadian Northern, west of Montreal, that will make up a workable proposition. Drop out unsuitable lines, and remove rails, etc. Some of these lines could be perhaps, operated by the Canadian Pacific to advantage, in that event, offer these lines to the latter company.

All lines east of Montreal of the Canadian Northern to be offered to the Canadian Pacific, this includes the Quebec and Lake St. John Branch.

Regarding the present line of the National Transcontinental, east of Winnipeg, well, as we are obliged to own and operate an Intercolonial Railway, turn this section over to it.

An arrangement of the kind suggested will mean the closing down of many miles of already constructed roads; but it will be a wiser policy to suffer now for the sins committed by our Legislators than to wait when the punishment will be still greater.

CIVIL ENGINEER

Question Drawer

A correspondent asks the World's Paper Trade Review: What is the proper pitch for a Fourdrinier on a machine making a heavy sheet 22 by 30-145; also on a sheet 29 by 47-70. When is a wire called pitched? Is it when the breast roll end is above, being level with the suction boxes, or below, being level with the suction boxes? And should the stroke of the shake be changed in any way when the pitch of the wire is changed?

Reply: The correct pitch on a wire for making a sheet 22 by 30-145 depends largely upon the quality of the paper and the condition of the stock in regard to beating and refining, whether long or short, free or slow stuff is to be run. On long free stock I would advise that breast roll be raised one inch above the level of the suction boxes, and for stock which holds the water more, either through being slower or shorter, the breast roll should be anywhere from level with the suction box to one inch lower. On a sheet 29 by 47-70 in addition to the above conditions, the pitch would depend also on the speed of the machine and the length of the wire. For making such a sheet of book paper on a sixty foot wire at a speed of 300 feet per minute, the breast roll should be pitched about 2¼ inches above the suction box level. The stroke of the shake depends mostly on the condition of your stock, and is not influenced to any extent by changing the pitch of the wire. Generally speaking, a wire is pitched when the breast roll is higher than the level of the suction boxes.

P.S.—Do any of our readers know of a formula for calculating pitch of the wire?

STOCKS LIGHT. DEMANDS HEAVY.

On May 25th, there was an increase of 334 tons in stocks of newsprint in Western and Canadian territory over the amounts for May 12th. This increase is insignificant as it amounts to about three hours' run in the combined territories all told.

In the Canadian territory, for the week ending May 19th, three mills ran more than six days in the week, and for the week ending May 26th, four mills ran more than six days in the week.

It is probable that there will be very little change in the present situation during the summer months, and every indication points toward a very heavily increased demand during the fall months.

DEFUNCT.

The news item published in our issue for May 17, regarding Michipicoten Power and Paper Co., is not correct, as this company has been dead and buried for over three months.

DIRECTORY OF BRITISH FAPER MAKERS.

Marchant, Singer & Co. of London, who publish the Paper Makers' Monthly Journal have issued their 41st Annual Directory of Paper Makers. This is a 240 page volume which sells on this side for 40 cents. Besides the usual geographically arranged list of mills with particulars of each, there is a list of mills according to product, a list of trade designations and of watermark and trade names. A chapter is devoted to paper trade customs, sizes of paper, etc. The Directory is certainly a handy volume for the paper trade to have.

Paper and Wood Pulp in Australia

The prospects of extending the paper-making industry in Australia is referred to in a report by the Inter-State Commission presented to Parliament by the Minister of Customs a few weeks ago. In a preface to their observations, the Commissioners point out that the manufacture of certain papers in Australia has serious natural difficulties to contend with, the chief of which is that for all the better classes of paper wood-pulp is the essential material, and this is not yet made on a commercial scale in this country or with success, either as to quality or price. A Queensland company made application to the Commission for tariff consideration, but it is working under unfavourable conditions as compared with competitors abroad. The Commissioners state that it is quite possible that the industry may be successfully developed, but they are of the opinion that it would be futile to extend special encouragement unless the raw material is available and unless there is a reasonable possibility of supplying locally a fair proportion, if not the whole, of the Australian requirements. It is urged that further efforts should be made to ascertain whether or not waste forest vegetation represented a source of industrial wealth. Attention should be given to the question of making pulp from grasses. As a stimulus to practical commercial effort, an increase in the rate of bounty on the market value of vegetable pulp for paper-making from 15 to 30 per cent is suggested. As no wood-pulp is made in the United Kingdom, the Commissioners take the view that any extra duty imposed for preference would add to the cost of local manufactures in which the material is used.

Summarized, the Commission's recommendations with regard to paper are as follows:

Wrapping, blotting, cartridge paper, paper felt and carpet felt, no increase in duty: strawboard, £2 a ton general, £1 10s. preference: fibre board and flaxite, no alteration: paper boards, £3 ton general, £2 ton preference: cardboard boxes and cartons, 45 per cent general, 35 per cent preference: paper bags, British preference of 5 per cent on **ad valorem** rates: manufactured stationery, increase from 30 per cent general and 25 per cent preference to 40 per cent general and 30 per cent preference: account and letter books, 45 per cent general, 35 per cent preference; envelopes, increase from 30 per cent general and 25 per cent preference to 40 and 30 per cent respectively: calendar backs, almanacs, show cards and wall pockets, increase to 40 per cent general: playing cards, 3s. 6d. per dozen packs general 3s. dozen preference: beaver board, special duty of 30 per cent, the same as three-ply; magazines, supplements, books and novels (at present free), no alteration: Christmas cards, increase from 30 per cent general and 25 per cent preference to 40 and 30 per cent respectively.

With regard to paper manufactures generally, the Commission reports that no reason was shown to it which would justify an increase in duty except an increase in the general rate of 5 per cent, so as to afford preference to the United Kingdom.—The Paper Maker.

Remember the T. S. Meeting, June 15 and 16.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Tests for alum, rosin, rosin size and bleach. Max Cline. Paper Vol. 18, No. 9, pp. 11-15 (1916).—Provisional analytical methods of the Tech. Assoc. of the Pulp & Paper Industry are as follows: **Aluminum sulfate sampling:** Sample 5% of the packages in case of ground alum. Chip 12 pieces from an ingot in case of ingot alum. Insoluble matter. Dissolve 25 g. in 200 cc. hot distilled water, filter by suction, dry and weigh. Al_2O_3 and Fe_2O_3. Dilute filtrate from above to 500 cc. Take 100 cc. and dilute to 500 cc. Remove 50 cc. of this and dilute to 150 cc., precipitate with NH_4OH in the usual manner, ignite to constant weight over a No. 4 Meker burner or blast (about 30 min.) and weigh. **Iron:** Take by pipet 100 cc. of the diluted filtrate from the determination of the insoluble matter, reduce in Jones reductor and titrate with $KMnO_4$. For alums containing less than 0.1% iron a slight modification of the colorimetric method of Stokes and Cain (**J. Am. Chem. Soc.** (29, 409-47 (1907)) is recommended and described. Sulfuric anhydride. Precipitate a 50 cc. portion of the filtrate from the determination of insoluble matter (after dilution to 200 cc.) with $BaCl_2$ in the usual manner. Free sulfuric acid. See **J. Ind. Eng. Chem. 7,** 1059. **Analysis of rosin:** Sampling. Sample 5% of the bbls. and reduce to 2 lb. laboratory sample. Grade. Cast into cube in an Aluminum mold after melting at low temperature and compare to standard sample. Dirt and foreign matter. Dissolve 25 g. in warm alcohol and filter through tared paper. Saponification no. Boil 2 g. 2 hours in 300 cc. Erlenmeyer flask with 25 cc. o.5 **N** KOH, using reflux condenser and shaking frequently. Titrate the unconsumed KOH with o.5 **N** acid. In each case run a blank on the KOH solution. Acid no. Titrate 1 g. rosin dissolved in alcohol with 0.5 **N** alcoholic solution. of KOH, using phenolphtalein. Unsaponifiable matter. Saponify 5 g. rosin by boiling 2 hours with an excess of 0.5 **N** alcoholic solution of KOH. Evaporate most of the alcoholic, add 100 cc. water and extract in a separatory funnel with acid-free ether as in the determination of free rosin in rosin size. Ash. Ignite 5 g. in Platinum to a white of light gray residue.

Practical Sizing Test: Make a size by cooking 4 hours with soda ash sufficient to yield a size containing 25 per cent. free rosin. Use this to size sheets of unbleached sulphite pulp in direct comparison to a standard size, using 2 per cent. size and 3 per cent. standard alum.

Analysis of Rosin Size: Sampling.—Take 1 pint from a barrel selected at random. Solubility. Dissolve 10g. of size in 300 cc. of water at 85-90 deg. let stand 12 hours, pour off and observe for lumps and granular matter. When 20 cc. of size milk is diluted with 200 cc. of cold water, and 10 to 20 cc. of 5 per cent. alum solution added, a white, finely divided precipitate should result, not yellowish or curdy. Free rosin, Mix 10 g. size with 30 cc. water, and transfer with the least possible amount of water to 500 cc. separatory funnel. Extract with 25 cc. acid-free ether and wash ether twice with 25 cc. portions of water, returning wash water to original solution. Repeat ether extraction and washing twice. Run the 3 ether extractions into weighed Soxhlet flask, distil off ether, dry and weigh. It is important that ether used should not color sensitive litmus paper in 15 minutes. Moisture. Dilute residue from free rosin extraction to 500 cc. and pipet 50 cc., into weighed platinum dish. Evaporate, dry and weigh. Total alkali. Ignite residue from moisture determination and weigh. Dissolve in water and titrate with 0.1 N. acid, using methyl orange. Combined rosin. Pipet 200 cc. of solution used for free rosin determination into separatory funnel and add 10 cc. dilute H_2SO_4. Free alkali. Dissolve 10 g. size in 200 cc. acid-free absolute alcohol. Let stand over night, filter on weighed filter, and wash with absolute alcohol. Pour boiling water through filter and titrate aqueous solution with 0.1 N. acid and methyl orange. Insoluble matter. Weigh any insoluble matter left on the filter in above determination.

Rapid Method for Rosin and Moisture in Size. Total rosin. Dilute 10 g. size to 200 cc. Pipet 25 cc. into 150 cc. beaker, and add sufficient NaOH to dissolve free rosin; heat until solution is complete. Add 75 cc. cold water and precipitate with excess N H_2SO_4. Filter on weighed paper, wash and weigh. Moisture. Pipet 25 cc. original solution, evaporate, dry and weigh. Free rosin. Dissolve 5 g. size in 100 cc. neutral 96 per cent. alcohol and titrate with N NaOH and phenolphthalein. Evaporate solution to dryness, dissolve in water and dilute with cold water. Precipitate with excess N H_2SO_4 and heat until rosin collects in lump. Cool and titrate with N NaOH.

Bleaching Powder: Sampling. Sample 20 per cent. of the packages in the shipment by boring hole in end of drum and removing sample using 18 in. scoop, first discarding two or three inch layer at surface. All samples should be mixed to make composite. Available chlorine. 10 g. of sample is triturated with water. The liquor after each trituration and finally the paste is transferred to 1,000 cc. flask. Pipet 50 cc. of well mixed sample and titrate with 0.1 N Na arsenite, using starch iodide paper as indicator. Chlorates. The solution which was titrated as above is acidified with H_2SO_4, and an excess of ammonium ferrous sulfate added to reduce chlorates to chlorides. The flask is stoppered with 2-hole stopper carrying separatory funnel and glass vent tube which may be closed by pinching small piece of rubber tubing at its end. The contents are boiled and 15 cc. of 1.29 H_2SO_4 added slowly. Close separatory funnel and vent tube, cool and titrate back with 0.1 N $KMnO_4$. Total chlorides. Decolorize with 0.1 N ferrous ammonium sulfate and add excess of 0.1 $AgNO_3$. Filter off AgCl, wash and titrate excess $AgNO_3$ using 0.1 N KSCN. Bases and silica. To 2 g. of powder add 25 cc. 1.12 HCl and 50 cc. of 3 per cent. H_2O_2. Digest and evaporate. Dehydrate silica and proceed as in lime analysis. Free lime. To 100 cc. of available Cl stock liquor, add 25 cc. H_2O_2, boil and titrate with acid. Correct for H_2O_2 acidity and calculate lime from acid used. Quality. Weigh 60 g. powder and add 1,000 cc. water in glass jar 4½ inches diameter by 5 inches deep. Stir with electricity driven at 250 r. p. m. for 15 min. Time noted for dregs to settle, and 25 cc. of clear liquor tested for available chlorine. Wood and coarse impurities. Triturate 100 g. of powder and wash through 60 mesh sieve. Weigh dried residue. Proximate analysis for sand and grit. To 10 g. of powder, add 75 cc. 1.12 HCl. warm, dilute to 200 cc., decant. Repeat dilution and decantation, filter, wash and ignite residue.—R. B. ROE in Chemical Abstracts.

(Additional Abstracts on Page 574.)

UNITED STATES NOTES

Special to Pulp & Paper Magazine by R. W. Jolly.

Cable dispatches received in New York last Saturday from London stated that Chancellor von Bethmann-Hollweg has decreed a further reduction in the size of newspapers published in Germany to the extent of ten per cent for the Month of June. Promiscuous display of all publications is also prohibited which is demonstrative of the fact that there is quite a dearth of paper now prevailing in the Central empire.

If the plans of the Forest Service are carried out, paper manufacturers in the United States and Canada will undoubtedly soon suffer severely from the effects of the great war. Word comes from Washington that the Service is plannig to organize a "forest regiment" composed of foresters, loggers, woodsmen, saw mill operators and others interested in lumbering operations. If suitable men can be secured to fill the ranks there will naturally be a scarcity of lumbermen in the woods during the coming months.

The Providence Waste Paper Company has been chartered at Provindence, R. I., with a capital of $10,000. The incorporators are: H. W. Jenks, Arthur Galkin and H. M. Davis, all of Provindence.

Paper manufacturers throughout the country have made plans to assist their employees to purchase the Liberty Bonds issued by the United States. One concern in New England plans to buy the bonds and sell them to its employees allowing them to pay either in weekly or monthly instalments, the bonds to be paid for within one year from date of purchase. The bonds will be retained by the company as security until the whole amount is paid when they will then be turned over to the purchasing employee.

The Fort Wayne Corrugated Paper Company, of Fort Wayne, Ind., announces a ten per cent increase in wages for its employees, also that the employees will be paid for ten hours work instead of nine hours as heretofore.

The Collins Manufacturing Company is planning several new extensions and additions to its mill at North Wilbraham, Mass. Two new 36-inch plater machines have already been ordered and it is expected that other paper machinery will be installed before the fall.

Quite a number of New England paper manufacturers are keenly interested in the day light saving plan and your correspondent is given to understand that if the plant does not become nationally operated several of the biggest concerns in the east will put it into operation at their mills.

A call has been issued for a special re-organization meeting of the directors of the St. Regis Paper Company to be held on the morning of June 11 at Watertown, N. Y. It is understood that there will be no change made in the official staff, but that the meeting is called primarily to discuss the advisability of changing the capitalization of the company. It is also understood that the directors desire to amend the certificate of incorporation so as to provide that the company may purchase and hold stock and bonds in other corporations.

Canadian friends of Jas. T. Mix, who is considered in this country to be one of the best known paper men in North America, will be pleased to learn that he has become associated with the Gilbert Paper Company at Neenah, Wis., field, but his new duties will be confined entirely to the finer grades of paper.

In lieu of the high cost of living, several of the paper mills at North Adams, Mass., have voluntarily given their employees another increase in wages. This announcement was made to the employees of the Berkshire Hills Paper Company and the L. L. Brown Paper Company several days ago. The increase affects over five hundred employees and is based on 25 cents a day advance for the male employees and 10% increase in wages for the female workers.

The Paper and Allied Trades division of the Citizens' Preparedness Association of New York City has issued the following bulletin which is being circulated among the paper warehouses in the Greater Metropolitan District: "To recruit the National Guard of New York to a war basis requires an additional ten thousand men. The Paper and Allied Trades quota will be one hundred and fifty men. Will you be one? You can now choose the branch of service that your friends are in. Conscription does not allow this selection. Sign attached application for enrollment and mail to William C. Ridgway, secretary, 41 Park Row, New York City.

The Corrugated Fibre Mills has just been chartered at Brooklyn, N. Y., with a capital of $100,000. The objects of the corporation are listed to manufacture corrugated paper and fibre board. The incorporators are: J. B. Golan, J. Levine and J. C. Cassett, of 27 Pine, St., New York City.

The Phoenix Sulphur Corporation is a new Delaware Corporation with a capital of $1,000,000. The company plans to mine and sell sulphur and gypsum. The incorporators are: H. E. Latter, H. M. Robinson, and C. M. Egner, all of Wilmington, Del.

The West Virginia Pulp & Paper Company is showing its patriotic spirit by permitting its employees to prepare by daily practice drills on the roof of the Fifth Avenue Building. The company has purchased sufficient rifles and every noon fifty or more employees receive their lessons from J. R. Condit of the Accounting Department. Mr. Condit is a member of the National Guard and is getting his new company in fine shape.

Several well known paper manufacturers in the Miami Valley are interested in the promotion of a new company to be known as the Enterprise Machine Company. The company has just been incorporated with a capital of $75,000 by Colin Gardner, Sr., Tom Harvey, E. T. Gardner, George H. Harvey and G. P. Zecher. The objects of the new company are to manufacture and rebuild mill machinery of all kinds.

Ten of the boys at the Lincoln, Maine, mill of the Eastern Mfg. Co., have joined the colors. Others are expected to follow.

A dispatch from Downington, Pa., states that F. M. Rudolph has purchased the Eagle Paper Mills from the Guie Estate and will install a big paper machine of about fifteen tons daily capacity. It is understood that Mr. Rudolph will make extensive improvements.

The Valley Paper Company is building a two story addition to one of its mill buildings at Holyoke, Mass. The building will be of brick construction and is already more than half completed. A new power house is also contemplated by the company and it is expected that ground will shortly be broken for this improvement.

Following the return to Watertown last week of Frank L. Moore, president of the Newton Falls Paper Company, it was announced that the company had closed contracts for cutting 29,000 cords of pulp wood from its tract at Aldrich, N. Y. Mr. Moore states that he anticipates considerable trouble in securing lumber jacks for the summer cut as, aside from the fact that labor is scarce at present, the Canadian Government has been calling back home for military purposes the many French-Canadians in this country who are the main lumber woods workmen of the Adirondacks.

The Pusey & Jones Co., of Wilmington, Del., well known as makers of high grades paper mill machinery are also ship builders. They will make some of the powerful sea going, combination tugs and mine sweepers for the United States Navy.

On June 2 the M. I. T. School of Chemical Engineering, which has been in session at the Eastern Mfg. Company's mill at South Brewer, Maine, closed indefinitely. This suspension is directly due to the war, owing to the need of engineers to carry on the military work.

A. C. Downing, secretary of the Hummel and Downing Boxboard Company, was on Monday elected president of the Rotary club of Milwaukee, Wis. He was opposed by Galbraith Miller, Jr. Mr. Downing succeeds Edward W. Hoffmann.

Japan is likely to become a large purchaser of British Columbia sulphite in the near future. A huge plant for the manufacture of paper and paper products is being erected at Tokyo with the approval and assistance of the Japanese Government, and it is planned to import the raw material from this province.

UNITED STATES FREIGHT RATE ADVANCES POSTPONED TO JULY 1ST.

The effective date of the proposed 15 per cent. freight rate increase on United States railways has been postponed from June 1st until July 1st in a tentative order issued by the Interstate Commerce Commission. The order permits the railways to file supplements providing for increases on the percentage basis, thus saving the time, expenses, and labor that would be involved in filing under the regular rules of the commission. The commission announces that it has not decided about the advance, but that the rates involved will be subject to protest, suspension, complaint, investigation, and correction, as provided for by law. It is expected that the commission will soon set dates for hearings, at which shippers, carriers, and other interests concerned can be heard fully.

"What are you paying for paper?" a Maine publisher was asked.

"On an old contract, running to 1919, I am entitled to paper at $1.84," the Maine man admitted, almost apologetically.

"Well, that's criminal," said the other.

BIG CHEMICAL MERGER INCORPORATES.

(Special to Pulp & Paper Magazine.)

An incorporation of more than ordinary interest to the trade is that of the National Aniline and Chemical Company, during the past week. Recently a merger was formed under this name, including the old National Aniline and Chemical Company, the W. Beckers' Aniline and Chemical Works, the Benzol Products Company, and other concerns. The new organization is capitalized at $17,231,000. Its incorporators are all well known to paper manufacturers. They are: I. Frank Stone, president of the old National Aniline & Chemical Company; Dr. William Beckers, president of the W. Beckers Aniline and Chemical Works; and William N. McIlravy, of the Barnett Company, manufacturers of roofing and paving materials, and coal tar producers.

The concerns included are now producing about 35,000,000 pounds of dyestuff annually, and under the merger, it is planned to make not only the intermediates and dyestuffs now being made by the individual concerns which have joined hands, but ultimately to extend operations to other intermediates and dyestuffs, as well as to coal tar explosives and other lines. The new company will acquire certain minor interests and processes in coal tar intermediates already developed by the General Chemical Company, the Semet-Solvay Company and the Barrett Company.

A SANITARY PAPER SPOON.

Under the title, "sanitary spoon," a New York inventor has taken out a patent for a spoon made of stiffened paper which may meet with demand from ice cream saloons, soda fountains and similar places. As it is full size it is more convenient than the miniature tin spoon now in vogue at most pleasure resorts. It will also be much cheaper to manufacture. The paper spoon has a blank for the bowl, which is pressed into the proper concave shape, while the paper above it is rolled to give the requisite stiffness to the handle.

A FEW GEMS FROM THE A. N. P. A. MEETING.

Through the efforts of the organization, it prevented the news print squeeze of 1907 and 1908, when the manufacturers again tried to force up the price of white paper. It was the constant work on the part of the Association, through its paper committee, that finally resulted in admitting foreign paper and pulp, when it seemed that the paper men had the publishers of the continent by the throat.

In the recent fight to bring about a greater supply of news print at a fair price, and to prevent an increase to levels that threatened thousands of newspapers with suspension, the Association's paper committee rendered remarkable services.

The first claim of the Paper Committee is that there is not by any means adequate new tonnage being provided to take care of the normal and prospective growth and permanent development in the consumption of print paper. They are inclined to feel that they should have the co-operation of manufacturers, wherever possible, in installing additional equipment to put more tonnage on the market.

It is conceded by all that the prices now charged have no relation whatever to increases in manufacturing cost, or even to the natural law of supply and demand. Many manufacturers themselves have conceded this, and none seem to question it very seriously.

PULP AND PAPER NEWS

Dextrine Products, Limited, of Brampton, Ont., which was recently incorporated and capitalized at forty thousand dollars, have completed the erection of a three storey building, and have most of the machinery installed. The company expects to start manufacturing next week. Pastes and gums for use in various kinds of manufacturing industries will be made as well as starch size for paper mills.

The capacity of the Kinleith Paper Mills at St. Catharines, Ont., has been added to by the erection of a new finishing room, which has just been completed. The extension was made necessary by the installation of a new 75 inch stack of supercalenders, the latter being put in owing to the increased demand for supercalendered papers of all kinds.

A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers' Safety Association, is planning for a conference of safety engineers, and all concerned in safety work, which will be held on June 28 and 29. All interested in the protection and safeguarding of employees in pulp and paper plants will be invited to attend. The delegates will assemble at St. Catharines, and will spend one day in visiting the various mills in the Niagara Peninsula, while the second day will be devoted to the reading of timely and instructive papers and discussions on the same, the sessions being held at the Clifton House, Niagara Falls. A member of the Workmen's Compensation Board of Ontario will read a paper on the working of the act and its amendments, while other papers will be given on Piling and kindred subjects. Mr. Costigane has received assurances that a large number will be present, not only from Ontario, but also Quebec.

According to reports being presented to the various Methodist conferences, the turnover for the past year by the Methodist Book and Publishing House, Toronto, was eight hundred and thirty thousand dollars. Ninety of the employees have enlisted for foreign service.

The late W. J. Carrique, of Montreal, formerly of the Hamilton Spectator, and the Ottawa Citizen, and President of the Canadian Street Car Advertising Co., who passed away in Montreal last year, left an estate of $476,611.

Sir Adam Beck announces that the Hydro-Electric Power Commission of Ontario, has acquired the assets of the Ontario Power Co. for $22,669,000.

William Stone, of Stone's, Limited, lithographers, Toronto, has been elected a member of the Board of Directors of the Manufacturers Life Insurance Co., to fill the vacancy caused by the death of R. L. Patterson, who for many years was head of the Toronto branch of Miller and Richard, type founders.

A charter has been granted to the Kinleith Paper Mills, Limited, of St. Catharines, Ont., which has become incorporated with a capital stock of four hundred thousand dollars. W. J. Gage is President of the Company; W. P. Gundy, Vice-President; H. F. E. Kent, Managing Director; G. H. Jefferson, Secretary, and W. A. Anderson, Superintendent.

Mount Alliston University of Sackville, N.B., has conferred the degree of Doctor of Laws on W. J. Gage, of Toronto, President of W. J. Gage and Co., and the Kinleith Paper Mills, in recognition of his services in fighting the white plague.

Recent rain has quenched the forest fires, which have been raging, in the organized and unorganized districts around Fort William and Port Arthur, and destroying pulp wood.

John R. Rathom, publisher of the Providence, R.I., Journal, who will give an address on "Some Inside History" at the Canadian Press Association gathering in Toronto on June 14 and 15, will be tendered a civic reception and luncheon by the city of Toronto, in view of his great services for the Empire, and his exposals of German spies and their work, thus keeping the United States in the right line.

C. B. Gordon, who is a director of the Provincial Paper Mills Co., Limited, Toronto, has been re-elected President of the Dominion Textile Co., Limited; Sir H. S. Holt, who is a director of the Canada Paper Co., Windsor Mills, Que., has been re-elected Vice-President, and another director of the Canada Paper Co., C. R. Hosmer, has been re-elected a director of the Dominion Textile Co.

The annual report of the Pacific Burt Co., Toronto, for the past year shows very gratifying earnings. After payment of dividends on the preference stock of $45,000, the company showed earnings at the rate of 9.73 per cent. on the common stock, but $15,000 was transferred to the real estate and plant reserve, and, after this deduction, earnings on the common were 7.44 per cent. Pacific Burt has been paying two per cent. on the common, and the President, S. J. Moore, of Toronto, stated that although profits would seem to justify an increase in the rate on the common, the directors purpose making no change for the present, until conditions become more nearly normal. The annual meeting of the shareholders will be held on June 15th.

It is understood that the firm of Barber-Ellis, Limited, of Toronto, who have a large envelope factory at Brantford, will shortly establish a similar factory in Winnipeg, and that arrangements are now being made to that end. The new western plant will likely have a capacity of about five hundred thousand envelopes a day. For ten years Barber-Ellis have had a large warehouse in Winnipeg, which is under the management of Wallace Murphy.

W. F. Christie, of the J. Christie Co., rag and paper stock dealers, has returned to Toronto, after spending some time at his summer home at Trent Bridge, Ont., which he has greatly enlarged and improved.

John M. Imrie, manager of the Canadian Press Association, Toronto, is in St. Louis, Mo., where he will give an address before the Association of Advertising Clubs of the World, at their great convention on "What War Advertising Has Accomplished in Canada."

With the drawing off the water from the Old Welland Canal, for its annual repairs, the body of Mr. Andrew Walker was found against the racks of the Thorold Pulp Mill. To the date of its recovery, the body has been in the water exactly four months. He was accidentally drowned while cutting ice on the tail race of the Montrose Division of the Provincial Paper Mills, Thorold.

Mr. R. G. Marshall, of the Montrose Division of the Provincial Paper Mills, is spending his two weeks' vacation in his home town of Johnstown, N.Y.

Mr. Harry Woods, an employee of the Riordon Paper Mills, Merritton, while walking through the mill, slipped and lost his footing, and in throwing out his arms for support, had the misfortune to get his hand caught in the machinery. He was taken to Dr. Vanderberg's office, where, after examination, it was found necessary to move him to the Wellandra Hospital and amputate parts of three fingers.

Mr. William Voisey has resigned his position as boss-finisher with the Lincoln Paper Mills, Merritton. He will be succeeded by Mr. Clark, of Merritton.

E. R. Heyland, of Toronto, Secretary-Treasurer of the Monteith Pulp and Timber Co., who own a rossing plant and saw mill at Monteith, Ont., and buy up large quantities of pulp wood for home and foreign consumption, gave a very interesting and instructive address on Northern Ontario, its development and future, before a large audience in the Dovercourt Presbyterian Church, Toronto, on Monday night.

Robert Rolland, who for the past nine years has represented the Rolland Paper Co., Montreal, in Toronto, has concluded his services with that company and has entered upon his new duties as President of Paper Sales, Limited, Associated with him in the latter organization is J. Hewitt, Jr., for several years Toronto representative of Price Bros. and Co. Paper Sales, Limited will act as selling agents for a number of leading mills and have already established a strong connection with the trade, the principals being well and favorably known.

Thomas Gain, sales manager of the Don Valley Paper Co., Toronto, has entered the Toronto General Hospital for treatment. Mr. Gain has been far from well for some time and it is hoped that he will be around again in a few weeks.

OTTAWA NOTES.

Almost every big printing and bookbinding establishment in Ottawa has entered into a two-year agreement with the Bookbinders' Union, which dates from June 1st, 1917, to a corresponding date in 1919. Apprentices and girl members of the trade are made part of the agreement.

An innovation whereby non-attendant members are fined if they do not turn up at the roll call of the regular meetings was introduced at the last meeting of the Chaudiere Falls Local of Papermakers, presided over by vice-president A. Biage, in the absence of the president, J. Raymond, who was ill.

The Local regretted the loss of Roy Ross, recording secretary, for the past two years, he having located at Ocean Falls, and had transferred his membership thereto. Daniel Doherty was the unanimous choice for the vacancy. General vice-president Hickman, a former member, resigned his position, as he is the Canadian representative, but now resides at Deferiet, N.Y. His position according to the constitution, calls for his residence in Canada.

Fire of unknown origin completely destroyed the plant and mills of the Colonial Lumber Company at Pembroke last week. The mills were considered among the best equipped in the Ottawa Valley, and the resulting loss will total $140,000 or more.

Lieut. F. Millen Pratt, M.C., grandson of George H. Millen, of the E. B. Eddy Company, recently sent home some daffodils picked in the woods of France under shell fire. In a cheery letter from behind the lines, the former stationary engineer of the E. B. Eddy Company, writes, "The woods will go down in Canadian history as a place where Canadian soldiers performed valiant deeds."

Approximately four-fifths of the expenditure of the Ottawa Tag Day Committee went to industries associated with the paper and printing trades. The total expenditures amounted to $153.90, of which $126.71 was spent on tags, pennants, printing and advertising. The total receipts were $6,141.86.

LAST CALL FOR TECHNICAL MEETING.

The Pulp and Paper Magazine has received the following letter from Mr. A. L. Dawe, Secretary of the Canadian Pulp and Paper Association and the Technical Section. This is the last word that can be printed before the meeting. The present opportunity is one of a life time. Don't miss it!

"We attach herewith complete schedule for the Summer Meeting of the Technical Section of the Pulp and Paper Association.

"At the time of writing we have promises from thirty of our members to be with us for this meeting, and the prospects are that we will have over fifty when we leave on the fourteenth of this month.

"Through the generosity of the different mills, excellent arrangements have been made for our comfort; and in addition to going over the various mills, we will have the privilege of visiting the Shawinigan Water and Power Plant at the invitation of Mr. Julian C. Smith.

"Such a gathering cannot fail to be of interest and benefit to every technical man in our industry; and it is hoped that those who have not yet notified the Secretary—Mr. A. L. Dawe, 801 Shaughnessy Building, Montreal—of their intentions, will do so at once.

Yours truly, A. L. DAWE, Secretary.

Schedule for the Summer Meeting of the Technical Section.

Thursday, June 14th: Leave Montreal, Place Viger Station, at 11.55 p.m. Sleepers can be occupied at 10 p.m. Arrive Three Rivers 3.00 a.m. Friday, June 15th.

9.00 a.m., June 15th, take Street car to Cap Madeleine, returning at 12.15.

Leave Three Rivers 12.50 p.m., June 15th. Arrive Grand'Mere 2 p.m., June 15th.

2.30 p.m. visit to the plant of the Laurentide Co.

7.00 p.m. dinner at the Laurentide Inn, Grand'Mere.

Leave Grand'Mere 7.10 a.m., June 16th.

Arrive Shawinigan Falls 7.30 a.m. June 16th.

9 a.m. June 16th visit to the mills of the Belgo-Canadian Pulp and Paper Company.

12 a.m. visit to the Power House, Shawinigan Falls.

Leave Shawinigan Falls 2.15 p.m., June 16th.

Arrive Three Rivers 3.10 p.m.

Leave Three Rivers 3.25 p.m., arriving at Montreal Saturday, 6.15 p.m.

REVIEW OF RECENT LITERATURE.

(Continued from page 563).

Housing for the New Industrial Town. By Alfred D. V. Hall, Landscape Architect, Toronto. Pulp and Paper Mag., **Vol. 15,** (1917), No. 21, p. 507-511. Article dealing with the building of new settlements about the plants of new power developments, mining companies and the pulp and paper mills. The following subjects are discussed:—Connection between housing and the plan of the town-site, financial aspects (examples), types of houses, construction, selling and renting and The Goodyear Co's plan. Illustrations. No industry can undertake housing with the expectation of having its capital earn what it might elsewhere, but it has been proven that provision can be made to give attractive conditions to permanent labor at no cost other than the difference in interest rates.—E.K.M.

Economical Operation of Pulp and Paper Mills.—By L. Wimmer, Muskegon, Mich. Pulp and Paper Mag., **Vol. 15,** (1917), No. 19, p. 459-461. The writer discusses the following: handling wood, wood room, acid towers, boiler house, screen room and wet machines, bleach room, liquor for bleaching, heating and handling of of pulp for paper making, management of repairs and supplies, machine delays and remedies, raw stocks, sulphite (cooking) sulphur consumption and pitch in sulphite.—E.K.M.

Cellulose from Seaweed.—Paper, **Vol. 20,** (1917), No. 10, p. 15, 40. A patent issued by the U.S. July 14, 1914, to M. P. P. Gloess, L. P. J. Darrasse and E. R. Darrasse of Paris, France. The invention relates to a process for the treatment of seaweeds, allowing to extract therefrom iodine, mineral salts, the mucilaginous material and the cellulose. The seaweeds are subjected to the action of an oxidizing agent in neutral or acid solution for example hydrogen peroxide or chlorin, which allows of extracting the iodine without dissolving the mucilaginous material. After extraction of the iodine, the seaweeds are subjected to the action of an oxidizing agent in alkaline solution of suitable concentration, which allows of extracting and transforming at the same time the mucilaginous material for bringing it, according to circumstances in different states or conditions.—E.K.M.

Side Rolls and Culls as Profit Earners.—Method of Avoiding the "Unmaking of Paper: Pulp and Paper Mag., **Vol. 15.** (1917), No. 21, p. 512. Side rolls culls etc. which often times find their way back to the beaters may be utilized by the aid of the Cameron Slitter and Rewinding machinery for many purposes.

The Removal of Pitch From Sulphite Pulp. By K. H. Knudsen. J. Soc. Chem. Ind. Abstract Vol. 36, No. 6, March 31, 1917. p. 321.—The precise cause of resin trouble in sulphite pulp has not yet been determined. Evidence points to the facts that it is not necessary to remove the whole of the resin if it can be evenly distributed. Bleaching seems to favor the agglomeration of the resin particles. Examination of resin spots in pulp sheets showed calcium monosulphite and silica to be present. The calcium monosulphite must have been embedded in the resin since it could hardly have resisted oxidation during 12-15 hours in the bleaching beater. The clotting must be produced mechanically by cumulative cohesion due to the slow rotation of the warm pulp. The author believes it to be of the greatest importance to prevent as far as possible the separation of crystalline deposits in the digester since the calcium monosulphite crystals appear to facilitate the separation of the resin particles. Also in Paper, May 9, 1917.—E.K.M.

PUBLISHERS ASK TAX ON ADVERTISING.

At a meeting last week with Senate Finance Committee, publishers of all classes strongly favored a tax on advertising and no change in postage rates. While it was appreciated that such a tax might bear unequally to some extent, yet an increase in postage on second class matter would be more unfair and would certainly put some important publications out of business.

The whole matter is receiving further attention this week and men are busy estimating the effect on newsprint consumption of a tax on advertising.

SEVEN AND A HALF MILLION HORSE-POWER.

Of considerable moment to the industries of Eastern Canada is the suggestion made some time ago by Mr. C. R. Coulee, before the monthly meeting of Civil Engineers, whereby it was proposed to destroy all waterfalls and rapids on the Ottawa River, and replace them with dams from which water power could be obtained. A series of deep waterways from dam to dam, he said, would enable ships to navigate with ease and safety. Incidentally he would divert part of the waters of the St. Lawrence River across country from Prescott into the Ottawa River. He facetiously answered the shipping interests who cater to the rapids running tourists by explaining that steel or concrete chutes could be provided for them at a point at each dam. Six million horse power from the St. Lawrence, and one and one half million from the Ottawa River, at a cost of a billion and about one hundred million dollars respectively, were the figures used by the speaker.

FORT WILLIAM IN FEAR OF FIRE.

The Pulp and Paper Magazine is glad to print the following letter and trusts that it will meet with a prompt and hearty response.

Gentlemen:

Our Board of Trade are desirous of securing the fullest information, literature and plan of campaign that has been adopted elsewhere, to educate the public and protect forests and rural communities in new bush country, and the amount of your annual appropriations for such purposes. We are yearly exposed to this hazard, and are continually liable to untold destruction of our resources.

We would say further that our Board proposes to memorialize our Provincial Government for greater protection, and we desire and will greatly appreciate such concrete advice that will make such memorial as constructive and effective as possible; having regard to existing conditions and laws, and enforcement thereof.

Thanking you in anticipation of your co-operation and advice.

Yours very truly,
FORT WILLIAM BOARD OF TRADE,
W. Webster, Secretary.

NOT THAT KIND OF A COOK.

The applicant for the position of cook in a pulp mill was asked if he were a cook. He said, "Oh, yes, of course, I am a cook?"

The superintendent asked if he could cook sulphite and got this reply, "I never cooked any sulphite but the boys say I cook beans fine!"

The Markets

CANADIAN PAPER MARKETS.

TORONTO, June 4th.

Each week brings its good and bad news in reference to the paper situation, which is filled with as many uncertainties as is the possible termination of European hostilities. The war revenue bill of the United States, as passed by the House of Representatives, eliminates the proposed ten per cent duty on pulp, pulp wood and print paper up to five cents a pound. This is favorable tidings to large exporting mills in the Dominion.

The unfavorable part of the developments during the past week is the declaration by Commissioner Pringle, at the special sitting of the newsprint investigating commission in Calgary, who intimated that, at the resumption of the hearing in Ottawa on June 19th, the mill interests and publishers will be invited to get together and select a Canadian auditor of standing who will go exhaustively into the cost of the production of news print. In the meantime, an order-in-council has been passed at Ottawa extending the two and a half cent figure for another month. This would not be so unfavorable in itself according to the views of representative manufacturers, if the manner in which things are shaping up, did not apparently indicate that this quotation will prevail for many months more and meanwhile, the cost of production, wages, materials, coal, etc., is ascending every week.

For an auditor to go through the books of the leading paper companies and get the statistics which the Commissioner desires, will; in all likelihood, require several months, and the Commissioner has intimated that, until the audit is completed and has shown that the cost of production does not afford the manufacturers a reasonable price at the present figure, matters will proceed as they are now.

The paper manufacturers contend that they have fully answered the questions submitted by the Commission and that to delay decision is an arbitrary and unjust course. One manufacturer this week asked why an auditor was not appointed by the government to go into the bakeries of the country and investigate whether the bread manufacturers were not making too much money. Then why not investigate the affairs of the cold storage companies, the steel companies, the transportation compaines and many others. No, the federal authorities had not even yet appointed a food controller although very quick to make the selection of a paper commissioner. The cost of living problem affected thousands to every one that was touched by the news price of news print. However, there appears to be nothing that can be done, under the circumstances, except to grin and bear it all.

The one ray of hope is that the Commissioner conveys the impression that the publishers are to be brought to time and will have to cut down the size of their big editions and eliminate waste. Mr. Pringle expressed the hope that they would take some initiative on their own part, and the whole problem will be discussed at the annual meeting of the Canadian Press Association which will be held in Toronto next week. Not only will news print supply and prices form a leading topic, but the publishers will take up the question of meeting the large increase in the cost of printing their papers, which, since the inception of the war, has been climbing all the while. Labor and almost every item has gone up and the reports coming to hand indicate that expenses will still mount higher. The Canadian Press Association now has a membership of 775 which is the greatest in the fifty-nine years of the history of the organization. A large number of members are on active service.

The recent statement of a consumer of book and writing paper, before the Commission at Ottawa, to the effect that he could get only one firm to supply him with paper and that the others refused to give him quotations, is denied by the manufacturers of this class of papers. They say that the consumer in question, who had obtained the lowest rate possible, went around endeavoring to induce others to cut the price and when he could not secure a better figure, in the open market, he now comes forward with the allegation that no other mill would supply him. "I hope to have the opportunity of presenting the true facts of the cases before the commission when the inquiry into book and writing papers is reached", concluded a manufacturer and a much different complexion will be put on the whole affair. Some consumers do not know when they are well off.

The rag and paper stock arena is still dull and mills are staying out of the market consistently. Prices are pretty nearly nominal on all lines. The paper stock market is also very quiet and the demand small.

Envelope manufacturers are not very busy at the present time and one thing noticeable is that the increased postage, which went into effect shortly after the outbreak of the war, did not result in cutting down the number of letters sent, as at first supposed, would be the case. The situation is that the capacity of the factories is greater than the consumption, although there are less envelopes imported than at any time previous in the history of the Dominion. The returns for the number of envelopes used for last fiscal year are not yet to hand, but in the fiscal year ended March, 1916, there were 684,000,000 envelopes which went through the mails of Canada. Of this number, 60,000,000 were imported. In 1914, the number of envelopes used was 673,000,000, 1913- 633,000,000 and in 1912 566,000,000. How great business in the epistolary line has develped in Canada is revealed by the fact that in 1876 there were only 41,000,000 used, 1877- 41,500,000, 1878- 44,000,000 and in 1879- 43,900,000, the only year that there has been a falling off. There are some Canadian plants today which have a capacity of one million per diem.

In the book and writing paper line, business is good and mills are fully employed. While most of the plants are well supplied with raw material at high prices for the present, the outlook is uncertain. What the future holds lies solely in the future and one man's guess in

just as good as another. The manufacturers can only go ahead and do the best they can under the circumstances.

The sulphite and ground wood situation is unchanged and very little buying is going on. Ordinarily large shipments of pulp are received from Scandinavia at this season of the year, but the receipts at the American ports are very small. If Denmark enters the war on the side of the Allies, the chance of getting foreign supplies will be slimmer than ever. Reports received show that the cut of pulp wood is growing smaller all the time and there seems to be no doubt that prices will in a few weeks go to a higher level and that the present quietness is only temporary.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionary bags	25% discount
News board, f.o.b., New York, ton	$70.00
Chip board, f.o.b., New York, ton	$65.00 to $70.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$42.00 to $45.00
Easy bleaching sulphite	$90.00 to $95.00
Sulphite, news grade	$80.00 to $90.00
Sulphite (bleached)	$155.00 to $160.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.75
No. 1 soft white shavings	$3.75
Mixed shavings	$1.00
White blanks	$1.70
Heavy ledger stock	$2.35
Ledger and writings	$1.65
No. 1 magazine	$1.05
No. 1 book stock	90c
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.20
Folded news	75c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	60c
No. 1 white shirt cuttings	$7.25
No. 1 unbleached cotton cuttings	$7.25
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.00
Unbleached shoe clip	$5.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.60 to $1.70
Tailor rags	$1.40 to $1.50

NEW YORK MARKETS.

By ROWLAND W. JOLLY.

New York, N.Y., June 2.

Interest continues centred on the work being done in Congress, with regard to the redrafting of the War Revenue Bill, recently passed by the House of Representatives. Perhaps of greatest interest to the trade, for it is vitally, though indirectly affected, is the question of just what tax will be placed on publishers. It seems certain that the Senate will not adopt the plan suggested in the House Bill. More than that, violent opposition is expected to the present provision to tax the advertising appearing in newspapers and publications at the rate of two per cent. Already Postmaster General Burleson has announced himself as not favoring such an action. In the first place, he maintained, it would hurt the publishers of the country considerably. Then, again, he said, it was not a fair tax, for its burden would not be distributed equally. According to Mr. Burleson, the newspapers would pay more than their share, for the trade papers were not nearly so dependent on advertising as the "dailies," and therefore would not be affected by the tax to an equal extent. Another suggestion during the past week was that the present second class mail rates be retained on news matter, but that an increased rate be charged on the advertising section. At first, it was thought that it might be possible to effect such a section as this, and, at the same time, retain the tax on advertising. This matter is further discussed on another page.

There was considerable pleasure noted in the trade when it became known during the past week that the Senate Finance Committee had agreed to wipe out of the War Revenue Bill, the section having reference to increasing the tariffs ten per cent., and putting a ten per cent. duty on those articles now on the free list. However, it is realized that this has not settled the tariff question, and that it is destined to come up again, though perhaps for not several months. The dye interests are still hopeful that they will be able to get the protection for which they have been fighting. It is interesting to note that by clipping the tariff clause

THE MANUFACTURE OF ROSIN (Part II)

Origin of Rosin.—The manufacture of Rosin, or the Naval Stores Industry as it is known commercially, dates back to pre-revolutionary days. The origin of the name, Naval Stores, which is really a misnomer, dates back to the time when turpentine, tar and pitch were used extensively for caulking sailing vessels, for the navies principally; hence the term Naval, and Rosin was thrown away, whereas to-day, the bye-product, Rosin, creates the greater revenue. Rosin is produced from the long yellow pine—Pinus Palastris.

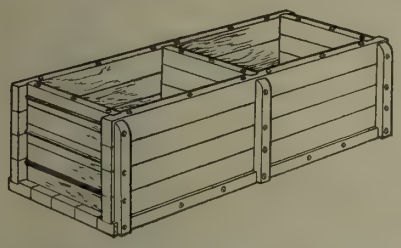
The Naval Stores, or Rosin belt, comprise the following States: North and South Carolina, Georgia, Florida, Alabama, Louisiana, Mississippi, and a portion of Texas.

The production commenced with North Carolina, and is gradually working westward. To-day the centre of production is Alabama, Florida being the largest producer.

The movement West is due to the cutting down of the forests of the Atlantic States for lumber purposes.

PAPER MAKERS CHEMICAL CO.,
EASTON, PA.,
Factories:—Kalamazoo, Mich.; Holyoke, Mass.
British Office:—St. Austell.

WOOD TANKS



For all Purposes

GOOLD, SHAPLEY & MUIR CO., LIMITED
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Imperial Genuine

THE HIGHEST GRADE BABBITT METAL MADE

For all Bearings Carrying Extremely Heavy Loads

When melted, flows freely.

WILL NOT SHRINK.

Is very tough and durable, tin being the basis, antimony and nickel for hardening, and toughened with pure copper.

CONTAINS NO LEAD.

Manufactured and Guaranteed to give excellent Service by

The Canada Metal Company LIMITED

TORONTO

HAMILTON WINNIPEG
MONTREAL VANCOUVER

Storage and Pressure Tanks

PENSTOCKS, BINS AND HOPPERS



The above is a series of Oil Storage Tanks built recently from our large stock of plants on hand.

FOR PULP AND PAPER MILLS

CHEMICAL AND ACID PLANTS AND REFINERIES.

A long experience in filling the requirements of industrial plants for TANKS, LARGE AND SMALL, has won us wide-spread recognition as specialists in this line.

WE HAVE THE MATERIAL,—the organization and the facilities to meet YOUR requirements. Send us your specifications for prompt shipments.

The TORONTO IRON WORKS, LIMITED

TORONTO, ONTARIO—Head Office: ROYAL BANK BLDG Works: FOOT CHERRY ST.

from the Revenue Bill, the amount which that bill will raise was curtailed by $200,000,000.

As export trade is of importance to all alike, owing to its influence on the domestic market, members of the local trade are watching with not a little interest the work now being done by the Foreign Credit Bureau of the National Association of Credit Men, of which Benjamin Tregoe is manager. He is working on the scheme of co-operation in all phases of exporting, in an endeavor to explode the theory which he complains has been so long entertained by many exporting firms that foreign credit information is a business asset, and is not to be divulged under any circumstances. By co-operating to the fullest degree, Mr. Tregoe says he believes exporters will be successful in their fight to obtain and retain foreign trade, and in pursuance of this belief, pointed out that his department is promoting interchange of experiences between members and is recommending as a medium for this exchange, a form of foreign credit inquiry blank, which was originated by a small group of export managers. In order to facilitate the exchange of experiences, Mr. Tregoe has explained that his department is listing in its files the names of members doing a foreign business under the cities and countries to which they export, so that if a member received an order from a firm in a certain foreign city, he will be supplied, upon request, with a list of members doing business in that city, who will be willing to give him the benefit of any information they may have concerning the financial responsibility of the house or other information relative to the peculiar conditions or customs which may exist in the country inquired of. It is felt by many that this service is just the thing now, for, it will enable those seeking foreign trade to keep their machines busy, and to facilitate matters

There is considerable interest in the newsprint investigation now in progress in Canada. Of course, the trade is not in sympathy with this sort of work, regarding it as a waste of money and time, and decidedly against the best interests of the nation at large for, by compelling manufacturers to sell products at prices which will not allow them a profit, such action as this, it is said tends to curtail the power of business and is actually a destriment to a country carrying on a war. It may be that the Canadian government will succeed in doing as has been done in the United States, intimidating a number of concerns into agreeing to sell their products at a certain figure, but it is doubtful whether this will be of any benefit to the Dominion.

Ground wood pulp continues as firm as ever, with active interest somewhat abated. It seems that concerns coming into the market are having difficulty getting supplies of ground wood, for the grinders are all pretty well sold up and it is reported that there is not very much to be had in the way of stock for immediate delivery. The wood and the labor questions continue to be the chief sources of worry to pulp producers. As a matter of fact, all that one hears in going the rounds is the shortage of pulp wood and the indications that there will not be any improvement in the situation. It is known that American manufacturers have been scouring certain sections of Canada looking sources of supply for their wood and have shown an eagerness to insure themselves against "running dry." However, it does not seem possible to assure anything definite for the present. The news that Canada is planning a selective conscription for its army has not done anything to brighten the situation, with regards to the future for wood supplies. It is known that preference is had for men in such work as that done by the lumber jacks for they are more than ordinarily fitted for army work. As a matter of fact, it is reckoned that the United States will be inclined in the same way. It has already been announced that in the division of engineers to leave for France within the next few months, there will be a considerable number of lumberjacks from "up-State." There seems to be no question that the price of wood pulp will be affected by the serious situation now existing in pulp wood.

While chemical pulps are very firm and are expected to be on their way to higher levels, there is comparatively little buying interest. The high prices seem to be scaring consumers. Added to this is the fact that the demand for finished papers has been somewhat below what it ought to be and several—quite a number of mills have been running considerably lower than capacity. There has been no tendency for foreign pulps to come over in greater shipments. It seems settled that as long as the success of the U-boats continues, there will be little to expect from Scandinavia. This may be a factor of no little importance when the mills come into the market, for they are accustomed to the usual heavy shipments at about this period, just after the opening of the Baltic Sea for navigation. Such stocks would ordinarily have the effect of tending to bear the market, but this condition cannot exist this year. Then, of course, the situation in pulp woods, which has already been described, will have a great deal of influence in keeping the market looking higher, if nothing else. Prices on foreign bleached vary, but they are all pretty well above 10c, ex-dock. These are considered nominal, for it is doubtful whether, even at the high prices, it would be possible to "pick up" a great deal immediately. Domestic bleached is varying about 7¼c; easy bleaching is nominal at 5¾c and over. A good demand is reported for kraft, but there is not much to be had — prices are over 6 cents.

Rag dealers showed interest in information said to have been received by the State Department from American representatives in London, to the effect that the British authorities have agreed to reinstate all of those permits issued under the British Order in Council that had lapsed through inability of the importers to move their goods from the docks at Rotterdam. It will be remembered that some months ago, the British Government shut down the bars on the movement to America of goods of German and Austrian production despite the fact that they were properly American owned merchandise. The entrance of the United States into the war on the side of the Allies puts a different face on all such matters, and it is said that the probabilities are that the question will be opened to some extent, at least. It is rumored that this may mean that considerable quantities of foreign rags will be permitted to find their way to our shores. Some of these rags are said to be of the higher grades which are known to be in acute shortage in the United States. Dealers are quick to make it plain that, in the event, that such rags are admitted to go through to this country, it will not mean that the status of the market will be affected—that is, with regard to lowering price. Buying has not taken on any improved aspect. Dealers say that consumers take only what is needed for immediate use and that the tendency is to stay out of the market as long as it is possible to do so. No big

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HOYT SHEET ALLOY

This Sheet Alloy is meant to take the place of what is usually called Chemical Sheet Lead. It is 5% lighter in weight, has greater acid resisting properties, and has greater tensile strength and rigidity. It does not creep or buckle, but stays exactly in the position in which it is placed.

We would be glad to give your full particulars of this Sheet Alloy which is very rapidly displacing Sheet Lead.

Write for our Babbitt catalogue.

FACTORIES: London, England. Toronto, Canada. St. Louis, Mo. New York, N. Y.

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GRADERS AND PACKERS OF ALL KINDS
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Paper Making Material---Rags
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Rag Warehouse, 35 Common Street.

Waste Paper Warehouse, Grand Trunk Siding Wellington Street.

The Standard  **For Quality**

KRYTON PARCHMENT
KRYTON LINEN LAID
ROYAL RECORD BOND
GENOA BOND
OLD DOMINION BOND
BELL-FAST BOND & LEDGER
TRIBUNE BOND
PROGRESS BOND

Howard Smith Paper Mills, Limited

MONTREAL

Mills at BEAUHARNOIS and CRABTREE, Que.

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y

spring collections have yet been forthcoming and there is now no likelihood that there will be any. Rag merchants are holding as firm as can be expected, urging "Business as Usual," with apparently little success, that is, as far as the "Business as Usual" is concerned. New cuttings are moving, to some extent, at 8 cents to 9 cents; old white rags are bringing a little over five cents; house soiled whites are quoted at 3 cents and over; street soiled whites are going at about 2½ cents; thirds and blues, at about 2½ cents; and roofing stock ranging as high as 1¾ cents. It is considered strange, in view of the dormant condition of the rag market, that bagging should be taking on strength and be in good demand. Supplies held by consumers are said to be very low — so much so that it has been necessary to replenish stocks. At the same time, the realization of a shortage of supplies seems to be more vivid than it is in rags and is causing considerable buying. Dealers predict advances in the market, in the near future. Gunning has been sold at as high as 4 cents; bright bagging is held at three cents and over; sound bagging is quoted at 2½ cents to 3 cents; mixed bagging is bringing about 2½ cents. Rope is acting well, with prices ranging over 6 cents.

The status of the waste paper market is considered good, despite the low prices at which some of the grades have been sold during the past week. The only reason given for the condition of low prices is that dealers have been moving stock and have resorted to this means of interesting consumers. Certainly, the situation is appreciated for considerable activity has been noticed during the past week. The opinion expressed in these columns on several occasions, seems to be the dominant one in the trade, namely, that prices of waste papers are destined to return to high levels, owing to the economical tendency which means reclaiming of materials from wastes, as far as possible. Hard white shavings have been going fairly well at about 4½ cents to 5 cents; soft white shavings have been bringing 4¼ cents to 4½ cents; magazine stock is topping at 1½ cents; ledger stock is bringing about 2 cents to 2¼ cents; krafts are in good demand and will, most likely, go higher. They are now at about 3½ cents. Most activity is reported in the lower grades; old manilas are going at one cent to 1½ cents; over-issue news, at a little over 1¼ cents; strictly folded news, at around 80 cents to 90 cents per hundred pounds; mixed papers at about ½ cent a pound.

Time has made no impression on the paper market in general. It was expected that the jobbers would not be able to hold out for more than a short time, but here it is more than several months that buying has been inactive and conditions are far from promising. It seems certain that the tendency to economize which is growing more pronounced all the time, despite the efforts to check its movement, will have more than a little effect on the immediate future. In newsprint, activity continues, apparently undisturbed. Nothing new has been heard on the matter of giving the Federal Trade Commission the power to fix prices, and it is thought that, perhaps, the matter has been dropped temporarily. Considerable discussion has been heard with regard to the fact recently made known that the Government had been buying some quantities of newsprint from the International Paper Company at 2½ cents. The matter of bidding for government business has now become somewhat of a complicated matter. As a patriotic duty, it is expected that bids shall be very low. Inasmuch as some legislators are averse to recognizing certain increases in costs of manufacturing, there is considerable insistence that bids shall not be much higher than normal — with the possibility that the government will take over such plants as it deems advisable to care for its needs. Nothing of this kind has yet been done, but it is known that the policy will be applied to all trades.

Tissues have declined a little in price, but are still at a high level. Krafts and manilas are going fairly well, with high figures still the rule. Books are pretty well sold ahead. Interest is now centering on the investigation that has been carried on by the Federal Trade Commission. It is said that the figures that have reached the Commission are pretty well up to date, and that a report might be made within a rather short time. It has been suggested that the Commission will follow the same procedure with the book paper manufacturers as it did with the newsprint concerns. Boards are strong though conditions are somewhat easing.

New York Quotations.

(These are a nominal range of prices):

Ground wood f.o.b. mill	$42.50 to $45.00*
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	7¼c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	4¾c*
Kraft, pulp, f.o.b., pulp mill	6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	11½c†
Best grade writings	20c*
Regular superfine	19c*
Ledgers papers	11½c†
News, contracts, f.o.b. mill	$3.00 to $4.25
News, spot lots	$3.50 to $5.00
News, Side Runs	4c*
Book, super	8½c*
Book, coated	8c*
Tissues, good sulphite, bleached, per ream	$1.15*
Tissue, ground wood, manila, per ream	$1.20*
Kraft	8½c*
Wood manilas	7c*
Jute manilas	10c*
News board, per ton, f.o.b. New York	$60.00
Strawboard, per ton, f.o.b. New York	$55.00*
Chip board, per ton, f.o.b. New York	$55.00

(*)—And higher. (†)—And way up.

R. W. Jolly.

PULP WOOD FOR SALE.

Can supply 5,000 to 10,000 cords of pulpwood. Shipments by rail or water.

W. H. DUFFY,

Hillsboro, - - - - - - - - New Brunswick.

SULPHITE PULP MILL SUPERINTENDENT. — Chemical Engineer with 12 years' experience wants situation in bigger pulp or papermill as superintendent, in August or September. Please answer to this Journal stating salary paid. Box 151, Pulp & Paper Magazine, 45 St. Alexander Street, Montreal, Que.

VALVES



BRASS
OR
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SCREWED
OR
FLANGED

Suitable
FOR
STEAM,
WATER,
ACID, GAS,
AIR, or
OIL



Sizes ¼" to 12"
For Pressures 125 to 500 lbs.





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LIMITED

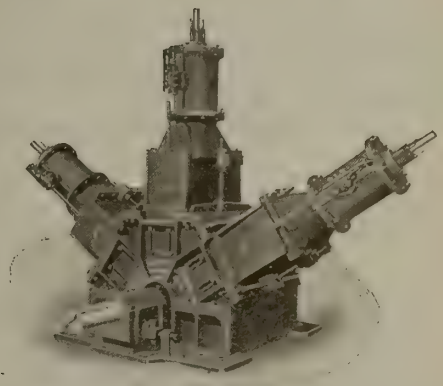
Hardware and Metal Merchants
Brass and Iron Founders

ST. JOHN, N.B.
CANADA

Branches at
MONTREAL, TORONTO, WINNIPEG
and LONDON, ENGLAND

Established 1834

Jenckes Grinders



Jenckes Grinders are built to give satisfaction under all conditions. They are of heavy rugged construction and designed for severe high pressure service.



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THE JENCKES MACHINE CO.
LIMITED

Wood Pulp Grinders, Pulp Mill Machinery, Boilers, Agitators, Tank and Plate Work, Structural Steel.

Head Office: Sherbrooke, Quebec

Works:
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CHEMICAL APPARATUS

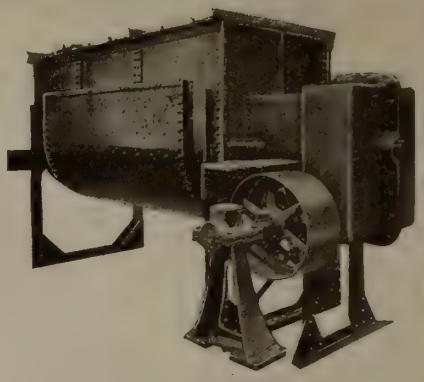
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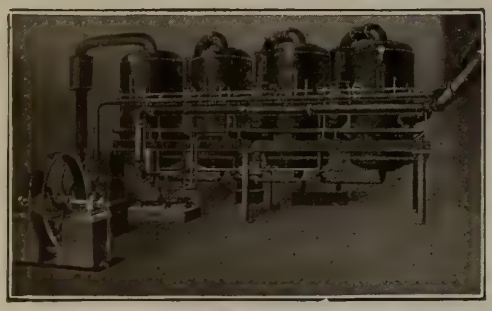
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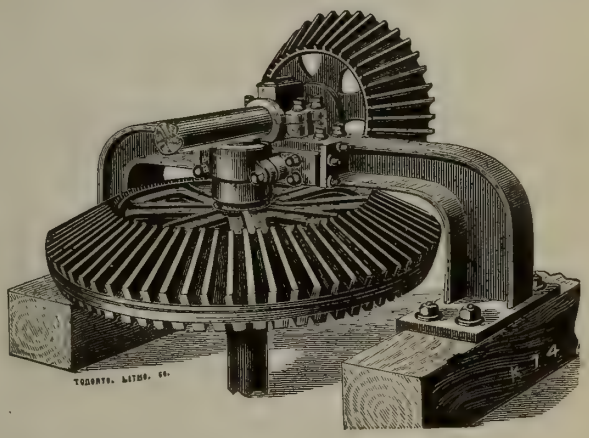


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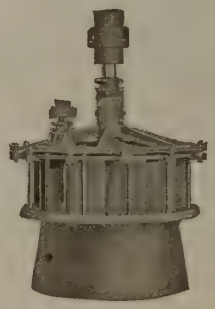
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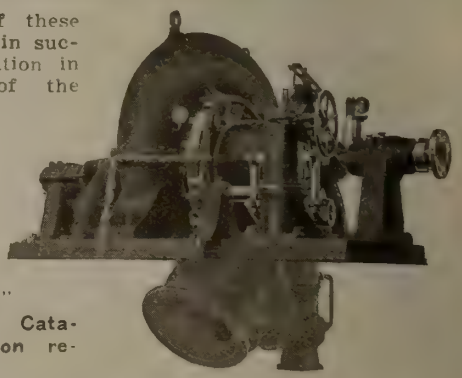
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Official Journal of the Technical Section of the Canadian Pulp and Paper Association

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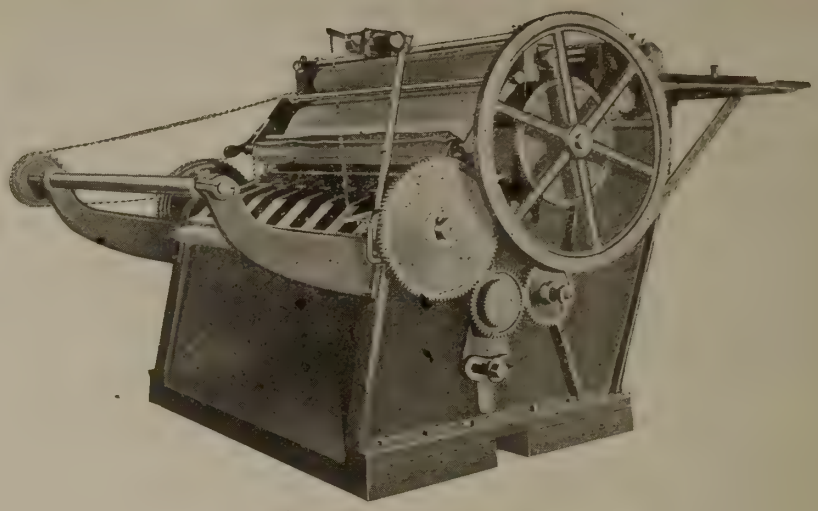
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EDITORIAL

MAROONED IN ONTARIO.

A favorite form of torture that pirates practised in days gone by, before the advent of the U-boat, was marooning. This means leaving a person alone on a desert island, preferably in mid-ocean. To be marooned was a horrible experience. The only escape was the bare chance that a passing vessel would see the signals of distress.

A new form of marooning is apparently in vogue in Canada. It is to induce, encourage or allow people to settle on land which has no agricultural value. The latest instance that has come to our attention is the region around Fort William and Dog Lake. After settlers' fires had disposed of the trees there was nothing left but rocks. Surely, if these people expected to maintain themselves by tilling the soil they met a sad disappointment. Someone will say they could have sold the wood for pulp or lumber. Perhaps they could, but more likely they could not. That is not the point anyway. The point is this: A settler's permit is given with the understanding that the settler will occupy the land granted him indefinitely and will maintain himself thereon by tilling the soil. What any forest areas on his claim bring in is a side issue. There ought to be woodland on any farm, if for no other reason than to supply firewood and keep the farmer busy in the winter.

The claim should be granted because of its agricultural possibilities, not as a pulpwood speculation, and certainly not without adequate knowledge as to whether the soil really has any chance of raising a crop. The way some settlers claims have been palmed off on unsuspecting individuals is little short of criminal. Some of them have spent their last dollar in equipment and when they got to the point where they might expect bread, what did they get? **A stone!**

The Province of New Brunswick has begun a survey of her forests that will make it possible to put a settler on true agricultural soil. Quebec has plans for a similar comprehensive survey. The others should do the same.

Another point that should be understood. That is —man is a social animal. It was never so true as now that "man must not live by bread alone." He must have at least the rudiments of the society of a Christian community. The Government has an expert, Mr. Adams, at work on this very problem, certainly a commendable action.

It will be Canada's everlasting shame if our returned soldiers are turned loose on a square mile of wilderness, with $1,000 and a chance to fight nature and loneliness. Most of them have had fighting enough. The peaceful life of a farmer is indeed a delightful and restful prospect, but God help the poor fellows that try to make a farm out of some of the rockbound soil that they are likely to get stuck on unless more intelligence is shown in the future than has in some cases been shown in the past.

There are fine tracts in Canada for settlers. Let them be properly handled.

"THE ONLY TIN CAN ON THE DUMP."

At one time this was a favorite bit of sarcasm which boys addressed to one another. Unfortunately there are many dumps covered with tin cans. Just at present we should like to have in the bank a part of what this waste represents. The sheet iron in the cans would bring a good price and the tin with which it is plated has become so scarce that a United States Government decree prohibits its use for aught but foodstuffs. Surely the dump is an asset and the wise ones are cleaning them up and realizing a good profit on the effort.

The phase of the situation that holds most interest for the pulp and paper industry is the problem of a substitute for the familiar and oft despised tin can. It may be that boys will no longer have this article to lend adornment to canine appendages, nor farmers have the advantage of this cheap but effective musical instrument to aid them in finding the cows. The announcement made some time ago by the housekeeping magazines that tin cans can be burned, is about to be a reality with the increase in the use of paper cans.

The solution of the tin shortage is "up to" the paper maker. The initial problem of how to make cans of paper is already largely solved. Various kinds and sizes of cans have been made for many purposes and their use has proved very satisfactory. The recent

decree from Washington should prove a great incentive to the manufacture of paper containers. Although their field is already large, there is no doubt but that it will be greatly extended. There is no difficulty of construction or water or grease proofing that will not be overcome.

There was much opposition to the use of fibre shipping cases, but this feeling has largely changed to one of appreciation, now that the limits in the case are understood. We have but scratched the surface of the possible uses of the fibre or paper container. The boundaries of its field of usefulness are so elastic that one cannot predict how far they will stretch. But the paper oyster pail, water pail, wash tub, milk bottle, etc., have come to stay. May their tribe increase!

TITLED CANADIANS.

At a Canadian Club luncheon held in Montreal a few days ago at which the Hon. Arthur J. Balfour was the guest of honor, two Canadian lords and ten Canadian knights surrounded this plain "mister." Since that time a dozen or more additional knights have been created in the Dominion, so that if this thing keeps up much longer it will be a rare occasion when the knights do not outnumber the common or garden variety of citizens.

In a democracy such as we are seeking to form in Canada there is no place for titles. Class distinctions such as are engendered by a titled aristocracy and a privileged class are the most fruitful sources of the economic and social ills from which Europe is suffering. In a very real sense the world to-day is fighting against autocracy and privileged interests. Why we should send our sons by the hundreds of thousands overseas to put down autocracy in Europe, and create a privileged class in a wholesale manner in Canada baffles the comprehension of the ordinary individual. There should be a law passed in the Dominion prohibiting the creation of titles, especially those of a hereditary nature.

DOING YOUR BIT—ON A VACANT LOT.

Mill men living far from the maddening crowd doubtless are pursuing their peaceful ways undisturbed by the rancorous curses and the muttered profanity of the early morning amateur farmer, such as disturbs the serene quiet of the executive offices of the companies. The gardening craze, which is a "Back to the Land" movement in a homoeopathic form, has taken a tremendous hold on the city business men. Lawyers, doctors, merchants, bankers, as well as the common or garden variety of citizens, are all striving to do their bit in back yards and on vacant lots more famous for weeds, tin cans and bricks than for the richness of the soil.

In one of his specially poetic moods Tennyson said that "more things were wrought by prayer than the world dreamed of." We have come to the conclusion that a great deal is being accomplished in back yards by means of profanity. A man is not in a very angelic frame of mind who arises from a downy couch at 5.30, "shoulders his mattock, spade and hoe," and starts out to do a small day's work before journeying to the office. Poetic phraseology regarding sunrises, the first twittering of the birds, and the ineffable beauty of the dawn make little or no impression on a man who makes an early morning attack on a Vimy Ridge in his back yard.

However, it is a good work, and even if backs are bent, knees calloused, and the amateur gardener jeered at by car conductors and milkmen, there is a certain satisfaction in knowing that you are doing your bit. The potatoes and radishes may cost a dollar a pound, but then they are your very own, and you have the full consciousness of knowing that you are back in the primitive days, when man was commanded to "earn his bread by the sweat of his brow." However, after a few days' effort, some of us have come to the conclusion that it is no wonder Adam left his Garden in Eden and tried to earn his living in an easier way.

READ THE ADVERTISEMENTS.

There are three kinds of reading in this Magazine, the kind we pay for, the kind we get for nothing and the kind we are paid to print. It is impossible to state which is the most important to our readers. All are necessary to a balanced Magazine.

To those who are interested in the manufacture of pulp and paper—and everybody who is connected in anyway with the industry should be so interested — there is much to be learned by reading, even studying, advertisements. They not only present modern invention and up-to-date details, but form more or less of a picture gallery and information bureau of equipment used in various departments of the business. Many of our readers make constant use of this department. There are some articles that may not be represented or specifically mentioned in the advertising pages. When information on such articles is desired we shall be glad to give it or to put the inquirer in touch with the proper parties.

The Pulp and Paper Magazine is organized to give service and we feel that it is just as necessary for our readers to know where they can buy their equipment as it is to know the market prices. On page 53 is an Index to Mill Supplies. This is for the information of our readers and is a courtesy to our advertisers. If an article is sought and not found it may be made by our advertiser but more likely is made by a firm that is not represented in our pages. If we can help a reader or other friend in such a case it will be a pleasure.

We want to boost this industry. If we have neglected or overlooked a possibility for service, we hope to be advised of our delinquency.

Injurious Rosin in Sulphite Pulp

DR. BJARNE JOHNSEN.

It is a great drawback with the sulphite cooking process that its use is limited to certain woods with a low rosin content and that even with pulp from these woods serious troubles are often experienced in the manufacturing processes due to the presence in the pulp of resinous substances, which have not been removed during the cooking process. These so-called "pitch troubles" are in fact so common in the paper mills that the necessity of finding a method for their elimination by removing from the pulp the resinous substances is one of the great problems in the manufacture of sulphite pulp at the present time. The question has always been discussed with much interest in the technical literature and many valuable contributions to a better understanding of the pitch troubles have been given. But it can hardly be claimed that any of the methods yet suggested for their elimination or reduction gives perfectly satisfactory results under all conditions and in an economical way. The problem remains still a very important one and has most recently again been the subject of interesting discussions in the technical literature. Based partly upon practical experience partly upon analytical tests, conclusions are drawn in these discussions, which in some cases are contradictory to earlier viewpoints. Wimmer makes the statement (Pulp and Paper Magazine of Canada (1917) May 10, p. 462) that there are several ways to get rid of pitch in sulphite pulp and claims that an entirely satisfactory result can be obtained by a special cooking method and by the use of a specially strong liquor. Cooper (Paper **20** (1917) March 14, p. 13) analysed pitch taken from the sandtraps and found that it consisted of rosin from the wood and a binder of $CaSO_4$ and $CaSO_3$ or small particles of limestone as a binder and that this binder and thereby the pitch trouble originates in the acid system. Cooper also concludes that a low percentage of magnesium in the cooking liquor is favourable, whereas Wimmer on the other hand advises to use a limestone with a high magnesium content. Also Knudsen has recently (in an abstract in J. Soc. Chem. Ind. **36** (1917) p. 321) pointed out that the pitch trouble can best be remedied during the digestion of the chips and that it is of the greatest importance to prevent as far as possible the separation of crystalline deposits in the digester.

No doubt conditions in the acid plant such as those described by Cooper must favour the formation of pitch as well as they might cause other serious troubles in the cooking process, and I am convinced that in many cases changes in the cooking conditions would effect a decrease in the pitch trouble. On the other hand, it is not advisable to introduce any drastic changes in the cooking process before it has been thoroughly investigated that such changes will not affect unfavourably the other qualities required for a good pulp. Wimmer suggests raising the temperature before the blowing of the digester to nearly 160 degree C. as a method of reducing the pitch trouble. I shall in conection with this recall Knudsen's statement that good results were obtained by stopping the cook at an earlier stage than usual, that is when the colour of the liquor is lighter than usual, and I shall also draw attention to Sieber's article (in Paper (1915) **16** August 4, p. 13) stating that under ordinary cooking conditions hardly any of the injurious rosin is removed during the cooking process.

In the publications mentioned above, attention is mostly paid to the formation of pitch due to unsuitable conditions in the various manufacturing processes and the possibilities of eliminating the pitch trouble by changes in the cooking process or in the treatment of the pulp. But the most important factor in a discussion of this question is, it seems to me, the nature of the rosin itself, as it is present in the wood on entering the digester, and the intention of this article is not to discuss the various processes for removal of the pitch, but to point out the importance of a thorough knowledge of the chief cause of pitch trouble, namely the wood rosin, and to refer to recent investigations on this subject as far as this is possible in a short article.

When wood is treated with organic solvents, such as alcohol, ether, acetone, etc. or mixture of such solvents a substance is extracted which is generally termed "rosin", although these solvents in some cases also extract appreciable quantities of other substances such as sugars, tannins, etc. depending on the solvent. In order to reduce this error some investigators have extracted the wood previously with water or have afterwards removed the water-soluble substances from the extracts. The values for "rosin" given in the technical literature, therefore are not always directly comparable and cannot always serve as a foundation for definite conclusions as to the character of the wood rosins. However our knowledge of this substance has been considerably extended by these investigations and very valuable information has been secured regarding the amount of "total rosin" in various woods, its distribution throughout the trees and the variations due to various conditions of growth upon the rosin content. It has been stated that the rosin content is not constant in a living tree, but increases in the summer months and decreases during the winter, and Schroeder found with spruce a maximum of "rosin" in June and a maximum in March. What here is termed "rosin", however, is not a uniform product but a mixture of various substances, and it is especially through a recent investigation by Sieber, that our knowledge of the resinous substances of the wood has been largely increased. In determining the rosin in wood quantitatively, it has now for years been customary to extract the wood first with ether and afterwards with alcohol and to give the weights of the extracts separately. The two extracts are chemically and physically rather different, the ether extract is more liquid and sticky and of a lighter colour than the alcohol extract and contains most of the fats, whereas the dark and solid alcohol extract contains chiefly rosin acids. On treatment with petrolic ether each of these extracts may be further divided into a petrolic ether soluble and an insoluble part. In freshly cut wood nearly the total ether extract is soluble in petrolic ether, the alcohol extract only to a much lower extent. The soluble part is in each case a thick yellow liquid, the insoluble part is brown and brittle. Sieber found that the coniferous woods do not contain nearly so much rosin as generally believed, the total extract containing about 50 per cent fats. He also found that the total fat in the ether extract was soluble in petro-

lic ether. This is of great interest, as it will later be seen, that the chief cause of pitch troubles is the fats, and that therefore the solubility of the ether extract in petrolic ether may give valuable information with regard to the quantity of "injurious rosin" in the wood or in the pulp.

It is a well-known fact that, after the tree has been felled, changes in the nature of the rosin take place and that the "rosin", the ether soluble as well as the alcohol soluble, decreases at the beginning rapidly, later on very slowly up to a certain point. Similar changes can be noticed by the storing of sulphite pulp and are due to oxidation. After a certain period the solubility in ether continues to decrease, while the amount of alcohol soluble substances increases with wood as well as with pulp. Most noticeable however, is the decrease of petrolic ether soluble substances under the influence of air and light.

Rosin deposits from the machine wires, from beaters, kollergangs, sandtraps, etc., have been analysed by Sieber and others and found to be generally a mixture of a sticky, oily substance with inorganic substances, chiefly calcium, magnesium, sulphur and iron. The organic substance contains a considerable amount of petrolic ether soluble "ether rosin" which must have separated out from the pulp in the washing and beating operations. The cooking process has very little effect upon these substances and it can be stated by analysis that the sulphite pulp as a rule contains a higher percentage of fatty substances, than the wood from which it has been isolated. In studying the effect of the various processes upon the ether soluble substances it was found by Sieber that during the cooking process only 4.2 par cent of these substances were removed, whereas in the preparation of the pulp (washing, opening, screening, etc.) 51.8 per cent were removed and in the bleaching process 15 per cent.

Recent investigations therefore lead to the conclusion, that the pitch troubles are in the first place due to the oil and fat content of the wood and for the formation of the pitch deposits the following explanation has been given.

The oils and fats form with calcium and magnesium salts, both of which are usually present in the water, sticky, soaplike compounds. The rosins however do not form such compounds. Fine particles of fat and rosin are removed from the fibres in the breaking up and in the preparation of the pulp, which therefore is moving in a fine emulsion of these substances. The emulsions of fats and oils are not so permanent as the rosin emulsions and the small particles are inclined to combine with each other, especially in the presence of the substances which make the water hard. This coagulation often causes a precipitation of similar substances, and in this way particles of rosins and fats may combine to form complex compounds, which again may combine with similar compounds and be deposited in smaller or larger quantities at the different places of the machine.

In order to avoid such deposits, the most effective method should be the removal of the chief pitch forming substance from the fibres as early as possible, and as the cooking process seems to have only a very little effect upon the injurious rosins, these should be removed from the wood itself before cooking or at least from the pulp as soon as possible after the cook is finished.

With regard to the first probability, it is of course possible to extract the wood with a solvent. But this will hardly be economical with woods of low rosin content. However it has been shown that the injurious substances are changed into harmless products by the action of air, the rapidity naturally depending much upon the circumstances. A proper storing of the wood logs with good air circulation followed by a treatment of the chips with warm air should consequently be of the greatest importance. The oxidation of the resinous matters can naturally be considerably accelerated by the use of gases of higher oxidising power, but it must be remembered that only such gases may be used which do not produce a permanent colour on the fibre. Regarding the second possibility, the removal of the injurious rosin from the pulp, various methods have been suggested, and the addition of petroleum to the wash-water is often recommended. It is, however not probable that the petroleum in such high dilution will have the expected effect. Caustic soda will remove the rosin to a certain extent, but it will in most cases cause an undesired yellowing of the fibres. A favourable effect was obtained with fat emulsifiers, and it will be a question of economy to what extent such substances may be applied. The simplest method remains the thorough washing of the pulp with soft water and the use of soft water in the preparing plant. A sudden cooling of the unwashed pulp from the digester has proved unfavourable and it has therefore also been recommended to cover the bottom of the blowpits, before blowing of the digester, with warm water. It will always be of advantage to use felts for collecting the rosin in the preparing plant provided that these are properly arranged and carefully watched.

From the above mentioned it is obvious that a comparatively high percentage of total "rosin" does not necessarily lead to pitch trouble in the manufacture of paper. Besides depending on the hardness of the water used in the paper-mill the formation of pitch depends in the first place upon the amount of injurious rosin indicated bya large amount of petrolic ether soluble ether extract. This also explains the fact that in some cases a pulp containing comparatively much "total rosin" will cause less trouble than a pulp with a lower "total rosin" content.

By separating the extracts into petrolic ether soluble and insoluble substances an idea can be obtained as to the amount of injurious rosin in the pulp. Schwalbe (Wochenblatt Papierfabr. 1914 Conv. Numb. p. 2286) has proposed a qualitative method for test on injurious rosin in pulp based upon the fact that from a fat and rosin solution in ether the rosin separates out before the fat. If therefore such a solution is evaporated on a watchglass the rosin will form a transparent ring at the upper part of the glass, while the fat separates out as white layer below the rosin ring. From the amount of fat and its physical qualities the fat content can be approximately estimated in comparison with the deposit from an extract obtained from a cellulose which does not cause any pitch troubles.

The test can be made as follows: 25 gr. of the pulp are torn into small pieces of about 1 sq. cm. and placed in a bottle of 500 cc. capacity, covered with 300 cc. ether and the bottle closed with a tight stopper. The sample is left over night and the ether solution poured into a flask. The ether is distilled off until only about 5 cc. is left. This is placed on a watchglass and the bottle washed with 2 cc. ether, which is added to the

first solution on the watchglass. The glass is placed so that the ether can evaporate slowly and the residue is compared with the residue from the standard cellulose treated exactly in the same way and at the same time.

This method has proved very useful in some cases and ought to be tried out in the mills. A standard pulp for comparison would have to be selected for each individual mill as it depends largely upon the water used in the manufacturing process whether or not the resinous substances in the pulp will cause trouble.

BIRDS ARE WORTH TWELVE MILLION DOLLARS TO FORESTRY.

By W. C. J. HALL, Quebec.

Canada has a formidable contract confronting her since the passing of the treaty signed by Great Britain (acting for us) and the United States regarding the protection of migratory birds in North America. It should not be necessary to have a treaty at all, because it is in the direct interest of every man, woman and child that bird life should be fully protected, but unfortunately legislation and treaties are necessary owing to the fact that we all have been shamefully neglectful of our own interests,and in very many cases ignorant of them.

To demonstrate the necessity of bird life, one must first of all show what would happen if we had no birds —the foremost statisticians of the United States have stated over their signatures that if we had no bird life, no forests would exist on the North American continent in twelve years — if then the forests were thus obliterated by the onslaught of insects, owing to the absence of bird life, what would become of us; naturally man also would become extinct and that very rapidly.

As things stand at present, the best informed statisticians affirm that the annual loss in the United States to field and forest crops, is one billion dollars, in the Dominion, the loss is estimated at one hundred millions annually, all owing to injurious insects.

The only agency we have to check the devastations of the insects are the birds, a man can spray his trees in an orchard, or his potato crop in the garden, but if he is confronted with the task of looking to the whole of his farm in the same way, what could he do? Nothing! The case would be one of surrendering. Then take the forests, could any Government undertake to spray the forests? I trow not. The only way to preserve the balance of nature and let humanity survive, is to protect the birds and let them do the work. They charge nothing for it, it is their daily work, from morning to night. Some varieties of birds can and do consume their own weight of insects daily, With very few exceptions, they are all useful in one way or another and it is our direct and vital interest to see that they are not killed, captured, or even molested.

Any person versed in ornithology will admit that birds take a toll of fruit, but compare the good they do with the small amount of depredations they commit, it is about in the same proportion to the damage done to field crops by the red deer and moose; they kept a record one year in Maine and established that some fifty dollars worth of crops were damaged by these animals. That is the proper point of view to look at the matter from.

Much as our existence depends upon bird life, still a large percentage of us are busily at work des troying the birds, and especially our alien population. These latter come from all parts of Europe, and finding they can carry arms without let or hindrance, they sally forth and shoot anything and everything. Massachusetts has just passed a law prohibiting aliens from carrying arms in the State—in New Jersey no one is permitted to use anything in the shape of an arm, except the double barrelled gun. They conclude that anyone so armed is sufficiently equipped for sport, and does not need pumpguns, repeaters, or automatics. But the aliens are not the only offenders, far too many of our young people destroy insectivorous birds. It is estimated that each robin is worth ten dollars annually to the country, so when a young fellow goes out and kills fifty odd of these birds one can easily calculate the great work he did on that day. In the United States Dr. Hornaday, the best authority, asserts that apart from the grown up population who use arms, each twelve months sees at least 500,000 young men mature and go out shooting; will any sane person claim that under such conditions there is a fair chance of bird life surviving in sufficient quantity to hold in check the operations of injurious insects. In my opinion, it would be a good investment for the Dominion Government to buy wholesale, Dr. Hornadays's work, entitled "Our Vanising Wild Life" and distribute it gratis to people in our towns and country places, as a preliminary educational measure to the masses.

It would be easy to quote many instances of the tremendous utility of insectivorous birds in America, and on the other Continents, but just one will suffice for my purpose.—In the State of Utah, near the Great Salt lake, the black crickets arrived for three years running and utterly destroyed the grain crops. The people had to buy grain in neighboring States and fortunately could do so. The black headed gull made its appearance, found the crickets to their liking, and in a short space of time freed the country of the pest. The population have erected, or are about to erect, a monument to the bird which saved them from starving.

It is in the forest that the birds are of most inestimable value, they are the great and only agency which keeps in check the gypsy-moth, the bud-worm, the larch fly, the brown-tail, etc., etc. The parasite does good work too, but cannot compare in efficiency with the birds. Disease will not exterminate injurious insects, nor will the parasite, animals cannot ot it, man cannot do it. there is no force in nature which can control the insect world but the birds, they are the most indispensable balancing force of nature.

It would be well for the Conservation Commission to take this subject up warmly, start a crusade for bird protection, they would find very able assistants in the women of the country. It would only be necessary to give one or two lectures in each town, city, or village, to enlist their services and start a branch Society for bird protection. This action would ensure a fair measure of protection in such places and their environs. The farmers should be interviewed and their true interests explained, they would look after that section of the country. There remains the forests—I wonder how many of our lumbermen have given any study to bird life and realize what it means. it must be a small percentage. Their efforts are confined to trying to keep fire out of their holdings, they have thought little of the insects and the birds. It is time they awakened to the true situation and lent their assistance to bird pro-

tection, thus helping themselves at an absolutely minimum outlay, for their fine rangers could placard the outskirts of their forests, and thus help to a very great extent.

As between the damage done by fire and the insects let us see what figures, tell us, and for this purpose let us take the Dominion only. We are told on the best authority that one hundred millions of damage is done annually to field and forest crops—well, for the sake of argument let us at one fell swoop assume that the figures are wrong, that only 50% of it is the correct amount, viz;—fifty million dollars, then let us assume that field crops are one half of this total, or twenty five millions—let us proceed and cut the thing in half again and get down to 12½ millions. Without in the least asserting that the calculations of our exports are wrong, let us figure on the 12½ million basis, surely this is conservative, if we can assist in conserving such an amount, or the major part of it, we are assisting materially in conservation of the forests. And how? Simply by leaving our feathered friends unmolested; we do not have to expend one dollar. The task should not be hard.

Jas. Buckland in concluding his pamphlet on "The Value of Birds to Man" says as follows:—"It is the nature of infamies, as well as of disease whose progress is not checked, to daily grow worse; and if the present day wasteful and depraved practice of denuding the world of one of its most valuable natural resources is not checked, then will be wrought a mischief, a universal disaster, more awful in its results than words can express."

With the great war going on and the food being one of the most serious problems confronting the whole world, each and every one can help by protecting the birds, thereby protecting the crops and forests, and thus doing a "lttle" bit even if they do not go to the front. There is no time to lose if we want to see birds in sufficient quantity in the near future, and the present time is very opportune to take up the duty, for no other word than "duty" can express the situation.

FIRST PULP AT RAINY RIVER, B.C.

The Rainy River Pulp and Paper Co., whose mill is at Port Mellon, Howe Sound, commenced the production is taken of June 19th, before presenting any the position of managing director, as well as vice-president and treasurer of the company, reports that the opening day's running of the first of the four units to be installed has surpassed all expectations in regard to smoothness of its operation and quality of kraft pulp produced.

This company is the first of its kind on the Pacific Coast. The plant has been changed from a soda paper mill to a kraft pulp and paper plant, and that accomplished in record time. In less than four months the company has effected an efficient and capable organization headed by Mr. James Beveridge, who is the pioneer kraft paper maker of Canada, and is in full charge of the plant.

Under the Pulp Act of the British Columbia Government the company is assured, at a very nominal tax, ample supply of pulp wood for thirty years' operation.

Plans for the second unit have been made, and work will start immediately upon its installation, which will double the present capacity.

CONVENTION PROCEEDINGS OF SAFETY ENGINEERS.

All arrangements are now completed for the convention of Safety Engineers and all those interested in safety work in pulp and paper mills, which will be held on Thursday and Friday, June 28 and 29, at St. Catharines, Thorold, Merritton and Niagara Falls, Ont., the business sessions to be convened at the latter place.

A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, Toronto, has received assurance that the gathering will be a pronounced success and has letters of the most friendly character from all the mills in the Niagara Peninsula, extending a warm welcome to the visitors and promising their co-operation in every detail.

Among those, who will read timely and instructive papers, are: T. Linsey Crossley, Chemical Engineer, with J. T. Donald and Co., Montreal; A. W. Wright, Vice-Chairman of the Workmen's Compensation Board, Toronto; G. M. Beale, Safety Engineer of the Riordon Pulp and Paper Co., Hawkesbury plant, and C. A. Gilkerson, Safety Engineer of the Spanish River Pulp and Paper Co., at Sault Ste. Marie plant.

The following is the complete programme of the convention and all interested in safety work in paper and pulp mills are cordially invited to attend.

PROGRAMME.

Thursday, June 28th, 1917.

All attending, to meet at Grand Central Hotel, St. Catharines.

9.30 A.M.—General gathering for introduction and election of officers.

10.30 A.M.—Visit the following mills: Kinleith Paper Co., Interlake Tissue Mills, Provincial Paper Mills, Limited.

12 Noon.—Return to hotel for mid-day meal.

1.30 P.M.—Visit the following mills; Riordon Pulp & Paper Co., Ltd., Beaver Board Co., Lincoln Paper Mills, Ontario Paper Co.

After visiting mills, to proceed to Niagara Falls, putting up at the Clifton House for the night.

Friday, June 29th, 1917.

9.30 A.M.—Meeting under presidency of elected Chairman to hear the following papers:

"The Workmen's Compensation Act and Amendments," by Mr. A. W. Wright, Vice-President Workmen's Compensation Board.

Discussion on paper.

"Safeguarding Block Pile Hazard," by Mr. G. M. Beale, Safety Engineer, Riordon Pulp & Paper Co., Hawkesbury.

Discussion on paper.

12 Noon.—Intermission.

1.30 P.M.—"The Benefits of Education in Pulp and Paper Industry," by Mr. T. Linsey Crossley, Chairman Educational Committee, Canadian Pulp & Paper Association.

Discussion on paper.

"Reaching the Human Factor," by Mr. C. A. Gilkerson, Safety Engineer, Spanish River Pulp and Paper Co., Sault Ste. Marie..

Discussion on paper.

General discussion on any matter of interest noted during visit to mills.

Suggestions as to where and when next meeting should be held, also suggestions to increase the efficiency of meetings.

ADJOURNMENT.

The Manufacture of Corrugated Paper and its Uses

By SAMUEL M. LANGSTON, President S. M. Langston Co., Camden, N. J.

Corrugated paper was originally used as a packing material, forming a substitute for straw, excelsior, etc., and as such was either a plain single faced paper, that is corrugated sheet and one lining sheet, or simply the plain corrugated sheet without any lining whatever, In this form it was principally used for bottle wrappers and as liners and pads for wooden boxes, etc.

There has, as yet, been no satisfactory substitute for straw paper from which to form a corrugated sheet, and this is invariably not over nine thousandths of an inch thick. The lining sheet, however, varies with the different purposes for which the finished paper is to be used and is made from strawpaper, chip board or jute, and varies all the way from 9 up to 18 thousandths of an inch thick.

Light weight straw paper and chip board are used as a backing for single faced paper, or on double faced paper which is to be used for pads or petitions, and for making boxes for express shipments. For freight shipments, chip and jute lining 18 thousandths of an inch thick are standard.

The railroads, through their Classification Committees, specify the kind of stock, the test the stock shall comply with and the size of the box, and the weight it shall carry. Each box has to be stamped with these specifications and the manufacturers name and address. We have given an illustration of one of these classification stamps.

From single faced paper, used as a packing material has come the double faced board, of which the modern corrugated fibre shipping cases are made. The double faced board retained the cushion properties of the single faced paper, but was stiff and rigid both ways, that is, with and against the corrugation. It combined lightness, rigidity and elasticity, or the ability to absorb a shock, and has come to supplant, to a very large extent, the wooden boxes themselves, in which it was first used as a filler or packing material, and is proving time and again, not only a saving to the customer in freight and packing cost, but a saving to the railroads themselves from losses both from breakages and from pilferage. Until to-day, everything from hardware, bottled goods, shoes, tobacco, etc. are being shipped in paper shipping cases. When one realizes that one manufacturer alone in the States is consuming the entire output of seven paper machines to take care of the paper shipping cases he is manufacturing, one can appreciate the extent to which their use has developed.

Making Single Faced Paper.

The first step in the manufacture of shipping cases is the producing of the single faced paper. This single faced paper is then double faced, that is the lining, forming it into a stiff rigid board. The different steps in the manufacture can be followed by the aid of the illustrations, and the outline of the different machines given below. In giving outputs, figures are naturally open to comparison. We have tried to point out the difference between speed per minute and production per day, wherever possible and both speed and production figures are based on what a crew of men, after three or four week's experience, can accomplish under normal conditions.

The single faced paper, which is commonly used for packing purposes and which consists of the corrugated sheet with one lining in place, is produced on what is called the Corrugating Machine, as shown in Figure 1. This machine takes a sheet of 8½ to 9 point straw paper, corrugates it and sticks on the lining while the corrugated sheet is still in the corrugating rolls; thus heating both sheets and delivering the single faced paper stuck, dried and ready to rewind into rolls, or to be run on through the double facing or double backing machine. The principle of this machine is illustrated and described in the diagram. This drawing shows how the strawpaper enters between the corrugating rolls; the silicate is applied to the tips of these corrugations by a transfer roll, which has been fed

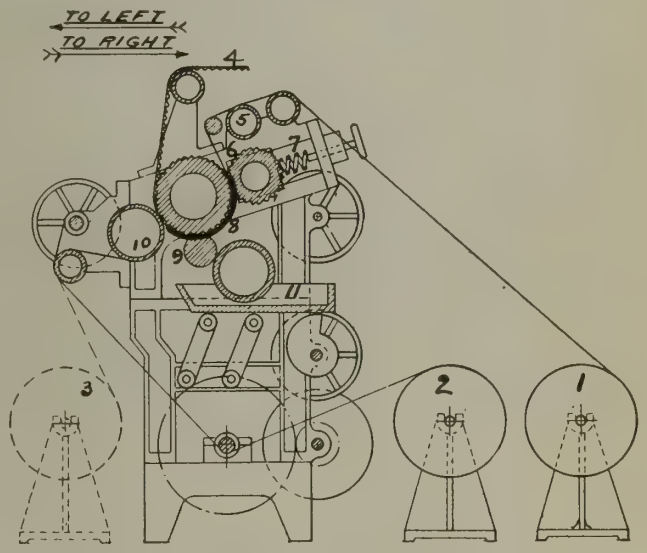


Figure 1.

1.—This is the roll of strawpaper.

2, 3.—This shows how the lining sheet can be placed **either** side of the machine ,and does not reperesent **2** rolls, simply showing that the one roll can be placed in either position.

4.—The finished single faced corrugated sheet hugs the big corrugating roll for a part of the circumference and then can go "to left" or "to right" for single faced or to be double faced.

5.—This is a steaming roll, it moistens and heats the "straw" before it is corrugated.

6.—Gravity feeds the paper to the corrugating rolls and saves the fingers.

7.—These springs force the corrugating rolls together. This eliminates variations in height of the corrugated sheet, increases speed and makes a stiff uniform sheet.

8.—These shields keep the corrugated sheet in the large corrugating roll until the lining sheet is pressed in place.

9.—This is a transfer roll, it puts the silicate on the tips of the corrugated sheet. There are stops that keep it from coming in contact with corrugating roll in case of tear outs or breaks in straw sheet. It is "ducked" down when charging rolls.

10.—This is steam heated pressure roll, and is what sticks the lining sheet to the corrugated sheet under pressure and heat.

11.—Pan holding silicate of soda which sticks the sheets together.

with silicate by the large roll running in the silicate pan. The lining sheet is heated by contact with a steam heated pressure roll and is pressed to the corrugated sheet by this roll. The finished single faced paper is kept in contact with the large corrugating roll for a third of a revolution, thus producing a dried and thoroughly stuck sheet of single faced paper, ready for use.

The corrugating machine has a counter which registers the number of lineal feet of paper which is produced and a rewinder is furnished with the machine for rewinding the paper in rolls. The single faced corrugated paper is used for pad, liners and single faced partitions, also for making round, square or octagonal shells, commonly used in packing liquids. It is also used for wrapping silks, etc.

In figuring on single faced corrugated paper, the corrugated sheet runs about 60 lbs. to 1,000 square feet of board and the lining sheet if 9 point straw runs about 40 lbs. to 1,000 square feet. The silicate of soda should run about 10 lbs. to 1,000 square feet.

Silicate of soda, commonly called water glass, is the adhesive used for sticking the lining sheets to the corrugated sheet. It is a mineral adhesive and when dry, is very insoluble in water. It is graded by the manufacturers, and designated by them, under trade names or symbols. The actual grading is done by specific gravity and viscosity. Silicate of soda is also used for sealing the flap of the finished boxes.

The Corrugating Machine is running on single faced rolls, will run from 75 to 100 lineal feet per minute without any trouble and if pushed, can produce from 125 to 150 lineal feet, but the maximum production is attained by running the machine at such a speed that one operator can handle the machine and keep it running steadily hour in and hour out.

Double Faced Board.

The next step and by far the most important one, is the manufacture of double faced board. The Langston Combined Corrugator and Double Facer produces in one continuous operation, first the single faced and then the double faced board, cut into sheets, trimmed and scored one way if desired. This machine is shown in Figures 2 and 3. We have pointed out in detail, the features and method of handling the machine.

One important feature of the machine, namely: the double cut-off, is shown in detail in Figure 4. This feature of the machine enables the running of two se-

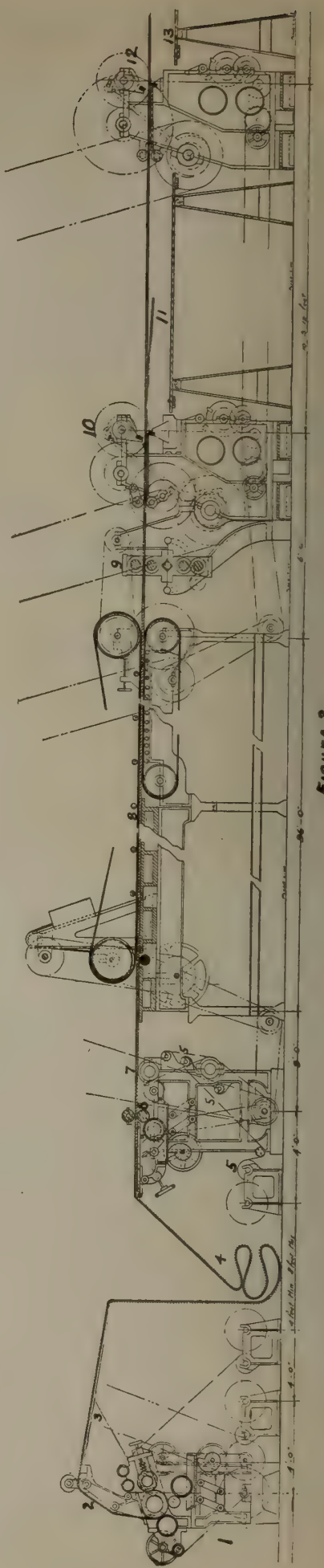


Figure 2.

DESCRIPTION OF FIGURE 2.

1.—Single faced corrugating machine as shown in Figure 1.
2.—Single faced paper.
3.—Shelf to conduct paper clear of machine.
4.—Loose folds here prevent straining of sheet.
5.—Liner for the double facing. Reserve roll ready to put in place.
6.—Transfer roll for putting silicate of soda on tips of corrugated sheet.
7.—Second liner is brought into contact with corrugated sheet.
8.—During the first 16 feet of this part of the machine the sheet is heated under pressure, for the next 20 feet it passes a cooling surface under pressure while air is blown through the corrugations.
9.—A Slitter cuts the sheet lengthwise.
10.—Cutter that chops off one strip while other passes to the next, which may cut a different length.
11.—Table to receive cut and seasoned board from first cutter.
12.—Second cutter for crosswise cutting of strips not cut by the first; cuts full width of machine if desired.
13.—Table for receiving finished sheets from second cutter.

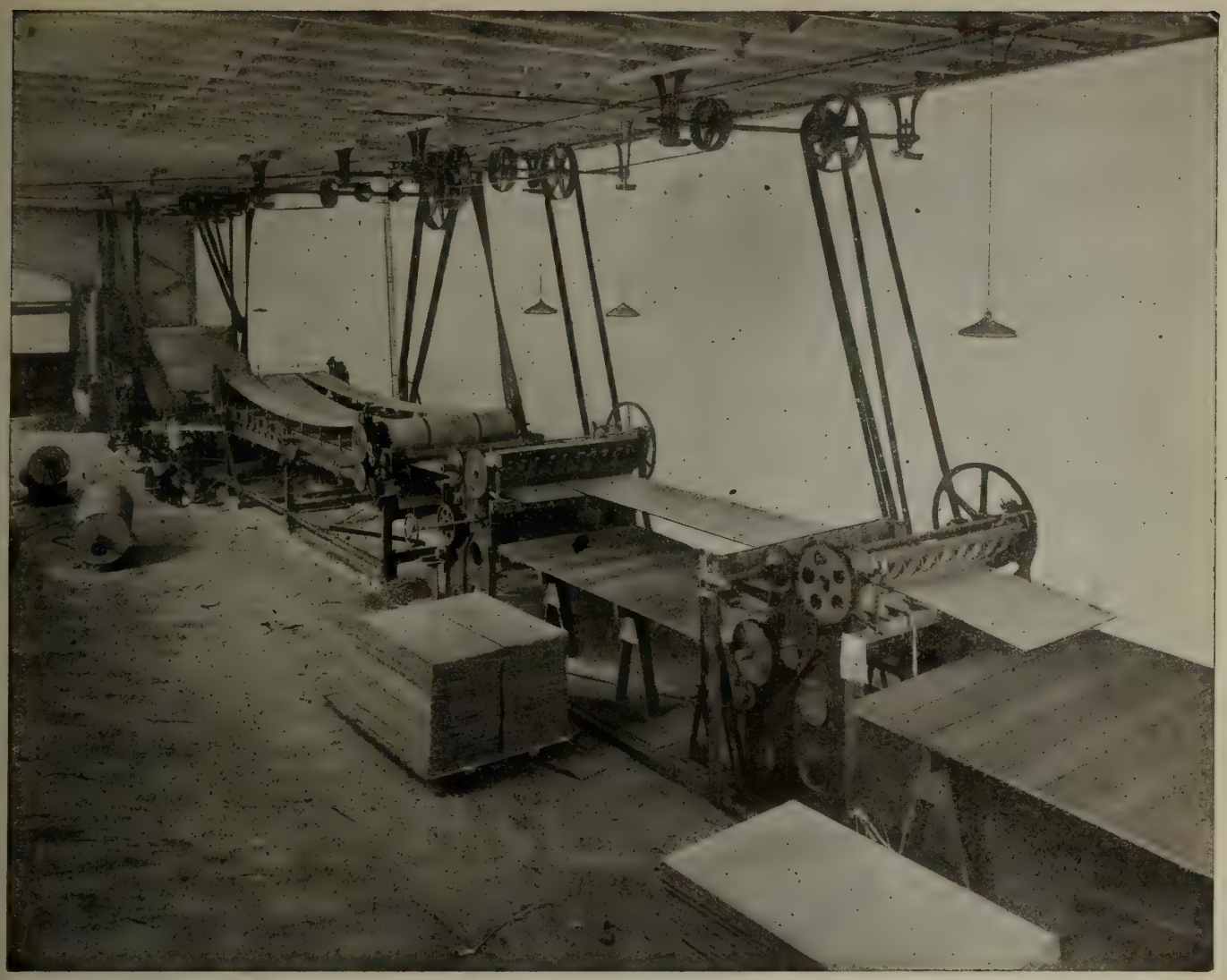


Fig. 3.—Machine making double-faced board.

parate orders of entirely different widths and lengths at the same time, thus filling out whenever possible the full width of the machine. In other words, with the same help, you will produce two orders instead of one, Furthermore, by this arrangement you cut the trim in half on each order, as the adjoining edges of both sheets do not have to be trimmed and by increasing the square feet of paper produced, you reduce your overhead expense.

The output of this machine is guaranteed to be between 60 and 70 lineal feet of dried, seasoned, trimmed and scored sheets. It is capable of even greater speed, particularly if the sheets are not trimmed and are allowed to stand carefully piled after leaving the machine. In this connection, as to speed, it should be observed that the production of a double facer depends on the amount of time in which the paper is held in contact for drying and seasoning; the combined machine of the Langston Co. has 16 feet of heating surface followed by 20 feet of cooling surface, during which air is blown through the corrugations so that the paper is held under pressure while it travels 36 feet. There is also a great difference in what is called "finished" board, as it comes from the double facer. The production mentioned is figured on board that does not have to be stacked in order to prevent its warping and to insure its sticking. The board as it comes from the double facer can be run through all its subsequent operations continuously without being allowed to stand and season.

This machine is ordinarily operated with two operators, one who is responsible for the single faced end and one who is responsible for the double faced end, and two or three helpers to take away the stock as it is cut off, and to assist in keeping rolls ready for the machine. A crew of men after three or four weeks experience, can produce from 100,000 to 125,000 square feet of paper in ten hours, running the machine at a speed of from 55 to 60 lineal feet per minute, from 58 inches to 62 inches in width, making three or four changes during the day. Thus to produce a standard jute and jute double faced stock, such as answers the Railroad specifications, made from 18 point jute stock, 85 lbs. test, the materials are as follows: 70 lbs. of jute to each lining, or 140 lbs. of jute and 60 lbs. of 9 point straw and 20 lbs. of Silicate of soda per 1,000 square feet of double faced board. The labor cost in producing this, in sheets trimmed and scored one way, can readily be figured out from the production of 100,000 square feet with four or five operators.

In handling from the mill rolls to the finished sheets from the double facing machines, these sheets can be taken to the Rotary Cutter and Scoring Machine,

into which the sheets can be fed from a hopper automatically at the rate of 35 to 40 pieces per minute and the boxes be trimmed and scored with the corrugations or the same sheets can go to the Printing Press and be trimmed and scored with corrugations, printed in two colors and as they come from either of these two machines, they are ready for slotting and taping. The Printing Press and Double Scorer will require two operators, one to "feed" and one to "take away", and will run from 35 to 40 pieces per minute.

The Rotary Cutter will require from 5 to 10 minutes to set up for changing one job to another.

In the case of the Printing Press, the setting up time depends so much on the combination of colors, the accuracy of register which is required and the skill of the operator, that it is difficult to give any accurate estimate for this work. Using rubber type on a maple lagged cylinder, the change can be made in 10 to 15 minutes, with metal backed rubber type, which has to be brought in register after press is stopped, the time will run from one-half hour to one and a half hours.

For slotting the containers, a gang saw may be used. This is simply three saws 24 inches in diameter, mounted on a single shaft and which are adjustable for any spacing of the slots. This machine is economical and has a large production, but unless the saws are kept sharp a ragged cut is produced.

The Langston Automatic Taping Machine takes folded containers, which have been scored and slotted and automatically feeds and tapes them at a speed of from 35 to 50 boxes per minute. It also prints the classification stamp when unprinted boxes are taped on this machine, constituting a complete equipment for manufacturing corrugated paper in all its different forms.



Fig. 4.—Cutter for cutting off one strip.

For cutting up single faced paper, the machine used is called a Chopper. This machine is a combination machine (Figure 5) which will take a roll of this single faced paper and cut it up into any width and into practically any lengths. It will score all or part of the roll so that it will fold against the corrugation, making a single faced square box or shell, or an octagon shell. It will slit and rewind single faced paper into any width rolls, either plain or scored, or it will cut up into pads or liners part of the roll in width and rewind the balance which can be run through the Chopper again and cut into different lengths from those cut when the paper was run through the first time. The actual production per day on this machine depends largely on taking care of its product as it is cut up. The machine, for instance, will take a 48½" roll of paper and will cut it up into 12" pads at the rate of 400 per minute. It would take that same roll or paper and cut it up into pads 48 x 48 at the rate of 50 per minute, or it would take the same roll of paper and cut it up into pads 48" wide and 12" long at the rate of 100 a minute, that is, the production of the machine is 100 cuts per minute, full width of the machine under 20" in length and 50 per minute longer than the 20 inches in length, and of course, this is multiplied by the number of pieces into which the roll is cut across the width.

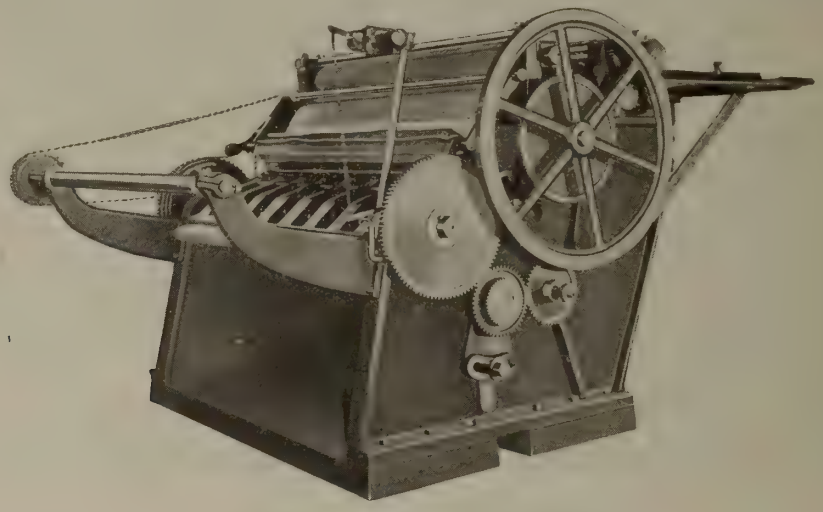


Fig. 5.—Combination Machine.

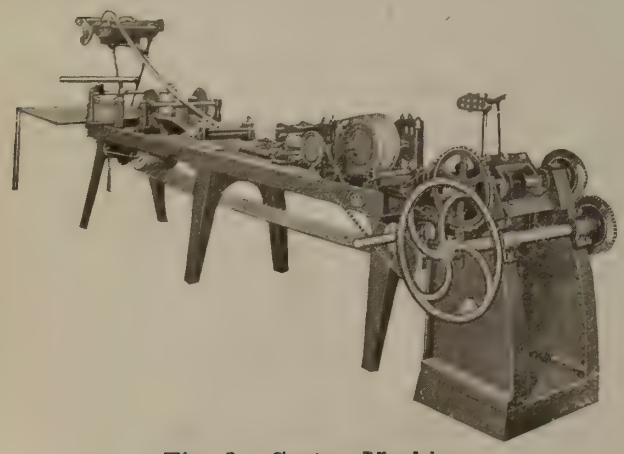


Fig. 6.—Carton Machine.

The Carton Machine is used for working up single faced paper. It make what are called among the trade, shells or sleeves, made from single faced corrugated paper taped on one side. The output of this machine varies from 50 to 100 per minute, according

to the length of the finished shell. The Operation of the machine is practically automatic, that is, in forming square, rectangular or octagon shells a roll of single faced paper, properly scored is fed into the machine, taped and cut into length automatically. The sleeves are round shells with the corrugations running lengthwise, made by feeding into the machine strips of single faced corrugated paper, which is folded and taped only by this machine, being cut to length afterwards. This machine is readily adapted by means of change gears as in the case of the Langston Chopper, and in fact, the same gears are used on both machines interchangeably.

PULP WOOD OPERATIONS AND PRODUCTION IN NEW ONTARIO.

Pulpwood constitutes the politics, the war talk and the religion, so to speak, of the average settler of New Ontario. It is the one theme in which he is interested and concerned above all others. When the settler is given a lot of ground, a section of one hundred and sixty acres, he must clear off two acres before he is allowed to cut and sell his pulpwood. It is estimated by competent authorities that his block of land will yield about two thousand cords of pulpwood by the time that it is all cleared.

How long it will take him to clear his property, depends, of course, on his ability to wield the axe, the nearness of his homestead to the railway track, and the facilities that he has for hauling and handling the wood. At the present prices paid, the number of agents and firms in the field and the scarcity of the product, the operation of cutting pulpwood is just now a profitable one for the settler. At the prevailing rate of wages, it costs him about two dollars and half on the average to cut a cord of wood, a dollar and half to draw it to the track, and he is getting as high as seven dollars a cord, leaving him a net profit of about three dollars a cord.

Pulpwood is the language of the settler of New Ontario. It is his thought and food for conversation. It was estimated the other day by J. L. Englehart, Chairman of the Timiskaming and Northern Ontario Railway Board, that a million dollars would be paid out to the settler along the line of the road for pulpwood during the coming year, and, on the Canadian Government railway, it is computed that another half million dollars or more will be handed out by buyers. This does not take into consideration lumbering operations. A settler getting two thousand cords off his lot and making at present quotations a profit of three dollars per cord would, in a few years, clear from wood operations alone, about six thousand dollars. The man who is flocking into New Ontario now, is the French Canadian. He knows how to chop down trees deftly and quickly, and get the best available results in wood cutting.

The concern buying the largest amount of pulpwood in New Ontario is probably the Monteith Pulp and Timber Co., of which W. J. Thompson, M.P.P. for East Peterborough is President, and E. R. Heyland, of Toronto, Secretary-Treasurer. The company own a rossing plant and saw-mill at Monteith, on the Driftwood River, and during the past winter purchased thirty thousand cords of pulpwood, the great bulk of which was secured between Haileybury and Cochrane, and on the Canadian Government Railway as far west as five miles beyond Hearst, which is 130 miles west of Cochrane, and east 175 miles to the Matane river. Only last week the company bought five thousand cords, paying seven dollars for rough spruce wood, which constitutes almost a record price. Already the company has contracted for some fifteen thousand cords to be delivered next fall alongside the track and, if present plans carry, they expect to buy up fifty thousand cords during the coming season. Ninety-five per cent of this wood is shipped to the numerous pulp mills in Wisconsin, the freight rate being from twelve to eighteen cents. About thirty cars a week are being sent out from along the route of the T. and N. O. Railway, while on the Transcontinental, or the Canadian Government line, wood is being forwarded at the rate of about one hundred cars a week. It is expected that all the wood which the company have bought will be despatched by the first of August.

E. R. Heyland, who has taken charge of the shipment and buying in New Ontario, has made his headquarters in Cochrane where offices have been opened, and all business, formerly conducted from Toronto, will now be centered in Cochrane. Harry Murdock, for the past few years assistant to H. A. Laird, freight and passenger manager of the Lake Superior Division of the C. G. R., has been appointed assistant to Mr. Heyland, who has six buyers and scalers out all the time securing supplies. Monteith, where the mills of the Monteith Co., are located, is thirty-three miles south of Cochrane, which is the metropolis of the northern country, located 253 miles north of North Bay.

"More wood was taken out in New Ontario than it was at first thought this season," remarked Mr. Heyland. "The spring was late in opening up and until May 1st there was snow in many parts and the settlers were able to haul their wood to the tracks."

More mills than ever are now looking for supplies of pulpwood in New Ontario and Quebec, and wood operations will be conducted by the settlers more vigorously this season owing to high price and competition. As soon as the settler has finished his planting and seeding on his cleared land he will start right in on pulpwood operations for the coming season.

BOOK REVIEW.

A History of Paper Making in the United States, 1690-1916. By Lyman Horace Weeks, New York; Lockwood Trade Journal Co. Pages XV. and 352, 107 illustrations. Price $3.00.

In his History of Paper Making, Hon. L. H. Weeks has added another excellent volume to his already fine list of books. The reviewer once attempted to collect information for a magazine article on this subject and can appreciate the stupendous amount of effort that Mr. Weeks must have devoted to this work. His painstaking searchings and delvings are manifest in the completeness with which he has covered the ground.

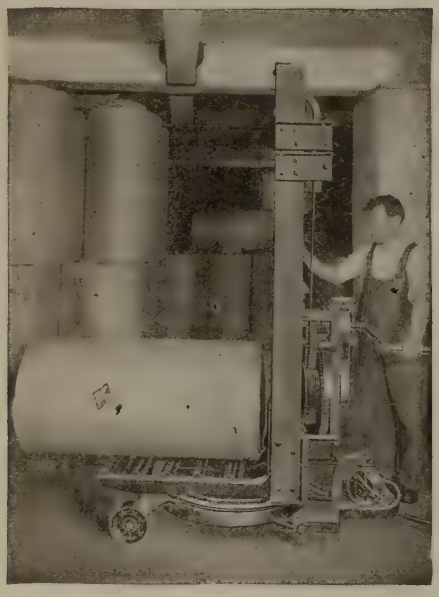
It seems hardly right that an American paper maker should be ignorant of the trials and troubles, the discouragements and occasional successes of the enterprising manufacturers and patriotic citizens who established the paper industry on this continent. Not only does one become acquainted with the American paper makers so as to appreciate their sterling character, but one also finds a thread of adventure running through this tale of the mills. There are even occasional bits of romance and humor.

The book is really a monument to the American paper maker and Mr. Weeks is entitled the gratitude of the industry and a wide circulation of his book.

PILING OR STACKING ROLLS OR CASES OF PAPER

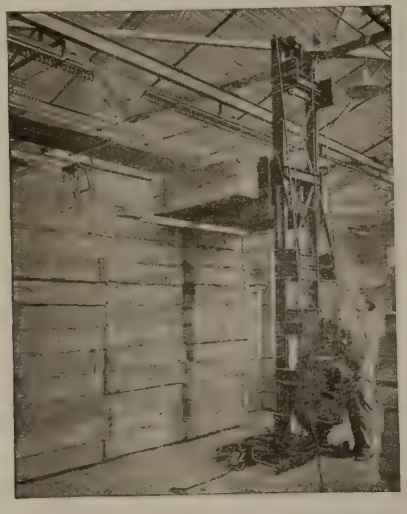
The problem of keeping stock in the warehouses without wasting an undue amount of floor space and labor in handling it has been solved by many paper mills and paper dealers and large printing concerns by the use of the Revolvator, illustrated herewith.

This device may be described as a portable elevator or tiering machine by which heavy articles or material



(up to 1,800 lbs.) are elevated and stacked in position with a minimum amount of labor and in far less time than by hand.

The Revolvator consists essentially of two uprights or elevator guides, an elevating platform and a revolving base which can swing around on its own center like a turntable. The unit is mounted on strong truck wheels equipped with floor lock.



A case or roll is placed on the platform when down and by means of a crank and gears the platform is raised to any level desired. It is then swung around on its own center, convenient for unloading. The revolving feature makes it possible to tier against walls, at the end of aisles and to elevate large heavy cases or rolls in narrow aisles to the point to which they are to be tiered and then revolved to the most advantageous position for unloading.

The machines are built for operating by hand or electric motor, the chief advantage of the motor driven type being that loads can be raised at a much higher speed than by hand and the energy of the operator is not consumed in doing work which electric power can be made to do so much cheaper.

Further information may be secured from the manufacturers: The N. Y. Revolving Portable Elevator Co., 360 Garfield Avenue, Jersey City, N.J.

WORKMEN'S COMPENSATION IN ONTARIO.

Two hundred and eighty-eight temporarily disablements, twenty-eight permanent disablements, and eight deaths was the total 1916 toll of accidents incurred by pulp and paper makers in Ontario, issued recently. The report contains much that is of interest to those engaged in lumbering and allied industries.

"The two years experience now had of the act," the report says, "afford fair opportunity to judge of its merits." Judging from the tone of communications from both employers and workmen few would care to revert to the old system. The outstanding features of the new act are that workmen are furnished with compensation without expense to themselves, and at the actual expense of their employer. Speedy disposition of cases; removal of causes of friction between employer and workmen, immunity from litigation, and the making of compensation for injury the rule rather than the exception.

From a statistical standpoint or guide the above figures when analyzed show (leaving actual deaths out of consideration) that the "Barkers, Grinders, Crushers, and Strippers" used extensively in the pulp and paper mills are the least dangerous for the mill workmen, as compared with various other types of machines as used in kindred industries.

The account of the pulp and paper mills, with an income of $67,549, and an expenditure of $79,051, showed a provisional deficit of $11,502 for 1916.

"THE GREAT AMPHIBIAN."

Sadler and Haworth have chosen a unique and interesting method of advertising their "Amphibia" belt. They are sending out attractive reprints of Rt. Hon. Winston Churchill's story, "The Great Amphibian," which describes this sea monster and relates how its counter part, the power of the British Empire, went to war.

A clever simile is drawn between this "Great Amphibian" and the "Great Amphibia." The story is well worth reading.

SWEDISH PAPER TO AUSTRALIA.

The import of Swedish paper to Australia decreased according to "Svensk Pappers-Tidning" during 1916 due to the shortage in tonnage and probably also due to the high freight rates. Kraftpaper seems to be imported only from Sweden. Swedish newsprint paper does not have much success in Australia, where a higher finish and a product more suitable for stereotype-print is demanded. The paper imported from Japan has been of low quality, but America and Japan are both anxious to obtain a market for paper in Australia.

There is a great demand for paper in Australia as well as in New Zealand.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Treatment of Waste Waters from Paper Mills. (1)—Paper Maker and Brit. Paper Trade J. **Vol. 53,** (1917) No. 4. p. 311. (From Zentrablatt.) Certain clays contain substances that form colloids in conjuction with waters (hydrated oxides of silicon, aluminum and iron together with organic matter). The surface of the clay is increased and the colloids absorb.--1. All colloid dissolved substances albuminoids and carbohydrates especially. 2. All coloring matters of complex constitution. 3. Fats and oils including lubricating oil. 4. Strong smells, coming from bodies in such small quantities as to be unweighable and cannot be got rid of by any other method. 5. Certain salts dissolved in the water, especially salts of the alkalis which react with the alkaline earth in the colloid clay. These colloids of the clay form numerous separate surfaces, where capillarity and surface tension have full play. In the analyses of paper waste waters it is desirable to be informed not only of the loss of the solid residues on incineration, but of the amount of nitrogen present, which is a guide to the content of colloid dissolved substances. Setting ponds should be so made that their deepest place (about 6 ft.) is where the waste water enters them, so that the undissolved particles which soon go to the bottom are deposited at that part of the reservoir. The bottom should slant gradually so that the depth at the outflow is about 3 ft. The reservoir should be lined with cement for neutral or slightly alkaline waters. The only possible material for acid waste is glazed stoneware used with a mortar free from carbonate of lime. The clay is stirred up continually with water in a special tank, from which the mud flows into the channel bringing the waste water, so that the two flow into the settling reservoir together. Then the electrical repulsion between the negatively charged clay-colloids and the negatively charged waste water colloids causes the formation of flakes which sink to the bottom. The purified water flows out at the surface of the shallow end of the reservoir. Colloid clay can be used for filtering backwater which is being used again for the stuff chest. Its subsequent employment in the settling reservoirs is not affected. —E.K.M.

The Chemistry of Wood Decay.—Paper I—Introductory. Rose and Lisse. J. Ind. & Eng. Chem. Vol. 9, p. 284 (March, 1917). The chemistry of the process has received but scant attention and the paper is the outcome of a survey of the field to determine whether the work shows promise of success. Three samples of Douglas Fir were analyzed; 1, sound heart wood, 2, wood in the first and 3, wood in the last stages of decay. The lignin is far more resistant than the cellulose and if it be a definite compound the molecule does not decay uniformly. Decay is accompanied by a rapid fall in cellulose content. No attempt was made to identify the fungi responsible for the decay, although their nature will largely modify the outcome. The analytical results are conveniently tabulated. Results indicate that the method described may be used in investigating the chemical composition of wood and of substances present in humus.—E.K.M. and A.D.C.

No Standard Practice for Slash.—R. D. Prettie, Can. For. J., Vol. XIII, No. 4, pp. 1047-8, (April, 1917).—An outline of some of the problems which have come up in C. P. R. logging operations in British Columbia. —H.N.L.

Forestry and the Paper Industry.—D. F. Houston, Am. For. Vol. 23, No. 280, pp. 205-12, (April, 1917), Illus.—A general review referring chiefly to the conditions in western U.S. and to work of the U.S. Government. See Pulp and Paper, p. 300 (March 22, 1917) also Paper, Paper Trade J. and Paper Mill of similar date.—H.N.L.

Ridding Slash from Western Lands.—R. H. Campbell, Can. For. J., Vol. XIII, No. 4, pp. 1063-4, (April, 1917).—Experience of operators on forest reserves proves that it is best to pile and burn brush at the time of cutting.—H.N.L.

Hitching up with Public Sentiment.—E. T. Allen, Can. For. J., Vol. XIII, No. 4, pp. 1071-4, (April, 1917). —How Pacific States developed a triple alliance between timber owners, governments, and the people for conservation.—H.N.L.

Odd Uses of Wood in War Time.—A. W. Schorger, Can. For. J., Vol. XIII, No. 4, pp. 1058-61, (April, 1917).—Explosives, gunstocks, artificial limbs, paper vests, turpentine, resin, and other products are described.—H.N.L.

Pacific Northwest Logging Costs.—Can. Lumb., Vol. 37, (1917), No. 9, p. 31; from U.S. F. S. report.—The cost of delivering logs into Puget Sound based on figures from twenty camps for the conditions of 1913: Total average cost per M., log scale $5.428

This statement does not include the cost of stumpage, interest of any kind, discounts on logs sold, towage to mill or taxes on standing timber. Additional explanation of some of the tabulated items is given.—H.N.L.

A New Test for Size-Fastness. — Proposed method for determining the Sizing Qualities of Paper. By Stanley A. Okell, F.C.S. Paper, Vol. 20, No. 5, pp. 20-22, (April 11), and Pulp and Paper Mag., Vol. 15, pp. 465-7, (May 10).—A solution of an electrolyte is applied to both sides of the sheet under constant slight pressure, a direct measurement of the gradual rise in conductivity through the sheet being made as it is gradually permeated and finally saturated by the solution. By taking readings of the conductivity at certain intervals of time and plotting out the resulting graphs very interesting curves are obtained. Description and diagram of apparatus. Use is made of Kohlrausch's method of determining conductivities, in its simplest form.—E.K.M.

Paper Size and Process of Making Same. — Paper Trade J., Vol. 64, (1917), No. 18, p. 40.—Judson A. Decew, Montreal, Que., has just been granted a patent on a paper size and process of making same. The product consists of a resin soap which is made by saponification with ammonium hydrate or carbonate. The ammonium resinate which is the product of the saponification differs in character and appearance from the resin soap made by means of sodium carbonate or caustic soda. Ammonium resinate solution has the appearance of a colloid such as glue, and it sets in almost the same way. By using ammonium resinate the use of sulphate of aluminum is practically eliminated. This product can also be combined with starch, glue or other various fillers for use as a top sizing for paper, and may have various other applications.—E.K.M.

UNITED STATES NOTES

(Special to Pulp and Paper Magazine by R. W. Jolly).

The Champion Coated Paper Company of Dayton, Ohio, has filed a suit in the District Supreme Court at Washington against the Joint Committee on Printing and the Public Printer to compel specific performance of contractural relations. In the petition it is declared that on December 8, 1916, the Public Printer called for bids for paper for the year beginning March 1, 1917 to supply the Government Printing Office and that the Champion Coated Paper Company submitted its bid. Part of the contracts were awarded, it is claimed, and others were withdrawn and the bids rejected by the arbitrary action of the committee and contrary to law.

John Lundrigan, industrial superintendent of the International Paper Company, left New York City last week for Watertown to arrange a safety first organization in the company's mills in the northern part of the State. Mr. Lundrigan states that his company is desirous of protecting its employees from accidents as far as possible and to this end he will solicit their assistance and co-operation.

The members of Eagle Lodge Paper Makers and allied organizations at Holyoke, Mass., have filed new wages schedules with the paper manufactures during the past week. These schedules embody advances of from 10 to 25%, effective June 15th. A communication, however, in each copy specifically asks for conferences before that date, indicating that the lodge and associated unions are willing to meet the manufacturers in a friendly spirit.

The Bryant Paper Company, of Kalamazoo, Mich., will shortly do away with the method which it has used during the past twenty years in securing its water. Heretofore the water supply has been drawn from two large settling ponds, passing through filters before being used. Plans are now being made to abandon this system and use artesian wells. Work has already started on the boring at the Milham division and several others will be sunk in the near future at the Bryant and Superior divisions.

The Corrugated Fibre Mills, Inc., which was recently charted in Brooklyn, N.Y., and subsequently announced in these columns, has purchased the properties of the John R. Corbin Company at the head of Mill Basin in Brooklyn. The new company will occupy immediately the buildings and will manufacture paper products. It is understood that plans are being made to build a $200,000 paper mill during the coming winter.

Following the fire that destroyed the plant of the Liberty Paper Company at Bellows Falls, Vt., recently, it was thought that the company would move to another village. However, news now comes from that place that the company has leased the building formerly occupied by the Boston Dairy Company and after alterations are made and equipment installed will resume business.

A new paper stock company has been formed at Akron, Ohio, under the name of the City Waste Paper Company. Articles of incorporation were filed last week showing a capital of $10,000 by these incorporators: A. S. Greenfield, M. Mendelson, T. Mendelson and S. Greenfield.

The working hours of the employees of the Highland Manufacturing Company were decreased beginning Monday, June 11, from 54 to 52½ hours a week. Advances in wages were made by the company so that the employees would receive approximately the same amount of money for the short week as they received for the long week.

Another change has just been effected in the paper industry of Lockport, N. Y. A. W. Jack, assistant superintendent of the Lockport Paper Company has resigned his position to become general superintendent of the American Tar Products Company at Rockford, Ill.

The Diem & Wing Paper Company is making arrangements for extensive improvements at its plant at Cincinnati, Ohio. Requests have been made for a permit to build a power plant and a garage. Part of the old building will be torn down and the power plant built on the site. The addition will be built substantially enough to add six more stories to it when material will be available.

Trade dispatches from Kalamazoo, Mich., state that the King Paper Company has completed repairs on its beater room and is now putting a new roof on the machine room. Two large ventilating cupolas have also been installed.

Another trade item from Kalamazoo states that the Standard Paper Company is building cupolas for ventilating its mill and also generally overhauling the roofs of the buildings.

Announcements made by the St. Regis Paper Company of Watertown, N. Y., during the past week were to the effect that the sales department of the company would not be moved to the Deferiet office together with the other departments. The company has rented offices on the third floor of the Sherman Building, at Watertown, to be occupied by the sales department. This department will be in charge of R. J. Parham.

Paper mills submitting bids on paper supplies for the State of Pennsylvania made everything contingent on the orders being placed before September 1st. Compared with two years ago, the prices submitted are considerably higher. In quite a number of cases advances of 100% have been noted.

The Boston Paper Trade Association held its annual outing yesterday (June 13). The members and friends sailed from Rowe's wharf on the steamer "Nantasket" at 10:15 in the morning and spent the day at Hull, down the harbor from Boston. Returning, the party landed at the wharf at six o'clock.

Press dispatches from Washington state that the Custom Collectors were ordered last week to collect on all print paper valued at about five cents a pound, when imported directly or indirectly from Italy, and additional duty of about 35c per 220 pounds. The action was taken, it is understood to meet the action of the Italian Government in imposing an export tax on paper.

PULP AND PAPER NEWS

Timber operations along the Trent canal waterways are pretty active and several thousand cords of pulp wood have come down from Eel Creek and the Massassaugua river for the ground wood plant of the Northumberland Paper and Electric Co., at Campbellford, Ont.

Charles V. Syrett, manager of the Victoria Paper and Twine Co., Toronto left this week for Winnipeg and other western points on a business trip.

At the annual meeting of the Globe Printing Co., held in Toronto last week, reports showed the affairs of the company to be in a strong and prosperous condition. W. G. Jaffray was re-elected President of the Board and W. P. Morse, secretary. The old board of directors was re-appointed.

By the new charter, which has been obtained the name of the Kinleith Paper Co., Limited, of St. Catharines, Ont., has been changed to the Kinleith Paper Mills, Limited. By reason of the expansion of the business the capitalization has been increased to four hundred thousand dollars, consisting of four thousand shares of one hundred dollars each, of which two thousand shares are preference shares. There is no change in the personnel of the company.

The first unit of the news print plant of the Pacific Mills, Limited, at Ocean Falls, B.C., has been put in operation and is turning out seventy-five tons daily. It is expected that the second machine will be running by the end of the present year, when the total daily production of the two units will be one hundred and ninety-five tons of news. Since the reconstruction of the company about a year ago, matters have been progressing apace and the plant is now in efficient shape. A large sum of money has been expended and the the future is regarded as very bright. The mills, which are situated on tidewater, cover a very large area and transportation facilities are of the very best. A large party from San Francisco, who are financially interested in the company, were present to witness the inaugural operations.

The job printers in Toronto have secured a flat scale of wages of twenty-four dollars a week and entered into a new agreement with the proprietors. This is an advance of four dollars a week rendered necessary by the high cost of living, and the new agreement covers a period of two years. The committee of the Typographical Union is now taking up the scale of wages with the various newspaper offices.

W. M. Davidson, proprietor of the Calgary Albertan and a former member of the editorial staff of the Toronto Daily Star, was successful in the recent elections in Alberta, being elected one of the members of Parliament from Calgary on the Conservative ticket.

A charter has been granted to the Ontario Timber and Ranching Co., with headquarters in Toronto and a share capital of forty thousand dollars. Among the powers of the company is to carry on business as timber merchants and timber growers and to manufacture and deal in timber and wood and all articles made therefrom.

Among charters, which have been granted this week are the following: Abitibi Timber Co., Toronto, capital $300,000, and Ker Woodturning Co., Toronto, with a capital stock of $40,000.

Major R. R. Barber, President of Gummed Papers, Limited, Brampton, has returned to his home in Georgetown. He has been spending several months overseas.

N. G. Czowski, managing director of the Canada Box Board Co., Limited, Montreal, spent a few days in Toronto and Frankford this week on business.

A large number of employees of the Riordon Pulp and Paper Co. at Merritton have gone in for gardening, the company having given them the free use of a generous sized tract of land adjacent to the mill.

Two hundred and fifty men are employed on construction at the Port Arthur Pulp and Paper Co., new sulphite pulp mill at Port Arthur. The concrete foundations have been completed, the walls are now up several feet and the work of erecting the two digesters is proceeding apace. From present indications the plant will be in operation early in November.

Fred. L. Ratcliff, President of the Ratcliff Paper Co., Toronto, who has been ill for the past three weeks, is making progress toward recovery but will not be able to be down to business for some days yet.

Gilbert McNicol, son of J. L. McNicol, manager of the Wax and Glassine Paper Co., of Cookshire, Que., was in Toronto last week on business. The company expect to start operations this month. Mr. Wilson, who has had an extended experience in the manufacture of wax papers, having installed the machines for Business Systems, Limited, Toronto, and latterly was engaged in Hamilton, has been appointed superintendent of the Wax and Glassine Paper Co. and has gone to Cookshire to enter upon his new duties.

PULP WOOD AVAILABLE.

The Pulp and Paper Magazine has been advised that a limited supply of peeled pulpwood is available. There is said to be considerable rough wood in 4 foot lengths within a 13 to 15 cent freight rate to western points or about a 16 cent rate to northern New York points.

A SPORTING CHANCE.

Wood pulp manufacturers with a little sporting blood will be interested in the offer of a British firm dealing in pulp stones. A. Fletcher, of Manchester, Eng., is confident of the superior quality of pulp stones from his Derbyshire Quarries. The stones have been successfully used abroad. An offer is made to supply a trail stone to a firm that will pay the freight. Mr. Alexander Gibb, of Montreal, will furnish particulars.

Some people in Belleville, Ont., have mistaken the new waste-paper boxes for postal depositories and have tried to mail parcels in them.

Wm. Lloyd, a young married man, was killed in the Dominion Pulp mill at Chatham, N.B., Saturday afternoon while riding down on the coal hoisting car. He raised his head too soon and it was smashed by contact with a beam. He had been frequently warned of the danger of riding on the car. Coroner Benson, after examination, decided an inquest was not necessary. The deceased was not one of the Millbank Lloyd family, but came here from abroad.

OTTAWA NOTES.

Members of the Paper Mill Workers Union are still negotiating for the adoption of the eight hour day system in local paper mills, the men through the Union being in correspondence with Mr. J. R. Booth and others. An increase in wages recently given the men, did not include all of the workers, some of them having been overlooked. In the case of the Booth firm in this connection a promise has been given that the men who did not receive the increase will be given a four per cent increase on their present salary. In the case of the sawmill men the Union has conceded to the present hours now in vogue, but, the other workers on the long shifts are anxious to have the eight hour shifts which has been in operation in many paper mills for some time. Mr. Booth states that he has always shown himself favorable to trade organizations, but, that he cannot adopt the eight hour system, and the matter is thus in an unsettled state.

Doctor Howe, of the University of Toronto, with two technical experts will shortly commence for the Commission of Conservation, and in co-operation with the Laurentide Company, a survey of cut over pulpwood lands. The object of the survey is to determine the amount of wood left over after logging, the reproduction rate and the probable yield of timber after a certain number of years have elapsed. The experts, after their survey will make recommendations as to improved methods of cutting.

"The present outlook for the coming season is none too promising," is the comment of Mr. George H. Millen president of the E. B. Eddy Company, in relation to the outlook for this season's cut of pulpwood. As a matter of fact the Eddy Company has not had one stock of woodpulp cut for them in the woods this year as yet, though they are offering the average scale of wages which a few years ago would have marshalled the best knights of the forest under their contracts.

Generally, though the forecast of an impending situation for supplies of woodpulp which are constantly growing leaner with each day's operations is not bright, the Eddy Company is about as well situated as the majority of other big mills in this respect, and it is not believed that this big plant will have to close its paper making doors this year for want of supplies of pulpwood. Of course, if Commissioner Pringle maintains the two and a half cent per pound price for newsprint as set by the government and follows in a similarly stringent line on other grades of paper, it may make a good deal of difference in the amount of production. At present the Eddy plant is running its paper making machines twenty-four hours a day, and is working on the three shift eight hour system.

The third large paper company to undertake reforestation work is the Belgo-Canadian Pulp and Paper Company at Shawinigan Falls, Quebec, which company has decided to commence planting trees on its holdings.

The Canadian Manufacturers' Association have sent out a number of circulars in regard to the proposed Canadian Freight Classification No. 17. The circular reports received by the trade state that after holding sittings at Hamilton, Toronto, Ottawa and Montreal the Board of Railway Commissioners have issued a memorandum stating that before they give any further consideration of the matter they will hold a number of sittings in the chief centres of population in the west, and that subsequently the railway interests will be directed to hold informal conferences with those interested in different lines of trade with an idea of having the parties agree as far as possible on the details of the proposed classification. The railways have already expressed their willingness to meet the shippers after the sittings in the west and the Canadian Manufacturers' Association intends to invite each line of trade separately to consider the changes in which they are interested and then meet the railways.

ONLY ONE IN CANADA.

The only place in Canada where dandy rolls are made is said to be the Sinclair Dandy Roll Works at Montreal. This firm also makes table and felt rolls, but the manufacture of dandy rolls makes up the bulk of their business. The wire used is wholly Canadian-made. Mr. Peter S. Sinclair, who is the dandy roll expert, was formerly with Buchanan & Bolt, Holyoke, Mass.

DEATH OF WILLIAM A. STEVENSON.

William A. Stevenson, of Florence, Mass., general manager of the Norwood Engineering Company, was found dead in bed at his home at seven-thirty o'clock on the morning of June 7, death being due to heart failure. He had planned to leave for the Rangeley Lakes for a two months outing and had sent his trunks ahead. For the past six years he had not been in the best of health, but continued to look after the affairs of both the local factory and the Norwood Engineering Company of Canada, which is now making munitions for the British Government, and of which he was also general manager. Mr. Stevenson was born in Franklin, Vermont, on July 16, 1860, and when a young man went to work for the Canadian Pacific Railroad, eventually becoming superintendent of the construction department. He later entered the employ of the New Haven road and became superintendent of purchasing supplies. In 1890 he came here as a salesman for the Kelsey-Fitch Signal Company which failed in 1893.

The Norwood Co. was formed the same year and Mr. Stevenson was installed as manager. The company was known throughout the United States, and in many foreign countries for the manufacture of paper-making machinery, water filters, fire hydrants and many kinds of special machinery.

THANKS!

The Pulp and Paper Magazine has received an attractive calendar from the Canadian Fairbanks-Morse Co. The picture entitled "Shooting the Rapids," shows a driver riding a log through rough water. The calendar includes December, 1918.

The Markets

CANADIAN PAPER MARKETS.

TORONTO, June 11.

There is not much new to record in the newsprint line this week as nothing fresh will develop until after the annual convention of the Canadian Press Association in Toronto, on June 14 and 15, when the subject of prices and the elimination of waste on the part of the big dailies will be taken up and possibly some concerted action adopted toward reducing size of the sheets or abolishing certain features.

Then, again, there is the sitting of the Commission in Ottawa, on June 19, when both the mill interests and the publishers will be invited to get together on the selection of a recognized auditor of standing who will go exhaustively through the books of the various companies in order to get inside facts relating to the cost of producing newsprint, etc.

At the recent sitting of the Commission in Calgary, the western publishers had many grievances to air, and one of them was the competition of the large American Sunday editions. One publisher went so far as to intimate to Mr. Pringle that he was obsessed with the idea that paper manufacturers were losing money at the price of two and half cents. Mr. Pringle replied that he had nothing on his mind, but would be governed entirely by the evidence submitted.

It was also charged by this witness, although he evidently had no facts to back up his statement, that a combination existed in restraint of trade in newsprint. He was promptly invited by Commissioner Pringle, if he felt that way, to institute proceedings before the proper authorities and with that the witness subsided. The publishers took the ground that as the pulpwood areas belonged to the Canadian people, Canadian publishers were entitled to a reasonable preference if there was to be any. Mr. Pringle told the newspaper proprietors that they need not have any fear with respect to a shortage of supply.

Another publisher went so far as to express the hope that the Canadian government would inquire into the waste of Canadian pulp occasioned by the large Sunday editions in the United States; and consideration of the price of newsprint in Canada should not be taken up, because increased demand in the United States through waste there increased the figure for newsprint in Canada.

However, the mills are not worrying about these charges and comments, and will wait until further action is taken on June 19th, before presenting any additional facts on this side of the case.

There is no material change in the ground wood pulp position and sulphite conditions remain the same. There is comparatively little buying in either at the present time, and the future is viewed with some alarm, owing to the constant shortage of labor and the growing scarcity of pulpwood. Book and writing mills continue to be well employed and, while business is not so active as many months ago, all plants are working to capacity, a number having contracts enough to cover them for several months. There is a splendid demand for super-calendered stock and in the line of wrapping papers, tissues, toilets, etc., prices rule firm, although there is not likely to be any change for some time. Now begins the quiet season so far as jobbers are concerned, but business is keeping up well.

In regard to the pulp outlook, a leading sales manager stated this week that the present transition state was due to the fact that Americans had been clearing their decks for action in the war, and there had been so much legislation in reference to taxing profits of companies, etc., that mills were hanging back. Some of those who have had contracts with Canadian firms are not at present taking up the full amount of their allotment, but the feeling is that, with labor and raw material so high, there can be no eventual recession in prices. A lower level of papers, especially in the high grades, had been made for some time and more ground wood was used during the last eighteen months than in ten years before. His mill was now paying common labor eighteen dollars a week for eight hours work a day, whereas a few months ago the wage was this amount for 10 hours, and two years ago the figure for "roustabouts," as they are generally called at the mills, was only fifteen and sixteen cents an hour. An offer had been made from abroad to take all their surplus stock and at a good figure, which might be accepted if suitable transportation arrangements can be made. Mills were not using free stock to the extent they formerly were owing to the disturbed conditions and a machine here and there had been shut down while other large concerns were sitting tight and not placing contracts without knowing what the future held in store, but he was confident matters would sooner or later assume a firm basis.

There has been some talk that kraft will weaken in price later in the year, but manufacturers declare there is no probability of any market changes except that the tendency is that prices will advance. The reasons they proffer are that there is a steadily increasing figure for practically everything entering into the cost of the production of kraft paper, and all the overhead expenses connected with the manufacture of the same. Then, too, the labor trouble is becoming increasingly difficult and, in view of the government's policy of selective draft must inevitably become worse. The export demand, especially from the United Kingdom, Australia, New Zealand and South Africa, continues unabated. Satisfactory transportation arrangements ensure a large percentage of this demand being met, at least, as far as the present year is concerned. Another reason urged is that recent legislation with regard to the new taxation of the profits of corporations can only have the effect of still further stiffening the market and causing prices to change, if at all, in an upward direction.

Board mills are busy but not rushed to the same extent that they were some months ago. Prices, which have prevailed unchanged for several months are, it is understood, to continue unchanged for another three months at least. Deliveries can now be guaranteed by

practically all the mills, within a month, whereas it was formerly the practice to stall off orders for three or four months.

The rag and paper stock world is very dull and mills are not entering the market at the present time. Cotton rags are still moving very slowly, but there is a better requisition for roofing rags. Twines are going well and there has been an advance of two cents on cotton twines, while jute twines are very firm. Spot prices are stiff while some mills do not undertake to give quotations on contracts which they are loath to enter into at present.

The bakers of the larger cities are now wrapping bread to the same extent that they were before the sharp rise in the price of flour and the high cost of the loaf and, owing to the augmented cost of paper, sealed bread is in many places sold for a cent more than unsealed. Labor is very high and some cities in the west, which had a by-law demanding that all bread be wrapped, have rescinded the measure temporarily or until such times as values become normal. Wax paper plants are still busy, however, owing to the demand for this class of paper in many new lines.

There is no indication that prices in any line of paper will come down and while they may have taken a drop in the United States owing to the disarrangement of business created by the entry of that country into the war, there is every likelihood that quotations will increase in Canada this fall.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood boad	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Grey folding board	$100.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00
Straw board, f.o.b., New York, ton	$65.00 to $70.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in reams are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $45.00
Easy bleaching sulphite	$95.00 to $100.00
Sulphite, news grade	$80.00 to $85.00
Sulphite (bleached)	$130.00 to $135.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.75
No. 1 soft white shavings	$3.65
Mixed shavings	70c
White blanks	$1.80
No. 1 book stock	95c
Heavy ledger stock	$2.00
Ledger and writings	$1.80
No. 1 magazine	$1.05
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.25
Folded news	60c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	60c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.00
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.60
Tailor rags	$1.50

NEW YORK MARKETS.

NEW YORK, N.Y., June 9.

Trade conditions are strange, indeed. While jobbers continue to show an indisposition to buy, the public is more and more manifesting cognizance of the serious conditions actually existing in the paper trade. It has just been called to the attention of local circles that this year, for the first time in a long while, New York newspapers did not print afternoon issues on Decoration Day—which was on May 30—in order that 250 tons of newsprint might be saved.

A matter that created considerable interest was the passage in New York state, during the past week, of the Emerson bill. This provides for a three per cent tax on the incomes of mercantile corporations. Under

this head is included practically all of the paper and pulp mills in the state, as well as the largest part of the paper houses, and dealers and importers in all sorts of paper stock.

While certain improvements in the freight situation were reported in a few parts of the country, the general outlook is far from bright for the largest part of the trade. All of the roads are cutting down passenger service, in order to add to their freight facilities. But it has been definitely announced that the government will have preference on all shipments and then will come articles of necessity. In the latter class, newsprint is the only one that will be considered. For that reason, mills are urging that those who need other grades of paper should not wait until transportation is difficult and precarious, but order at once.

Another thing that is expected to have a bettering effect on business is the effort being made to introduce the trade acceptance system of payment as universal with the trade—as well as with all other trades. By this proceedure, accounts that must otherwise be carried on the ledger until maturity are converted into commercial paper, which, in turn, may be converted into cash at any time. The strain of covering billions of dollars into the Treasury of the United States can be met with minimum of discomfort if buyers will meet the situation by closing their purchases with notes or trade acceptances, instead of letting the accounts stand open until maturity. It can readily be seen that such action would have a stimulating effect on trade in general.

Your correspondent observes nothing but firmness on the part of the dealers and importers. In ground wood, an increase in demand has been noticed during the past week. This has been attributed to greater activity in newsprint. However, this can be only one reason. for it is known that a number of large concerns are looking ahead and are endeavoring, in as orderly a manner as possible, to lay in supplies of ground wood for the future. Grinders are operating at capacity, wherever material supplies will allow. A continued higher tendency is looked for.

In chemical pulps, all eyes are fixed on the foreign situation. Of course, at the present time, with some of the paper mills rather slow, consumers are not showing more than a little interest in the market. There are some who are still waiting for the usual spring shipments of pulp from Sweden, which leave ordinarily, after the opening of the Baltic Sea. The quantities of foreign pulp on domestic docks is very small—apparently most of it is for immediate consumption on old contracts. Whatever is for sale, is being held for the top prices. Domestic stock is reported holding its own, with the mills working at capacity, in most instances. A number of paper mills are said to be calculating ahead on the time when some of the pulp mills now in construction will be ready for operation. Another hope for bearing the market that will fail, maintain the dealers. The shortage of raw materials will make it very difficult for lower tendencies to rule in the market under any conditions.

In new rags, the demand seems to be more or less dormant. No interest is shown, the impression being spread that the consumers are pretty well supplied. A sale was reported yesterday, of good white shirt outtings being sold to a mill for 9 cents at point of destination. In old rags, the principal movement is reported to be in the roofing grades. The felt manufacturers are buying fairly well. This is encouraging to dealers and they are hoping that a continuation of this state will be the means of forcing the rest of the market up to a more active scale. Present prospects are that bigger doings will not begin to show until a little bit late in the summer. It is calculated that the mills may be able to hold out over the summer and that, in all events, they will not buy in any large quantities before the early fall. Old whites are quoted at about 5 cents; street soiled whites, at 3 cents; thirds and blues, at 2¾ cents; mixed satinets, at 1¾ cents.

In bagging, the market seems to have taken on added strength, due, according to some of the dealers, to the advances in new stock. As a matter of fact, there does not seem to be any real increase in the demand for old bagging, but dealers are asking more money and, in some cases are said to be getting their prices. Today's market is about as follows; gunny, up to 3½ cents, and 4 cents; bright bagging topping at 3½ cts; sound bagging at over 2½ cents; mixed bagging, at 2¼ cents to 2¾ cents. Old rope is active with inquiries. It is said that the old rope mills are not very well stocked with raw materials, and find difficulty. This, however, is not the actual cause of all of the activity. It seems agreed that the future for the rope market will be much stronger because of the growing shortage and because of the fact that the sources of supply are becoming more and more inaccessible. Today's quotations range as high as 6½ cents.

While there has not yet been any decided advance in the comparatively low prices that have been ruling in waste papers the market is regarded as gaining in strength and preparing for a better session—that is as far as the dealers in stocks are concerned. Some mill representatives, have expressed fear that they might have trouble getting their supplies of waste papers in the near future because of the precautions which the railroads were taking with regard to the relative importance of different classes of freight.

A hindrance to freight movements would mean a shortage of available waste papers for the mills and a corresponding increase in price. The lower grades of stock continue to hold the field, but there is no doubt that the others are coming in for their share of the business in the very near future. Everyone is looking for the paper business to pick up soon, and this will mean an all-around better demand for all grades. Strictly over issue news is going at somewhere around 1¼ cents and a little above; strictly folded, at a little below ¾ cent mixed papers about at ½ cent; hard white shavings top at about 4¾ cents; soft white shavings are quoted as high as 3¼ cents, but it is said that no sales have been made over 3 cents; magazine stock is at over 1¼ cents; ledger stock, at about 3 cents, old manilas up to about 1¼ cents; with krafts still going fairly well quoted as high as 3½ cents.

A number of mills report still working part time, while, on the other hand, there are quite a few still going at capacity. In newsprint, the manufacturers are busy, at the same time announcing increased demands for their product. Tissues are reported to be taking on some new life. Prices are about the same and are not likely to change within the near future. Wrappings are said to be going fairly well at old prices. Book papers remain somewhat unchanged. Super is said to be sold pretty well ahead—while there is a fair demand for coated stock. Interest is being centered on what will be contained in the report soon to be made by the Federal Trade Commission which is now investigating into the book paper industry. Boards are fairly active with old prices ruling.

New York Quotations.

(These are a nominal range of prices):

Ground wood f.o.b. mill	$42.50 to $47.50*
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	7½c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5c*
Domestic unbleached sulphite, f.o.b. pulp mill	4¾c*
Kraft, pulp, f.o.b., pulp mill	6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c to 7c
Bleached soda pulp, f.o.b. pulp mill	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	6c to 6½c
Foreign easy bleaching soda pulp, ex-dock, New York	6½c to 7c
Bond papers, sulphite	11½c†
Best grade writings	20c*
Regular superfine	19c*
Ledgers papers	11½c†
News, contracts, f.o.b. mill	$3.00 to $4.25
News, spot lots	$3.50 to $5.00
News, side runs	4c*
Book, super	8½c*
Book, coated	8c*
Tissues, good sulphite, bleached, per ream	$1.20*
Tissue, ground wood, manila, per ream	$1.25*
Kraft	8½c*
Wood manilas	7c*
Jute manilas	10c*
News board, per ton, f.o.b. New York	$60.00
Strawboard, per ton, f.o.b. New York	$55.00*
Chip board, per ton, f.o.b. New York	$65.00*

(*)—And higher. (†)—And way up.

Rowland W. Jolly.

CANADIAN CHEMICAL MARKET.

MONTREAL, June 12th.

Prices have remained firm during the past week with a small volume of trade. Potash alum has shown a slight advance, due to scarcity, and caustic soda, 76% has shown a tendancy to higher prices.

Alum, ammonia lb.	5½c @ 6½c
Alum, potash, lb.	7½@8c
Blanc, fixe-paste, lb.	4c @ 4½c
Blanc, fixe-powder, lb.	5c @ 5½c
Bleaching powder, lb.	5c @ 5½c
Brimstone, f.o.b. mines, long ton	$35.00
Casein, lb.	25c @ 30c
Caustic soda, 76 per cent., lb.	6c @ 7c
China clay, imported, ton	$30.00 @ $40.00
China clay, Canadian, No. 1 white, ton	$20.00
China clay, Canadian, No. 2 white, ton	$15.00
China clay, Canadian, No. 3 white, ton	$12.00
Lime, ton	$7.25 @ $8.00
Sal soda, bags, 100 lbs.	$1.25 @ $1.30
Sal soda, barrels, 100 lbs.	$1.35 @ $1,40
Salt cake, 100 lbs.	85c @ $1.00
Soda ash, lb.	3c @ 3½c
Starch, pearl, in bags, lb.	6½c @ 7c
Sulphate alumina, technical, lb.	3½c @ 4c
Sulphate alumina, iron free, lb.	5c @ 5½c
Talc, American, ton	$13.00 @ $18.00

4,764,135 litres or about 1,049,000 imperial gallons of 50% sulphite spirit were manufactured in Sweden in 1916.

AFFECTS 400,000 TONS.

With the publishers who have signed the Arbitration Agreement and those who have agreed to sign in case the manufacturers are willing to carry out the arbitration, there will probably be one hundred per cent of tonnage affected.

The matter may be considered practically unanimous. There are three or four large publishers who have given out publicly that they have not signed, but they are unable to see the cream line on the milk the manufacturers are willing to come through with the agreement. The aggregate amounts to something like 400,000 tons a year.

CONSERVING CONTAINERS.

The United States Department of Commerce has issued for free distribution a pamphlet entitled "Substitutes for Tin Cans — How to Offset any Possible Shortage." It states in part that tin plate is 98 per cent steel and 2 per cent tin. Mills have not at all times been able to keep their customers fully supplied. Moreover, abnormal freight demands have made prompt deliveries uncertain. There have been decreased imports of tin due to decreased production and reduced shipping facilities, and with demand from 25 to 40 per cent greater than the normal, it is hardly surprising that the manufacturers have not been able to get the tin plate to meet this.

"It is imperative that the available supply of cans be utilized, in so far as possible in packing products that can be preserved only in tin, and that substitutes should be used wherever practicable. Such containers should be cheaper than tin, so that the ultimate benefit from lower cost may offset the initial expense of the substitutions.

"Fibre containers that have been approved by the Bureau of Standards are made in various shapes and sizes. Names and addresses of firms prepared to supply fibre and other containers may be obtained from the Bureau of Foreign and Domestic Commerce or its branches in various cities."—U.S. Official Bulletin.

TRADE INQUIRIES.

885. **Paper.**—A Buenos Aires firm of manufacturers representatives desire to be placed in communication with manufacturers of printing paper, wrapping paper and wall paper.

945. **Paper.**—An old-established paper agent at Genoa is anxious to represent manufacturers of paper for all purposes, including writing paper and envelopes.

DR. SCHORGER LEAVES U. S. LABORATORY.

Dr. A. W. Schorger, who for seven years has been connected with the Forest Products Laboratory, has resigned to take charge of organic chemistry with the C. F. Burgess Laboratories, at Madison, Wis. The Burgess Laboratories are actively engaged at present upon problems of national preparedness and defence, and are represented on both national and state committees. Dr. Schorger's immediate duties will be in connection with some of these problems, especially those relating to foodstuffs.

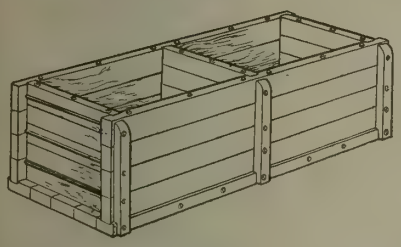
Mr. Edward Holgate, who has been chief draftsman with the Structural Steel Company of Montreal, for the past seven years, has accepted a position as chief engineer with MacKinnon, Holmes & Company, Limited, of Sherbrooke, Que.

Reasons why you should use Rosin Size Paste

Contains a minimum of water for practical purposes.
Is a demonstrated fact—not a theory.
Contains no overbaked useless rosin from mechanical evaporation.
Can be used direct to the beater without bothersome mechanical devices.
Contains no dirt or impurities.
Scientifically filtered.
Is more economical; saves labor.
Can be shipped in tank cars thereby saving freight on tare; no loss by adhesion to staves.
Will do all that is possible for Rosin Size to do.

PAPER MAKERS CHEMICAL CO.,
FACTORIES: Kalamazoo, Mich; Easton, Penna.; Holyoke, Mass.
OFFICES: Kalamazoo, Mich.; Easton, Penna.; Holyoke, Mass.; St. Austell, England.

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For all Purposes

GOOLD, SHAPLEY & MUIR CO., LIMITED
BRANTFORD, ONT.



Imperial Genuine

THE HIGHEST GRADE BABBITT METAL MADE

For all Bearings Carrying Extremely Heavy Loads

When melted, flows freely.

WILL NOT SHRINK.

Is very tough and durable, tin being the basis, antimony and nickel for hardening, and toughened with pure copper.

CONTAINS NO LEAD.

Manufactured and Guaranteed to give excellent Service by

The Canada Metal Company LIMITED

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"RAPIDAL"

Oil-bound water-paint is not a distemper, but it is a durable, economical, artistic paint for factories, mills, dwellings.

Washable, antiseptic and sanitary.

Used by leading Mills, Hospitals, Factories

Spielmann Agencies Reg'd.

Representing Griffiths Bros. & Co., London, Eng.

45 St. Alexander St. : Montreal

The Pickle Automatic Steam Regulator



Saves steam

It also retains the proper amount of moisture in the paper thus eliminating the breaks at the calenders.

This regulator gives you a higher and more uniform finished paper with less calendering.

W. F. PICKLES
BUCKLAND CONN.

We Guarantee our

-- SIZINGS --

to be absolutely clean

Our Vera Paper Size

is purest, strongest and highest free rosin size made.

Our Vera Mill Size

is the best soluble paper makers' rosin size made. Ready to use in cold or warm water.

Our Vera Beater Size

Made especially to dump direct from the barrels into the Beaters, without first diluting it.

Our sizings are cleaned by our new patented process and we guarantee this size to be absolutely clean, without the least speck of impurity in the same, preventing thereby black specks in the paper.

We are shipping our size in barrels or tank-cars.

Also manufacturers of—
VERA SOAP POWDER
for cleaning Felts, etc.
And VERA BOILER COMPOUND
Very effective and sold at a low price.

VERA CHEMICAL COMPANY

OF CANADA, LIMITED
FREEMAN P.O., ONT.

NORTH MILWAUKEE, WIS., U.S.A. STONEHAM, MASS., U.S.A

TO EXPORT PULPWOOD.

ST. JOHN'S Nfld., June 12.

The Newfoundland Legislature, now in session, is expected to enact a law permitting export to the United States of a considerable quantity of pulp wood, cut in this colony since the outbreak of the war. The wood was intended for shipment to England and France, but, because of the shortage of ships, its transfer to those countries has become impossible.

ABITIBI DECLARES DIVIDEND.

Abitibi Power & Paper Co. announces a quarterly dividend of 1¾ per cent., payable July 2nd to shareholders of record June 20th.

SAFETY CREED.

I believe in the conservation of human life and limb; the development and preservation of strong, healthy bodies, and unmaimed; the elimination of thoughtless, careless and reckless acts; the saving of suffering, sorrow and misery.

I believe in honorable work, and intelligently performed.

To this end I will seek healthful recreation and avoid those things which impair my mind and body.

I will train my mind and my hands that I may perform my duties in such a manner that I will not cause myself, my family nor my fellowman to suffer.

I will instruct the inexperienced, assist the weak, guide the strong, warn the unmindful, admonish the indifferent, and praise the vigilant.

Belting that is Always Reliable

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Main Belting Company of Canada
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Montreal - - - - - - - 10 1-2 St. Peter St.
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Winnipeg - - - - W. W. Hicks, 567 Banning St.
Edmonton & Calgary--Gorman, Clancey & Grindley, Edmonton, Alta.

Province of Quebec

DEPARTMENT OF LANDS AND FORESTS

QUEBEC, June 2nd, 1917.

Public notice is hereby given that in conformity with the law, on the 21st August next, at 11 o'clock a.m., at the office the Minister of Lands and Forests Department, Quebec, there will be offered permits to cut timber on lands belonging to the Crown in the Upper-Ottawa, Lower-Ottawa, St. Maurice, Lake St. John, East and West, Saguenay, Rimouski West and Bonaventure West agencies comprising several large blocks in the Abitibi Upper-Ottawa and head waters of the St. Maurice and Gatineau and on River Chamouchouan.

Permits will be adjudged to the highest bidder.

The price of adjudication is payable in 3 equal instalments.

The permit to cut will be subject to the ordinary conditions of the Law and Regulation and the grantees of any of the aforesaid territory must, within a delay of three years, manufacture, in the province of Quebec, with the timber cut in said territory, either pulp or paper in the proportion of ten tons per day, or sawn lumber in the proportion of ten thousand feet board measure per day, per hundred square miles.

Further informations may be had by applying to the Department of Lands and Forests.

ELZ.-MIVILLE DECHENE,
Deputy-Minister, Department of Lands and Forests.

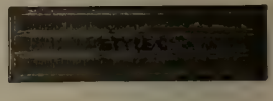
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President and Managing Director
HENRY W. S. DOWNS,
Superintendent

SCREEN PLATES

EMMONS CROCKER,
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ARTHUR S. MORSE,
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THE "Union" Bronze (best phosphorized cast metal) Plates for Sulphite Mills. The "Union" Cast Metal Suction Plates.

We carry a large stock of blanks of the various sizes and can fill all orders promptly.

Old plates reclosed and recut by our process are practically as good as new and give better results than by any other process.

EDWIN C. BABBITT and L. VINCENT WELCH, Sales Agents.

UNION SCREEN PLATE CO. OF CANADA, LIMITED

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—"FERRODOR"—

RUST PROOF, ELASTIC PAINT

is used by many of the government departments, as well as by the largest railways, steamship lines, and industrial plants. It affords perfect protection to iron, steel and wood, and is unsurpassed for brick and plaster, and for zinc roofs, etc.

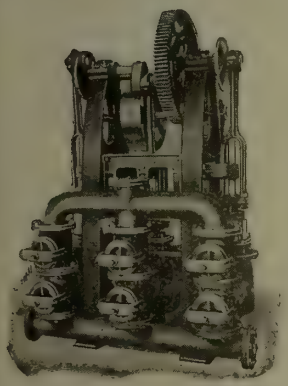
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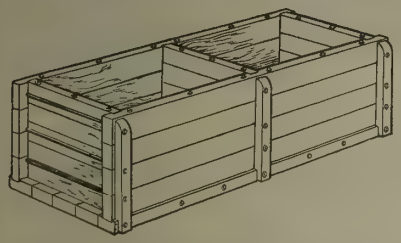
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by the purchase of PUMPS entirely MADE in CANADA.

The Smart - Turner Machine Co., Limited

HAMILTON, - CANADA.

WOOD TANKS



For all Purposes

GOOLD, SHAPLEY & MUIR CO., LIMITED

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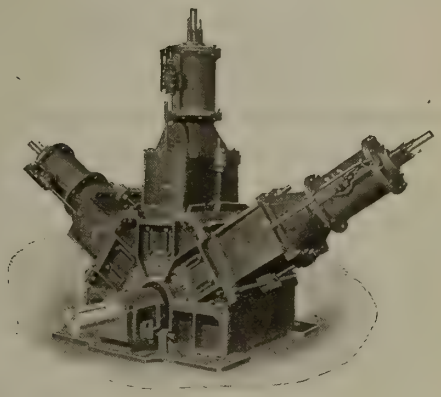
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QUALITY KNIVES FOR PULP & PAPER MILLS

Write for Catalog AND Contract Proposition

Jenckes Grinders



Jenckes Grinders are built to give satisfaction under all conditions. They are of heavy rugged construction and designed for severe high pressure service.



A Typical Illustration of "Jenckes" Grinders

THE JENCKES MACHINE CO.

LIMITED

Wood Pulp Grinders, Pulp Mill Machinery, Boilers, Agitators, Tank and Plate Work, Structural Steel.

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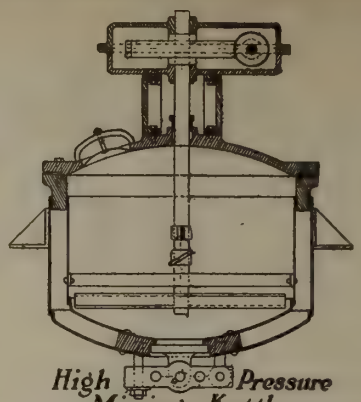
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Steel Plate Construction

Welded or riveted Tanks, any size, for any purpose. Stacks, Penstocks.

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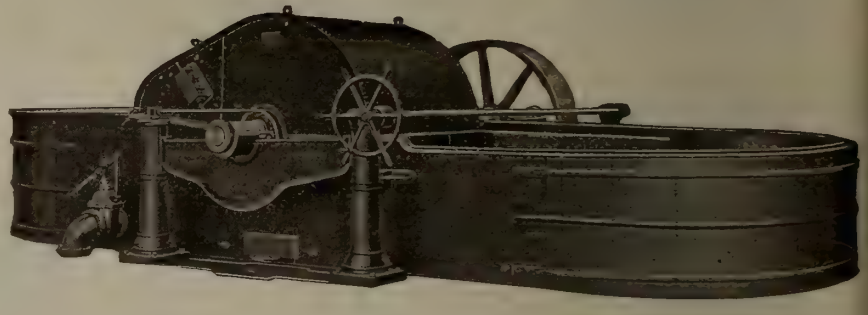
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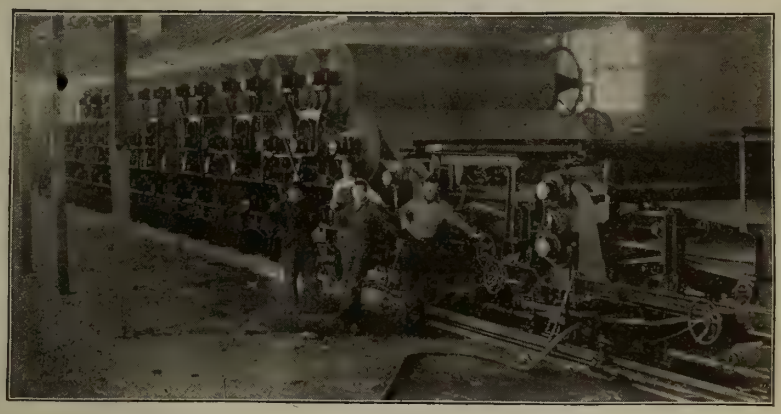
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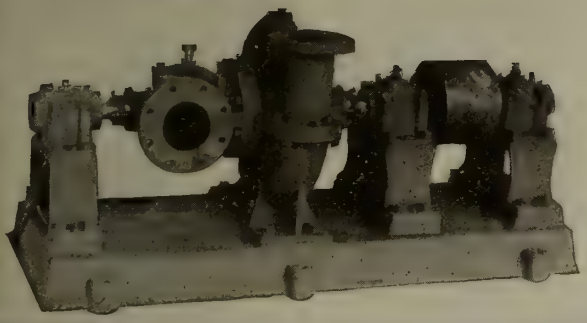
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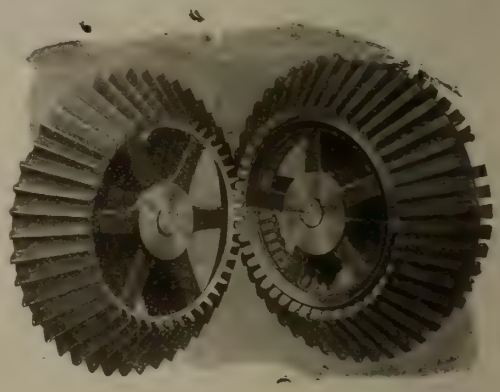
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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EDITORIAL

ONLY ONE LIFE LEFT.

"You have only one life left,
Be careful of it."

This is the striking statement on a sign at a railroad crossing in Michigan. Many of us act ofttimes as if we had a few lives to spare, or if it made little difference whether or not we kept our life unimpaired and undefiled.

To be careful of the only life we have is not simply to prevent its extinction. An incandescent lamp is rendered useless just as surely by knocking off the little nib of glass at the bottom of the globe as if anchor ice stopped the generator. The light is dimmed by a gradual deposit of carbon on the globe as surely as by a drop in the current. A dim light is an abomination.

An inefficient life, an ineffective life is a criminal waste. There is but one way to keep it effective—"Be careful of it."

This sign may bring to mind the elevator, the machine, the trolley car, or the railway crossing. It is just as important in the office. A life is not impaired only by getting a finger in the calenders, dropping a box on the foot or getting dust in the lungs. A life is more seriously impaired by visiting the "bar to happiness"(and efficiency), and by other vices than by the loss of a finger or even an eye.

So this suggests another sign,

"You have only one life left—
What are you going to do with it?"

There was never a time in the history of man when an individual life was worth more than it is to-day. We do not mean intrinsic worth, but potential worth. On what basis will one calculate the value of a man whose idea in guarding a dangerous gear has saved a workman a broken arm, or in removing dust from a rag sorting table has reduced the danger of tuberculosis, or whose genial and sympathetic manner has encouraged a good spirit among the members of an organization, or whose fine Christian character has helped some to walk straight and upright?

What is it worth for a man to shoulder a rifle, or perhaps a transit and cross the Atlantic, that by doing his bit, the liberty of unborn peoples shall be assured, that the massacre of an Armenian shall be rendered impossible, that the violation of a Belgian shall never occur again? What is it worth for a mother, father or wife to give up a man to such a cause? What is it worth to buy a Liberty Bond, or give to the Y. M. C. A. at the front, or the Red Cross? And if one can't go, or can't give, what is it worth to put one's entire attitude, energy and influence behind the forces that are trying to "make the world safe for Democracy?"

And what words are severe enough to express, or what measure is adequate to gauge, the character, the smallness of the life that does aught to halt or check the movement that must succeed now, if the race is to see "Peace on earth and goodwill among men?"

SUMMER MEETING OF TECHNICAL SECTION A GREAT SUCCESS.

While the 1917 summer meeting of the Technical Section of the Canadian Pulp and Paper Association is now a matter of history, it will live long as a pleasant memory in the minds of those who were fortunate enough to attend. The Belgo-Canadian Company, the St. Maurice Pulp and Paper Co., and the Laurentide Co., who were the hosts of the party from the time they boarded the train at Montreal on Thursday night till their return on Saturday, have our gratitude for the delightful entertainment. They are also to be congratulated on their liberality and progressiveness in opening their mills for inspection, in some case to their rivals.

Of this they may rest assured, that such events as that of the past week will do more than any other thing to eliminate meanness from competition, and instill a generous appreciation among the paper makers of Canada and through co-operation with the Technical Association, the paper makers of the United States. Unfortunately there are still some shortsighted people who do not share this generous modern spirit, but the idea is growing.

It was a pleasure to have a good representation of American delegates. They seemed quite favorably impressed by the Canadian mills and spirit and way of doing things. Those who had not travelled much in Canada were surprised at the excellence of the Canadian Pacific trains and all were pleased with the fine and courteous service.

The whole trip was well organized, the visit to Grand'Mere, especially, was planned to a detail. A lot of work was done in preparation and the committees of the paper mills are to be congratulated on the

success of the affair. The summer meeting of this type was begun only last year, but it is safe to say that it has now become a permanent feature of the work of the Section. A meeting of this kind simply confirms the belief that there is no finer group of men in the world than the paper makers.

A GOVERNMENT PAPER TRUST?

When the matter of conscription was discussed in the United States there was much speculation as to what industries were to be considered vital to the public good and the effective conduct of the war. Word was given out that the paper industry is one of the unessentials and therefore could not expect to be favored in the drafting of the army.

The report of the Federal Trade Commission, which is summarized on another page, now suggests that the paper business is so important that it should be controlled by some kind of a government board during the war. Perhaps, since the Commission had to make some kind of a recommendation or report nothing was accomplished, the suggestion has been made for government control. That they really believe such a step will be of any considerable aid in winning the war does not seem reasonable.

Such a suggestion at this time must be irksome to Mr. Hoover and others, who are working their heads off, trying to secure government control of the **food** situation, which **is vital.**

If government control of paper mills is vital to the welfare of the people and the winning of the war we ought to have it. But we refuse to see it in that light until action along this line is more evident in the case of food and fuel supplies which everybody knows are absolutely necessary.

If the recommendation of the Commission is adopted, one result is certain. The Government will know more about the pulp and paper business than it does now, and will have a better appreciation of the problems of the paper maker. If the recommendation is carried out to the extent of giving each mill a fair profit we should not be at all suprised to see prices go up. It is one thing to say how something should be done and quite another to do it.

CANADA'S INDUSTRIAL EXPANSION.

In an industrial sense the war is re-making Canada. In the pre-war days we were frequently told by manufacturers and economists that we could not make certain things in Canada. For example, shipbuilding on any kind of a large scale was tabooed by the authorities. To-day everything is being changed and many new industries are starting in the Dominion, including shipbuilding.

The following will illustrate the wide ramifications of our industrial expansion, which includes not only industries formerly foreign to the Dominion, but many by-products of established manufacturing companies. One of the most important of the new lines established has to do with chemicals. The British Chemical Company, with a factory in Ontario, is turning out gun cotton and high explosive acids. The Shawinigan Electro Metals Company at Shawinigan Falls, is producing metallic magnesium. Phenacetine and asperin, which were formerly one of the "Made in Germany" products we imported, are now being produced in Canada by the Chemical Products Co., Toronto. Chemical glassware is being produced by the Richards Glassware Co. of Toronto. Ferro-molybdenum is being made by the Tivani Electric Steel Co. of Belleville; while such plants as the Dominion Steel Corporation and other big industrial concerns are making high explosives, materials for analine dyes, and other by-products formerly imported. Wm. Cane & Sons, of Newmarket, Ontario, are making Canadian lead pencils, replacing the Austrian and German goods formerly used in the Dominion.

Not only are these new commodities being turned out in the Dominion, but we have learned to utilize our by-products in a way undreamed of a few years ago. To-day industrial life is so complicated and competition so keen that the great successes are made by concerns who are able to utilize their by-products to the fullest possible extent. This the Canadian manufacturer is doing for the first time in his history. In addition to that the confidence born of achievement is enabling our manufacturing interests to attack problems which they would not have dreamed of considering a few years ago. It has often been said that Canada has found her soul in the war. It is also true that she has found her economic and industrial freedom.

THE GUM TREE.

A new publication that gives promise of great usefulness is "The Gum Tree," published in the interest of scientific forestry and conservation in Australia. It is the official organ of the Australian Forest and is published at 57 Swanston St., Melbourne.

The first number, which contains several excellent illustrations, gives some valuable information on Australian forests, the Eucalypts of Victoria, and the Forest League. There is a confident "forwardness" in the editorials which is encouraging. The folly of putting forest matters in the Department of Mines is firmly criticized.

The letter which accompanied the first leaf of the Gum Tree will interest our readers.

You are probably familiar with some of our splendid timbers, which so far, have been despised by ourselves, and used only for firewood, or worse still, destroyed, to get at the land beneath. I know of forest country here, where we have had 30 trees to the acre, 30 feet round, and 300 feet high, burnt up, at a cost of £15 to £30 per acre; the capital value of the land when cleared (judged by its productivity is in the region of £5. I leave you to judge of the value per acre, of such timber.

Our timbers are mostly unsuitable for wood pulp. May be our development will be along other lines than this."

Surely all true Canadians join in wishing the Gum Tree a rapid growth and a successful and useful future.

Purchasing the Steam Engines and Piping Equipment

By HENRY BERT, Milwaukee, Wis.

The purchase of steam engines to develop the power for any plant is always made with a view of economical operation and fuel consumption.

In this day and age, by the aid of the elaborate cost systems which are a necessary part of the manufacturing proposition, the executive officer is enabled to determine at a glance the exact performance of any unit of the plant as regards economical operation.

To keep pace with the demand for economy in the power plant, manufacturers of steam engines and power equipment have put forth every effort to bring their engines up to the highest point of efficiency and have left no stone unturned to out-distance competition along these lines.

The present market offers to the buyer such equipment as the Triple expansion condensing engines, the Tandem and Cross compound engines which with the condensers and vacuum pumps necessary to be used with them, offer large inducements along the lines of economical operation.

When power alone is the economical objective, the above engines are to be recommended, but operating under the conditions present in the Box Board mill it is now an accepted fact that the prodigal or uneconomical engine is to be preferred as being better adapted to the prevailing conditions which call for both power to drive the machinery and heat to dry the paper. It has been demonstrated by experts that the ratio of power to power and heat combined is one hundred to 104, or in other words, where the cost for power alone is 100, power and heat both may be had for 104, using the exhaust steam for heating or drying purposes. It is also a fact supported by conclusive evidence, that the cost of heating with live steam is far in excess of heating with exhaust steam, and it is hoped that the following article will be sufficiently clear and convincing as to lead the reader to a conclusion which will support this position.

For the purchase of a proper engine for our fifty ton mill the following specifications are recommended:

The size of the cylinder bore to be 28 x 42, guaranteed to stand a working pressure of 150 pounds per square inch, to run 90 r.p.m. Very simple specifications, surely, but the object is to have this engine just as simple as can be made. This engine is to develop 650 indicated Horse Power, which can be done without subjecting the engine to any distress. This engine will develop the above Horse Power and operate at one fourth cut off, under which working conditions all practical engineers will readily see that the engine is performing to best possible advantage to get all the expulsion out of the steam. This engine will furnish the necessary power to drive the Beaters, Jordans, Beater Room stuff pumps and the Agitators in the beater room stuff chests.

The indicator cards which are shown herewith in figure 1 and table 1 and figure 2 and table 2, were taken from a steam engine performing to the capacity of fifty tons of Box Board per day.

The reader should note very carefully the readings on the back of these cards as shown in tables 1 and 2. Also figures 1 and 2 showing the initial and also the back pressure. The exhaust steam from this engine is used for drying the paper. This accounts for the necessary high back pressure on the cylinder.

These diagrams are figured out with a Lippincott Planimeter. The object of the diagrams is to demonstrate the amount of horse power required to manufacture fifty tons of Box board per day.

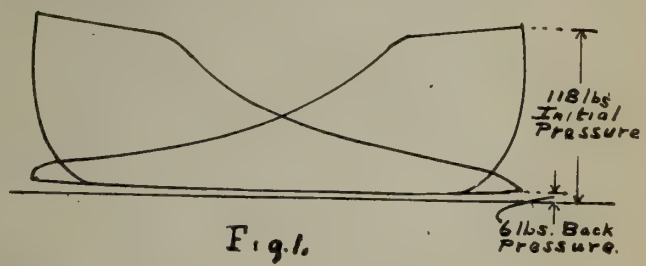


Fig. 1.

Table 1:

Card No. 1. Taken at 2 p.m.
From beater engine.
Boiler pressure 135 lbs. gage.
Revs. per minute 90. Scale 80.
Piston diameter 28. Stroke 42.
Piston speed 630. Area 615.75 sq. in.
Engine constant 11.75.
M. E. P. 56. I. H. P. 658.

The lower horizontal line represents the atmospheric pressure line. The horizontal line immediately above it represents the exhaust pressure line; the distance between these two lines indicates the amount of exhaust steam or back pressure that should be used on the paper machine for drying the paper.

Another object of these cards is to show that after taking the power out of the live steam the exhaust steam can then be utilized for drying purposes.

The most important engine in board, and paper mills as well, is the engine which drives the board or paper machine. Many different methods of transmission are used in connection with the steam engine, but to my mind this problem is best solved by the use of the Variable Speed Engine.

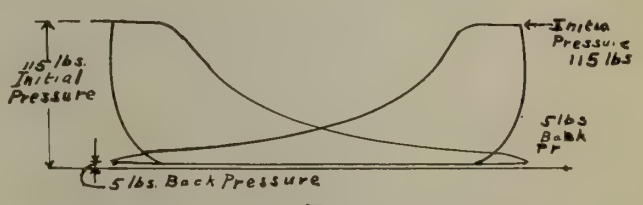


Fig. 2.

Table 2:

Card No. 4. Taken at 8 p.m.
From beater engine.
Boiler pressure 135 lbs. gage.
Revs. per minute 90. Scale 80.
Piston diameter 28. Stroke 42.
Piston speed 630. Area 615.75 sq. in.
Engine constant 11.75.
M. E. P. 42. I. H. P. 493.5.

This engine should be built according to the following specifications—

Two cylinders, 12 x 12, to stand a working pressure of 150 pounds of steam, to run at a minimum speed of 80 r.p.m., and at a maximum speed of 320 r.p.m. This gives a ratio of 4 to 1 and will permit of a variation in the speed of the board machine of from twenty-six and one half feet per minute for the minimum speed, to one hundred ten feet for the maximum speed. This variation will permit the board machine to make board to caliper .070 at the minimum speed, and board to caliper .016 at the maximum speed, which range is considered to be quite sufficient to meet the demands of the market. Such an engine will furnish steady power to any machine making fifty tons per day.

As this engine, together with the board machine are the most important producing units of the plant, a word in passing relative to the merits of the several types of variable speed engines, will not be far from the subject at hand.

While it is not the intention of the writer to discriminate in the matter of choosing equipment, it has seemed just and proper that those who may read these articles should be given the benefit of any experience that has come to the writer. A careful survey of these items will be given after which discussion the matter of selection is entirely in other hands.

Financial and "Safety First" interests both demand that all equipment be constructed and operated as far as it is possible, along the lines of prevention of loss of life, limb and property. This is possible only when the construction of this particular engine provides for complete, and adequate control at any and all times, which primarily prevents the destruction of itself and property and guards the lives and safety of the employees.

As far as my knowledge and experience goes, there is but one variable speed engine offered to the market today the operation of which is controlled by two separate governors. This is the Chandler and Taylor engine manufactured at Indianapolis, Ind. This engine is equipped with two separate governors, being controlled by a Gardner governor at 80 r.p.m. and also has the same control up to 320 r.p.m. It is also provided with an automatic governor which is attached to the fly wheel and is set to become operative at 325 r.p.m., thereby removing the possibility of this engine running away to its own destruction and a possible further damage to property and loss of life or limb to employees.

The next engine of importance is the constant speed engine which engine operates the screens, fan pumps, stuff pumps, suction pumps and the agitators of the machine stuff chests. It is very important that this engine run with unvarying steadiness to furnish uniform power to the various units above enumerated, as any variation in the speed of this engine will cause a variation in the thickness of the board or paper.

This engine should be built on the following specifications:

Size of cylinder 12 x 36, to have a working pressure of 150 pounds per square inch, to run 100 r.p.m. This is also a single, simple engine.

The next engine to be placed is then electric light engine. This should be with direct connection to about a 50 K.W. generator an engine of 75 horse power. This completes the steam engine equipment and we will now give our attention to the problem of piping up this equipment.

The piping for the board mill should be very carefully figured over before any purchases are made to preclude the possibility of unnecessary, inadequate and incompetent installation as is so frequently the case in starting up new mills, necessitating many extensive changes involving loss of time and money.

In purchasing the piping equipment, the Engineer should be particularly careful and insistent that all pipe and fittings as well, on the high pressure lines, be extra heavy, double strength. This pipe and fittings for the exhaust steam lines and water supply lines may be of ordinary or standard weight.

The most important part of the piping is the exhaust steam lines from the engines to the board machine. This particular feature of installation has received most careful attention and study on the part of the writer and many unsatisfactory equipments have come under his observation.

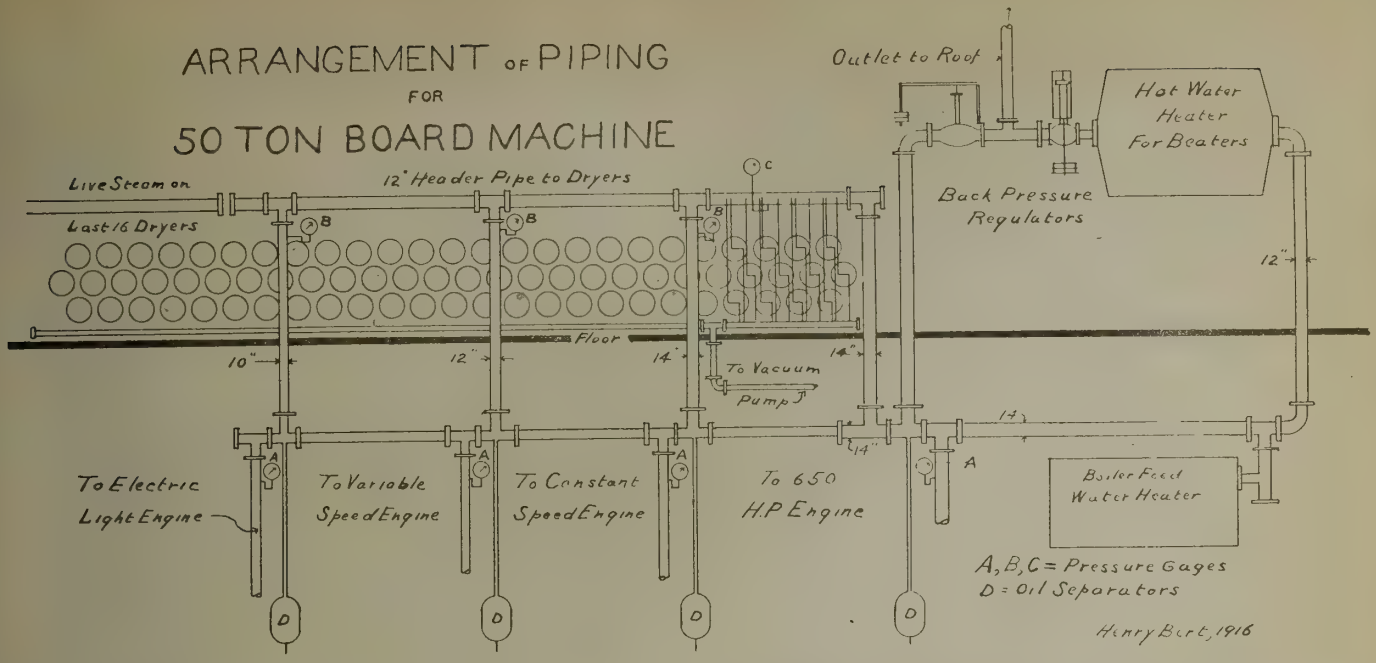
Primarily the objective is to conduct the exhaust steam from the engines to the board machine in such a manner that the greatest efficiency of the steam may be secured. It is therefore necessary that the proper size pipe be used in the proper place. The oil separators must be so arranged that all the exhaust steam will pass at least one oil separator. It is also necessary to efficiency that the back pressure be reduced to about one pound of pressure at the point where the exhaust steam enters the dryers.

The piping of all stock pipes and stuff pumps should be equipped with tees on all corner turns and crosses should be provided at all places where a tee would ordinally be used. This will permit the opening of the pipe line at any of those places should the pipe become clogged with foreign material at any time.

With a view of better presenting to our readers the situation of the pipe lines etc., a sketch is herewith submitted showing the arrangement of the various pipe lines carrying the exhaust steam and also the lines to the hot water heating system for the beaters, as well as the connections to the water heater for the boiler feed water.

The object of this sketch is to present a general idea of how the exhaust steam should be conveyed to the dryers. The important factor of any piping system for the use of exhaust steam is to get the volume of steam to the dryers and get efficiency. It is impossible to carry pressure on any dryer and get efficiency out of the steam, as there is always sure to be a waste of the steam through the syphon pipe. The plan followed in this sketch shows that all the power units discharge their exhaust steam into one steam line. The cross connections below the floor are provided to give an even supply of steam to the header pipe over the dryers. The steam gauges are marked A * B * C. Attention is first called to to four steam gauges marked A. These gauges will indicate the different pressure that is present on the exhaust line from the four different engines. This pressure will be found to vary considerably at different times owing to the variation of the load on the different engines. It is therefore the object of the cross connections to equalize the pressure after it has been discharged by the engines, thereby showing an even pressure on the header pipe over the dryers.

Assuming that the four different gauges marked A will show various pressures of from three to six pounds, which will be shown before the steam has reached the cross connections. At the three gauges marked B an



even pressure of four pounds will be observed and at the gauge marked C the pressure will have fallen to two pounds, therefore, no pressure will be present at the dryers. The object is to reduce the pressure, as practically all the heat units of the steam are liberated just at the point of condensation, thus getting all the efficiency out of the steam as far as its power for drying can be utilized.

Attention is next directed to the four riser pipes leading from the cross connections to the header pipe over the dryers. Note there is one separate oil separator below each riser pipe. As the pressure of the steam is reduced the velocity is lessened, under which conditions the cylinder oil settles and will follow the pipe to the separator.

These separators must be given careful attention and be well drained at all times. It is of the greater importance that the dryers be kept free from any deposits of oil as any such accumulations in the dryers acts as a non conductor of heat, the same as a scale formation in the boilers, preventing the heat from penetrating the shell of the dryer and thereby lessening the efficiency of the dryers.

DEFUNCT GERMAN PUBLICATIONS.

Amsterdam, June 3.—The Bayerische Landes Zeitung, of Warsebourg, before discontinuing publication says that the war has proved fatal to the economic situation and the German newspapers generally. One thousand five hundred newspapers and periodicals have already ceased publication, and the war has made demands on the German newspaper industry which are characterized as frightful and entirely unexampled. Paper has reached a price which enabled most paper mills to increase dividends considerably, and grease and oil for lubricating machines are only obtainable at usurious prices, while the prices of colors have enormously risen. The same is true of all other materials requisite for the newspaper printing office, and salaries and wages have increased. Printing works are compelled to give their employees progressive grants to aid in meeting the increased cost of living, apart from the fact that regular wages have also been augmented.

SPLENDID PROGRAMME ANNOUNCED FOR INDUSTRIAL EXPOSITION AND EXPORT CONFERENCE.

Headed by Hon. William C. Redfield, Secretary of United States Department of Commerce.

At Springfield, Mass., June 23 to 30, will be conducted in connection with a mammoth Industrial Exposition, a conference and school devoted to the practical development of exporting. Morning sessions will deal with specific lines of trade. Afternoon sessions will handle vital export problems, under the guidance of practical export experts. There will also be three evening meetings in the "Mahogany Room" of Springfield's Auditorium. The first meeting will be handled entirely by the United States Department of Commerce. Two evenings will be given over to the careful study of important foreign markets. Of special interest to readers of the Pulp and Paper Magazine is the programme for "Paper Day," while addresses at other times will be found of great importance to this industry.

Opening Day, Saturday, June 23, will present formal exercises with addresses by General Chairman, Frank H. Page, Mayor Frank E. Stacy, Governor Samuel W. McCall, and Hon. William C. Redfield, Secretary of United States Department of Commerce, who speaks on the vital subject of "After the War, What?"

Paper Day, Monday, June 25. Presiding Officer, Mr. Arthur B. Daniels, President American Paper and Pulp Association. The speakers will be James Logan, General Manager United States Envelope Company, Mr. Louis Cable, Export Manager, International Paper Company, Hon. Judge Charles F. Moore, Secretary Bureau of Statistics of Book Paper Manufacturers.

In the evening there will be heard Dr. E. E. Pratt, Chief of the Bureau of Foreign and Domestic Commerce, and Mr. J. E. Fitzgerald, Chief of Consular Division Bureau of Foreign and Domestic Commerce.

The topics covered will be "South America," "How to Export Paper," "The Purpose of the Webb Bill," "Packing and Shipping Problems of Paper Exporting," "The United States Department of Commerce and Its Service to American Manufacturers," and "World Ideas."

There will be many interesting events during the week, exhibits, concerts, fireworks, aviators, etc.

Grand'Mere Saw Climax of T. S. Meeting

By I. WITNESS.

About fifty members and guests of the Technical Section boarded the two special sleepers at Montreal last Thursday night, and arrived in Three Rivers next morning, where they visited the St. Maurice Pulp and Paper Company's mill at Cap Madeleine.

While enjoying a fine dinner on the private car that accompanied the party, the visitors made the journey to Grand'Mere and spent the afternoon of Friday inspecting the plant of the Laurentide Company. A description of the mills visited by the party must be postponed for a later issue. The St. Maurice Pulp and Paper Company, the Belgo-Canadian Pulp and Paper Company, and the Laurentide Co., were the hosts of the Section and right royal was their hospitality.

After tramping miles and miles, both vertically and horizontally, over the extensive plant of the Laurentide Co., the party was conducted in automobiles over the town and shown many of the beauties of Grand'Mere. A rendezvous was made at the club house on the golf links, where liquid refreshment and smokes were greatly enjoyed. From the appearance of the 9-hole course, nature has furnished a grand spot for the old game.

All gathered at the Laurentide Inn at seven, where about seventy sat at table and enjoyed a fine dinner.

The Dinner.

About the time the guests began to loosen belts, **Mr. George Cahoon,** President of the Laurentide Company, assured the visitors of their welcome to Grand'Mere. The writer is not an expert at note-taking, but the reader will not find it difficult to imagine Mr. Cahoon's general manner and cordial greeting. He said in part: "One of the fine things about these outings of the Technical Section is the chance it gives to know the men of the industry. We want you to carry away only pleasant memories of Grand'Mere.

"The industry is to be congratulated on the results that are sure to come from the co-operative effort that is manifested in the possibility of having such a meeting as this. We are glad to show you our plant and what we have, and what we do. We are glad to have your criticism of what you see. There need be no secrets in our industry. All plants operate under practically the same methods. We all owe much to the Section for largely breaking down the old ideas of secrecy. Mysteries have been removed and replaced by a knowledge of facts.

"We need yet, more intelligent organization and more intelligent operation.

"There are three requisites for success in the manufacture of paper, namely, power, wood, and intelligent organization, and like love in the three graces, the greatest of these is intelligent organization.

"You men represent some of the largest companies. You make paper to a large degree.

"I want to say a word for Laurentide's organization. The shareholders own and control this great waterpower and have ample wood, but they are more indebted to the organization of the company for any returns they may receive than for either or both of the other two blessings.

"I want to say again that I am glad you are here, and now it is my pleasure to introduce Dr. Bates, Chairman of the Technical Section, who will take charge of the meeting."

The applause showed that the party were in hearty accord with Mr. Cahoon's sentiments, and appreciated his cordial welcome.

Dr. John S. Bates stated that it seemed incompatible with the atmosphere of the occasion to discuss committee reports and other business. Copies of these will be sent out by the secretary.

While ordinary toasts were omitted, one toast could not be passed and Dr. Bates proposed THE KING.

In replying to Mr. Cahoon's words, Dr. Bates said: "Mr. Cahoon has struck the right note—CO-OPERATION. This is what the Technical Section aims at and is achieving. The present gathering is the second meeting of this kind. Last year eight mills in the Niagara district were visited.

"The companies of the St. Maurice Valley have responded very cordially to make this meeting a success. The Technical section heartily appreciates the courtesy of the three companies. Credit for the excellent arrangements must be given to the many who have worked hard on the preparations.

"I won't call on many for speeches or we might be here all night and I understand the committee has something coming off at the Club House. We do want to hear from our American friends, so I will call on Mr. Carruth, President of the Technical Association."

Mr. H. P. Carruth said: "I expected to have a good time on this trip, but I am simply overcome by the hospitality of you people up here. I want to thank you on behalf of the Technical Association. We have been glad to see many members of the Technical Section at our meetings and we want to see more.

"There is to be a meeting of the Technical Association at Holyoke, September 27, 28 and 29. This is to be a joint meeting with the Technical Section. We want you all to come down. Holyoke is determined to give you a good time.

"I can't adequately express my appreciation, but you have certainly given us a fine time.

"There is another toast I want to offer—THE ALLIES—we're one of them."

Dr. Bates said, "The joint conference in Erie lined up co-operation pretty well and got the idea started. I hoped many would attend the meeting in Holyoke. There is another friend here whom we are always glad to hear, Mr. R. H. Campbell, head of the Forestry Branch."

Mr. Campbell responded as follows: "I feel very strongly on the way you have treated me and appreciate the invitation to attend. I want to thank you for your hospitality and royal entertainment.

"The Technical Section represents the scientific side of the paper industry. I represent the scientific side of forestry. All who are really interested in a problem work hard at it. The popular opinion is often that the scientific man is trying to "put one over." This is usually far from true, but there has been a difference of opinion between the scientific man and the practical man which happily is wearing away. It is not all due to the attitude of either side, though the practical man's idea of the scientist's ability may sometimes be summarized in the reply of the western Senator to Mark Hanna. The westerner unwittingly used a double negative in the course of a speech and Mr. Hanna called his attention to the fact that because

of the grammatical error, the westerner had said just the opposite of what was intended. The westerner replied: "The intellect of the honorable gentleman reminds one of the red soil of Old Virginia—poor by nature and worn out by cultivation. (Laughter).

"The encouraging growth of the Technical Section and its work shows that there has been a considerable reconciliation of differences of opinion.

"Science in forestry aims to put the business on a better, more permanent basis. The forests form an important basis of the industries of Canada, and will pay a large part of the debts of the war. They must remain an important factor and a permanent one.

"Are we handling the problem right? What is the condition of our forests? What influences are at work? How can we check the harmful and encourage the favorable ones? The answer is Forest Management. We must get into the forests and study growth and development. We need not bgin at the bottom of this problem. Much has already been done and we can start our work here with the advantage of having what others have learned. It is urged by the Forestry Association and others to put the problem before the public and get many interested in it.

"Fire is the big problem. This needs public education. France has very few fires, due largely to the result of education. We need a good organization to fight the danger. The trouble of past efforts was lack of organization. We waited unprepared for trouble to come and then used haphazard methods to combat it. Trouble must be foreseen and prepared for. The thing to do is to prevent it as far as possible, but when it does come to be ready to fight it efficiently and effectively. We must go even further than this.

"Some of our forests are in a very bad state, but we do not know just what that state is. Some statements have been made that are not well grounded. They have been made on too local and limited an observation. Progress cannot be made without knowledge, else we will meet disaster. Otherwise we will think we have what we haven't. Our forests must be studied first hand and work done on that sound basis.

"There must be sound principles at the basis of a successful policy.

"The Forest Products Laboratories are working on and are ready to assist in the development of methods for the better utilization of cut forests. Mr. Wilson is doing a fine work in the protection and proper cutting of forests and in tree planting. We are beginning to learn that forest will not keep themselves. Like the old Scot who said it was no use laying in a stock of whisky because 'Whuskey winna keep.'

"I want again to thank the Section and the companies for the privilege of this delightful trip."

Mr. C. B. Thorne, of Hawkesbury, was next introduced, as "The man who says little and does much."

He spoke in part as follows: "When we go on a trip like this, I see all I can and steal what I see. What I see here is order and organization. That is shown in the carefully prepared guide book of the plant that you gave out. I appreciate also the cleanliness observed everywhere, as well as the good order and the efficient organization.

"I also notice that when anything new is built it is built right. You don't try to save on first cost of building but on maintenance. This is one of the theories we see in operation. Lots of people believe that is the way to do, but they don't do it.

"We need to pay more attention to quality. Canada must raise her exports. To do that we must make goods better than the other fellow in order to get the trade. The success of the Laurentide Company is founded on the quality of its product.

"Now why didn't we make the best? It is because the technical man did not have a chance. Things are beginning to be different now.

"The main thing is the organization. Mr. Cahoon has an organization to be proud of. The president gives tone to the organization. The Laurentide has the spirit. They have built a model town. Another evidence of their fine spirit is the moving of the 'Old Lady'* from the river to the hill. So the best thing I see here, the thing I shall take home with me is the **spirit,** more than anything else."

After giving three rousing cheers for the Laurentide Company, the party strolled over to the **Club House.**

Here the committee had arranged further entertainment in great volume and variety. Good fellowship reigned and all were willing subjects. The evening was spent in the pleasantest manner possible. Some had moved to the Inn or to the houses of old friends to sleep, but most of the party went back to the Pullmans to get in a few winks before the train left in the morning for Shawinigan Falls.

(*)—The Old Lady refers to Grandmother rock, a stone weighing 30 tons, which bears a profile having a remarkable resemblance to an old woman. The Laurentide Company has had this removed from its resting place in the river bank to a suitably prominent position in the town. It was necessary to split the rock to facilitate moving it.

BOOK REVIEW.

How to Build Up Furnace Efficiency.

A Hand-Book on Fuel Economy, by Jos. W. Hays, Combustion Engineer, Rogers Park, Chicago, Ill., 1916. Pages 154. Price, $1.00.

In five chapters the author explains 1. Why Your Fuel is Wasted, 2. How Your Fuel is Wasted, 3. How to "Spot" Your Fuel Wastes, 4. How to Stop Your Fuel Wastes, 5. How to Keep the Wastes Stopped. An Appendix gives pointers on Oil, Gas, Wood Refuse and Other Fuels.

The book is written in "plain United States" and is sufficiently free from purely technical language to be readily understood and appreciated by the average foreman or superintendent.

The statement is confidently made "that the average boiler plant wastes a quarter of its fuel, meaning preventable waste.... The men to stop the waste are the men who do the wasting.... Any man who can read a scale and watch a flickering candle flame is qualified to bring any boiler furnace up to the highest state of efficiency consistent with the fuel and the furnace equipment..... The sickest thing in your factory is the boiler room..... It is one thing to "attain" efficiency and quite another thing to "maintain" it.... Fuel represents about 70 per cent of the total cost of power.... All Europe will wear seven league boots of industrial efficiency when the war is over. Uncle Sam will not even have his socks on."

Mr. Hays has written a very readable book, which is as interesting as it is informing. There is a human element in it that will be appreciated by those who are dealing with men. It cannot be skimmed through; it compells **reading.**

We call it a good book.

CONSPIRACY OF BOOK-PAPER MAKERS, HINT OF U. S. COMMISSION.

As a result of its investigations into the news print and book paper industry, the Federal Trade Commission suggests to Congress a pooling of all paper and mechanical pulp in the hands of a Federal agency for distribution at a price based upon cost of production plus a pair profit per ton. The investigation reveals excessive profits made by the paper manufacturers.

The commission has issued the following preliminary summary of its report to Congress:

Summary of Report.

"There were in 1916 approximately 40 companies operating 70 mills, the bulk of whose output was book paper, and a number of other mills which manufactured some book paper in addition to the various other grades. The output of the principal book-paper mills in 1916 probably aggregated more than a million tons, valued at more than $87,000,000.

"During 1916 the prices of different grades of book paper showed large increases over those for the preceding year. Contracts made by 23 manufacturers in the last half of 1916 on the average were 84 per cent higher for machine finish, 66 per cent higher for supercalendered, and 65 per cent higher for coated book than in 1915. The percentage of increase in current prices, except on coated paper for sales to publishers in several large centers, were even higher.

Increase in Average Cost.

"The average cost of manufacture of 41 principal book-paper mills for the year 1916 was $7.79 per ton higher than for 1915, the increase in particular mills ranging from less than $2 per ton in several cases to more than $20 per ton in the most extreme cases. Costs were rising throughout the year, however, so that for the first quarter of 1917 they were very much higher on the average than for the year 1916. In general, the increase in cost was greater for the mills purchasing their pulp than for those producing it.

"The average profits per ton of 41 principal book-paper mills were 100 per cent higher in 1916 than for the preceding year. In some mills there was no increase in profits, while in others the increase was very large, the relation of profits for the two years depending upon the proportion of the total output of each mill sold under the old contracts at normal prices. The profits for the first quarter of 1917 were generally much higher than for 1916.

Margins of Profits Larger

"The margins of profit of paper jobbers on book paper sales were generally much larger in 1916 than in 1915. The average increase on current sales of machine finish book paper for the principal New York jobbers was 200 per cent and Boston jobbers 343 per cent.

"The domestic production of book paper was nearly 20 per cent greater in 1916 than 1915, but domestic consumption and exports increased so rapidly that stocks declined. Imports, which have never been large enough to be a factor, are now practically nothing.

Circulation Shows Increase.

"The volume of advertising and the circulation of the principal publications of the country using book paper showed a large increase in 1916 over 1915.

"Twenty-three important book-paper companies producing from 75 to 80 per cent of the total domestic output of book paper are members of a statistical bureau, of which Charles F. Moore, of New York City, is secretary.

"The concerted activities of the book-paper manufacturers, with the effect thereof upon the prices charged in 1916 and 1917, have been investigated, and the commission is considering the institution of a proceeding directed against certain practices which appear to exist in the industry."—Official Bulletin.

PULPWOOD PRICES ADVANCING.

According to Mr. Campbell, of the Whyte-Campbell Lumber Company, Montreal, the outlook for pulpwood is in the direction of higher prices. All indications point to additional costs, with a possibility of a still shorter labor supply. Drivers on the river are being paid $60 to $65 a month, while the cost of other help has risen proportionately.

Pulpwood is now fetching on contract $12 a cord, rough wood, f.o.b. cars at shipping points, taking a 12c to 14c rate, and $13.50 has been paid for prompt shipments. This was on the Grand Trunk. The C.N. R. has promised a good supply of cars for wood from the Lake St. John district, to be shipped to the States. Canadian pulp companies which have hitherto offered small prices fo rthe wood, are now in th market, with the result that quotations have advanced, the shortage of about 35 per cent. being a contributing factor. Pulpwood costs from $6.50 to $7 per cord on the banks of the river, the farmers being paid $5 to $5.50 for the wood. The farmers, however, are finding it difficult to obtain credit for provisions with the storekeepers, with the result that the farmers have to be financed for their wood.

Mr. Campbell stated that the disposal of the bark has proved up to the present a somewhat difficiult problem. At their mills at Rawdon, P.Q., they had hitherto burned it, but recently had sent quantities to three or four mills, with a view of testing whether it could be used as fuel. His own opinion was that the wet bark, if properly fed into a boiler with Dutch ovens, would prove an economical fuel. It was essential that the bark was automatically fed by means of endless chains, so that it would not be dumped; if it were fed in a mass it would not burn, and experiments in this direction had proved to failure. Bark could be obtained far $20 a carload, say, 15 tons, or a cost of $1.25 a ton. A ton of coal is equal in heating value to three tons of bark, but whereas the cost of the latter is $3.75, coal would cost about $10 a ton. Sometimes bark is allowed to accumulate, during the summer, resulting in the gum leaking and forming a solid mass of the bark. When this is put into the furnace it chars instead of burning, but this result would be avoided if the wood were properly used. Bark also makes a good fuel if mixed with coal. Balsam bark is treated by one United States firm by extracting the gum, which is used in road-making, while a Canadian pulp company uses a certain amount of bark in manufacturing pulp for tissue paper.—Canada Lumberman, May 25.

QUARTER CENT TO WRAP BREAD.

At the recent meeting of the Chicago Master Bakers' Association, it was brought out that it costs "pretty nearly" a quarter of a cent a loaf to wrap bread in a wax paper. Mr. Grant made the statement, declaring that the system of wrapping bread was introduced several years ago at the solicitation of "some ladies and uplifters in the town" and that it is popular.

Notes on Fillers and Loading Substances

The retention of the various fillers used in papermaking, and their effect on the life of the machine clothing and quality of paper were the subjects proposed by a committee of the Technical Association of the Pulp and Paper Industry for a prize essay. The prize has been awarded by the committee to Charles S. Bird, jr., of East Walpole, Mass., whose paper appears below.

Among the materials used in papermaking as fillers are the following:

1—China clay—kaolin—aluminum silicate.
2—Asbestine—agalite—talc—magnesium silicate.
3—Blanc fixe—artificial barium sulphate.
4—Pearl hardening—crown filler—artificial calcium sulphate.
5—Gypsum—terra alba—annaline—natural calcium sulphate.
6—Satinite—artificial product made by precipitating alum with slaked lime.
7—Barytes—natural barium sulphate.
8—Other fillers, such as yellow ochre, mineral wool, and tan bark for certain grades of paper.

RETENTION.

Certain general principles govern the retention of all the fillers named above, and any other substance which may be used for similar purposes in the manufacture of paper. The kind of paper demanded should govern the kind of filler used, the method of loading and its retention in the finished paper.

The methods for obtaining a maximum yield must be studied in every mill in relation to the class of paper produced.

The following are some conditions which affect the retention of fillers:

1—Kind of filler, cleanliness and quality.
2—Fiber used, stock or wood (chemical or ground).
3—Hydration of stock.
4—Consistence of pulp.
5—Weight of paper made and speed of machine.
6—Length of wire.
7—Any mechanical attachment to the machine which quickly removes water from the pulp.
8—Quality or quantity of broke used.
9—Chemicals, such as alum, starch, silicate, size, viscose or other sizing materials.
10—Methods of furnishing.
11—Settling save-alls.

Retention of all fillers is influenced by the varying degrees of difference in conditions of stock and manufacture.

In general, the greatest retention will be found in use of filler in wet working, highly sized, slow running papers—at least 10 per cent more than in free working, thin, long fibered papers.

R. W. Sindall gives the following formula and statement of the close relation existing between different conditions in figuring clay retention.

(1)—The weight of pulp put in the beater-*e.g.* *P.* cwts.
(2)—The weight of clay added - - - - - - -*e.g.* *L.* "
(3)—The weight of finished paper - - - -*e.g.* *W.* "
(4)—The percentage of ash in the paper*e.g.* *a.*

In studying these relations from the theoretical standpoint it is necessary to take several hypothetical cases.

(*A*) Assuming that all the pulp used and the clay added are found in the finished paper—

$$W=P+L$$

With this assumption the weight of finished paper can be calculated from the figure *P*, the weight of pulp put in the beater, and the figure *a* determined by experiment as being the percentage of ash in the paper.

The formula is:—

$$\therefore W=\frac{100P}{100-a.}$$

which is readily obtained. Thus the weight of clay in the finished paper is $W-P$. The weight of clay is also $\frac{Wa.}{100}$ It follows that $W-P=\frac{Wa}{100}$ and therefore $W=\frac{100\ P}{100-a}$ a formula which is correct within certain limitations, as, for example, those relating to the corrections necessary for the change in the china clay produced by igniting the paper in making the test for ash and so forth.

It is impossible to increase retention after a certain percentage of filler has been added. The manipulation of the stuff to attain greater retention, which in some papers is desirable, is possible.

In thick box paper as much as 30 percent of ash is possible; in news not over 7 to 8 per cent.

Asbestos, which is fibrous; china clay, made up of round and oval-shaped grains; pearl hardening made up of prismatic grains; terra alba, made up of wedge-shaped grains; all show high retention.

Talc and soapstone are voluminous in proportion to their weight, like asbestos, and show a large yield.

Barium sulphate, *e.g.*, barytes, blanc fixe, while heavy with most of the dark mineral pigments, such as yellow ochre, are unsatisfactory fillers in respect to feel and other qualities desired in finished papers.

Percentage of water, color, fineness, grittiness, are all important qualities to consider in loading material.

Where increase of weight is the chief consideration, barytes and fillers like it may be used to advantage. Talc, or material resembling it, should be used in light papers, where appearance is required, with minimum increase in weight. China clay, or kaolin, occupies a middle place between talc and barytes.

The use of asbestine asbestos has the disadvantage of rapidly wearing slitter knives and increasing the danger of shiners.

The following formula is used to express percentage of retention of any kind of filler on the paper machine: $\frac{P}{F-V}$, where *P* is percentage of ash in the paper, *F* the number of pounds of filler added per hundred pounds of paper produced by the machine, and *V* the volatile matter in the weight *F*.

For equal thickness of paper, satinite shows 44 percent retention, pearl hardening 52 per cent, asbestine 74 percent, clay 74 percent, all depending upon the amount of clay used. No more than a certain amount

of clay can be used, and still increase percentage of ash.

With 10lb china clay per 100 of paper, retention is about 50 percent.

With 15lb china clay per 100 of paper, retention is about 90 percent.

With 20lb china clay par 100 of paper, retention is about 85 percent.

EFFECT ON LIFE OF MACHINE CLOTHING.

The use of filler unquestionably reduces the life of machine clothing. The more filler used, and the dirtier and grittier it is, the more effect it will have upon it. It necessarily lodges in the meshes of the wire, and slowly fills up the press felts. In most cases starch, alum size is used with filler, which is a contributory influence upon the length of life of machine clothing. Filler and chemicals fill the meshes of the wire, and to clean the wire out vitriol is used, with the result that the life of the wire is shortened.

At the presses, the water being squeezed through the felt carries away a certain amount of the filler and slowly fills the felt, hardening it and making it necessary to change it for washing, which lessens its life.

QUALITY.

Mineral loading detracts from the strength of the paper, and whereas it adds nothing to wrapping paper excepting weight and less cost, its use, nevertheless, is necessary in writing, printing and illustration papers, where as little fibre as posible and as great an ash as possible is wanted, the maximum amount of filler is used.

Clay gives stock characteristics to sulphite papers, and helps to diminish the hard, parchment-like character which detracts from its value as printing, writing or typewriting paper.

Colored pigments are used to give colored paper, and at the same time to act as filler.

The highest grade of talc and china, blanc fixe, etc., are often used to make the paper whiter.

It cannot be said that filler is an adulterant, though the cheaper grades in the cheaper papers are used for that purpose.—Paper, April 11, 1917.

LOADING MATERIALS.

The following summary by Syndall and Bacon in the Paper Makers' Monthly Journal will be found useful as showing the nature of the materials so employed.

No.	Commercial Name.	Chemical Name.	Approximate Chemical Composition	Specific Gravity.	Method of Preparation.
1	China Clay (Kaolin)	Hydrated Silicate of Alumina	Al_2O_3—40% H_2O—13% SiO_2—46 "	2.4—2.7	Natural product carefully washed.
2	Sulphate of Lime	Sulphate of Lime	$CaSo_4$—79 " H_2O—21 "	2.4	Natural product. Also prepared by precipitation.
3	Pearl Hardening	Precipitated Sulphate of Lime	" "	2.4	Calcium chloride precipitated by Sulphate of Soda.
4	Crystal Hardening	" "	" " (with more or less moisture)	2.4	Precipitated as above, finest crystals.
5	Gypsum	Natural Sulphate of Lime.	$CaSo_4+2H_2O$	2.2—2.6	Natural product, ground for use.
6	Terra Alba	Same material as Gypsum and similarly prepared			
7	Mineral White	" "	" "		
8	Superfine Hardening.	" "	" "		
9	Albarine	Another trade name applied to Sulphate of Lime.			
10	Powdered Plaster	Sulphate of Lime prepared by powdering burnt Gypsum.			
11	Talc	Silicate of Magnesia	4 MgO+5 SiO_2+H_2O Silica=62% MgO =33%	2.6—2.8	Natural Silicate ground for use.
12	French Chalk	Silicate of Magnesia being a trade name for very finely ground Talc.			
13	Asbestine	Silicate of Magnesia.	MgO—32% SiO_2—62%	2.6—2.8	Finely ground Asbestos.
14	Agalite	Silicate of Magnesia.	Same as Talc.	2.6—2.8	Finely ground Talc.
15	Barium Sulphate	Barium Sulphate.	$BaSO_4$	4.5—4.7	Natural product, or precipitated.
16	Barytes	Barium Sulphate, another trade name.			
17	Blanc Fixe	Barium Sulphate.	$BaSO_4$	4.5—4.7	Prepared by precipitation of a soluble Barium salt.
18	Magnesite	Carbonate of Magnesia.	$MgCO_3$	2.5	Natural product, or precipitated.
19	Satin White	Mixture of Calcium Sulphate and Hydrated Alumina.	Hydrated Al_2O_3—70% $CaSO_4$—30%	2.0—2.3	Hot solution of Sulphate of Alumina stirred into Milk of Lime.
20	Satinite	An indefinite trade term descriptive of precipitated Sulphate of Lime.			
21	Fibrous Alumine	Mixture of Alumina and Sulphate of Lime, of indefinite composition.			

—Paper Makers' Monthly Journal.

OTTAWA WANTS MORE COAL.

The announced information of the improvement and development of the bituminous coal resources of Canada (of vital interest to the newsprint maker and the paper manufacturer), with improved facilities of transportation are such than cannot be otherwise than welcomed by every paper maker and publisher in the country. On reliable information gleaned from an inside governmental source, the correspondent of the Pulp and Paper Magazine is given to understand that one of the first steps to be taken by Mr. C. A. McGrath, Canada's new fuel Commissioner, is to be the investigation of the bituminous coal situation. Canadian paper manufacturers, it is stated, are in such a position that they cannot see "daylight" ahead of them to secure fuel for the winter operations, unless Mr. McGrath brings about the unexpected and provides them with an adequate supply of such fuel at ruling market levels.

When interviewed regarding the coal situation Mr. O'Connor, said: "I will confine myself to the matter of anthracite. I am investigating the bituminous situation at the present time, but, I do not consider myself sufficiently informed to make any statements concerning it. As to anthracite the situation has been growing steadily worse. At the present time Canadian dealers are not receiving on an average twenty-five per cent. of their orders placed for delivery.

"The fact that such a small percentage of orders placed have been received by the dealers makes the problem of securing sufficient tonnage before winter a very serious one. **Unless full requirements are stocked or in the bins of the consumers by the beginning of winter last season's conditions will be repeated with accentuation.**

With both the Booth and Eddy plants the coal situation which showed great improvement over the latter part of the spring months is still very far from being satisfactorily adjusted. Attempts to secure large amounts of coal for reserve purposes to offset a probable acute shortage during the winter months have not been a success.

With the appointment of Mr. McGrath as fuel Controller the mills and paper making and dealing establishments are looking for an improvement in this direction. How badly off Ottawa is for fuel is evidenced by the City Council being unable to get tenders for big supplies of coal for immediate delivery even though it offers the record price of $9.50 per ton. Every coal dealer in the city has been asked how much fuel he can supply.

If a coal famine should hit Ottawa next winter and cause papermaking and allied trades to cease operations five thousand or more persons, it is estimated, would be thrown out of employment, this number not including the large staff of the Dominion Printing Bureau where nearly all the government publications are printed. Another instance which reflects the gravity of the fuel situation impending for the winter is evidenced by figures supplied by a retail lumber and wood merchant. Last year he received from twenty-five to forty loads of edgings and slabs from a local mill. Today he can only get fifteen or twenty loads to meet a demand that is twice as heavy as last year. Dry cordwood and edgings is now commanding $5.50 per cord.

While the Municipal corporation is offering $9.50 for anthracite coal, according to Mr. George H. Millen head of the E. B. Eddy Co. said, the advance in bituminous or mill coal is proportionate. Local pulp and paper manufacturers are offering an advance of about two dollars per ton over the price of the same class of fuel a year ago.

INTERSWITCH AT THOROLD.

For eight years the board of trade, the council, and the manufacturers have been striving for an interswitch between the N. St. C. and T. Rly. and the G. T. R. at Thorold, and through the Dominion Railway Board making an order in the town's favour, they are at last compelled to conform their service here to something beyond what they would give to a village, and to recognize the needs of the growing industries of the town.

When the town made its first application to the board in 1909, it was only able to show 2,300 cars in and out of Thorold in a year. Before it came to a hearing arrangements were made by which the companies agreed to allow the regular interswitching rate to apply on traffic for Thorold interswitched at St. Catharines. The application was, therefore, dropped.

It was again brought before the board in 1913, but owing to the physical position of the two railways and the high cost of construction the application was refused.

The matter was again taken up in 1916, but no evidence was submitted at this time, it being withdrawn upon the understanding that it would be brought to the attention of the board later on. It was again brought to the attention of the board by an application from the Town of Thorold under date of March 23, 1917, when it was set down for hearing at Thorold, April 12, 1917.

At this hearing it was shown in evidence that the conditions had entirely changed since the previous applications. First with regard to the physical position of the tracks themselves. Owing to the alterations that had taken place the G. T. R. and the N. St. C. and T. Co's. tracks were practically on the same level and an interchange could easily be obtained without excessive cost. The tonnage had very greatly increased. While at the former application the tonnage had been estimated at about 2,300 cars, they had now carload shipments amounting to about 16,000 cars per annum, representing an increase of about 700% of which, it was estimated 3,000 cars would be subject to interswitching. A number of cases were cited to show that for the interchange between two mills one and a quarter miles apart, the delays were from five to seven days. One shipper pointed out that he had had cars come from St. John, N.B., in five days, or less time than it took to have the interchange referred to made.

The present application is entirely one of service, and not of tariff.

Two plans and estimates have been submitted one by the N. St. C. and T. R. with an estimated cost of $4,000, and the other by the G. T. R. company with an estimated cost, including land which they claim it would be necessary to acquire, of $11,294.69. The commissioner's opinion is as follows:

> "I am of the opinion that on the figures submitted the Town of Thorold is entitled to an interchange track and that the G. T. R. and N. St. C. and T. R. companies should get together and submit to the board within thirty days a plan of transfer track together with an estimated cost of same.

SUGGESTS GOVERNMENT CONTROL OF UNITED STATES AND CANADIAN PAPER MILLS.

Are all Canadian paper mills to pass into the control and ownership of the Dominion Government for the duration of the war? This gigantic possibility which may soon become a reality is the biggest question facing the paper manufacturing trade to-day following the recommendation of the Federal Trade Commission to the United States Senate, in connection with which it is stated that the Canadian Government will be asked to take similar action.

The commission recommends as a war emergency measure that Congress by appropriate legislation provide:

(1) That all mills producing and all agencies distributing print paper, and mechanical and chemical pulp in the United States be operated on government account; that these products be pooled in the hands of a government agency and equitably distributed at a price based upon cost of production and distribution, plus a fair profit per ton.

(2) That pursuant thereto some federal agency be empowered and directed to assume the supervision and control thereof during the pendency of the war.

(3) That by reason of the fact that approximately 75 per cent of the production of newsprint paper in Canada comes into the United States proper action be taken to secure the co-operation of the Canadian government in the creation of a similar governmental agency for the same function, which shall be clothed with power and authority to act jointly with the governmental agency of the United States for the protection of consumers and manufacturers of print paper and the public of the United States and Canada."

(4) That in case the Canadian government shall not join in such a co-operative enterprise then the importation of paper and mechanical and chemical pulp into the United States shall be made only by government account or through the federal agency charged with such supervision and distribution.

In this connection the Commission desires to point out that such a plan contemplates the operation of mills under their present management and the use of the present distributing agencies, but that such operation shall be for the public good, directed by a disinterested public agency to secure equitable distribution, and a price that is based on a fair cost of production and a fair profit per ton to be determined without regard to the panic market created by unusual and abnormal conditions. This plan has the virtue of being analogous to those plans which have been tried and successfully operated in Great Britain. It will also insure the maximum production, the greatest facility in transportation and distribution, and will adapt itself readily to a return of normal competitive conditions upon the conclusion of the war."

What is believed by the trade to be a reasonable surmise of probable government action, would be the appointment of a paper controller who, vested with wide powers, would administer the mill operations and attend to the distribution of paper products. A number of inspectors or assistants might also be appointed at different points of the country. By this method the internal workings of the paper mills would not be interfered with or changed, and the production of paper would, as at the present, unless a more acute shortage of labor is brought about by conscription. One bright point about the whole situation which may prove the saving grace of the industry from state control, is the likelihood of a general election which in political circles has been repeated by rumor, and is now being openly talked about, with conscription and free trade as two of the most important issues of the parties. If a general election is coming in October or November, it is hardly likely that the government would assume control of the paper mills until the more important issue of conscription is settled.

Whatever is done, unless the "fair and just" price is increased, and the government sticks another finger in the paper-making game, the industry is going to suffer. While prices of foodstuffs keep on soaring and though many more persons are affected directly thereby, no "food" controller or director has even been mentioned until just recently.

The provisions of the conscription bill will tend to rob the mills, outside of munitions work, of their young male labor, the first draft being from 20 to 23 years, the second 23 to 27 years, and the third 27 to 30, for single men.

The men of the first draft who work in mills are not on a whole drawing as large wages as older men. But when these young men have gone their places will have to be taken by older men, who it is very likely will receive higher wages than the youths called under conscription. This item of salaries alone will be a very considerable item on the payrolls of paper companies. On the other hand younger labor may be more cheaply employed, but it rests with the manufacturer to decide whether it is satisfactory or up to the old standard, after his employees of 20 to 23 years are called for overseas duty.

ACTIVE FUTURE PREDICTED.

(Special to Pulp and Paper Magazine).

At this time, with the United States about to take an active part in the war, there is no more interesting question to the members of the trade, as to what course business will take. Your correspondent spent considerable time not only in our trade, but in others likely to effect the general trend of things—and everywhere there was the greatest of confidence that the future would be more active than ever before. Of course, at the present time, things are undergoing a transition, and it is to be expected that business in some lines will suffer temporarily, but this will be a matter of only a short time, after which trade is expected to continue with increased momentum.

Business is adjusting itself to calm thinking and to the realization that there is no need for becoming hysterical and giving up the instruments that are the most effective in keeping business booming. On the contrary, these are more needed to-day than ever.

One thing is generally agreed on. That, if there is to be any deteriorating in business, it will not emanate from the war nor from war reasons. Heavy taxation may have somewhat of a retarding influence at first, but this will be soon overcome. As a matter of fact, it is evident from the way Congress is proceeding that, before the taxes are decided on, they will be so distributed that they will not be as burdensome as some people would have us believe.

Big business is ahead—and don't forget it. Instead of talking war burdens, get your share of the business. President Wilson and the other officials of the nation have declared that the most patriotic duty of business is to keep busy.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Shavings and Sawdust and Their Uses. — Rolf Thelen, (U.S.F.S.), S. Lumb., Vol. 84, (1917), No. 1127, pp. 30-31. — The following uses are briefly described. fuel, absorption, insulation, inertness, ethyl alcohol, distillation and extraction, hardening and annealing of metals, packing, manufacture of soap, fertilizers, oxalic acid, oatmeal and velvet wall papers, and dyes, meat smoking, filtering medium, tanning extracts, circus rings, stuffing, moth preventive, coloring black clay pipes, medicinal purposes, composition paving blocks, fire extinguishers; and other uses are mentioned.—H.N.L.

Boiler Corrosion.—B. G. McLellan, Abstract in Chem. Trade J., p. 392 (May 5, 1917).—The author remarked that from the tests made he came to the conclusion that even the absence of dissolved oxygen was no guarantee that corrosion would not take place. That the corrosion was caused solely by electrolytic action was not definitely proved, but the evidence was very strong. It was sometimes recommended that the inside of boilers should be coated with a protective paint. Graphite in a volatile carrier was frequently used. If the corrosion was due solely to dissolved oxygen, this might be efficient, but unless the coat was absolutely perfect—which it never could be in practice—it was difficult to see how it could do otherwise than aid corrosion, graphite being electro negative to iron.

Size—Manufacture of Size and its Application to Paper and Paper Pulp.—G. H. Gemmell and S. Milne, Edinburg, Eng., Pat. 104,012, Feb. 12, 1916. J. Soc. Chem. Ind., Vol. 36 (1917), No. 7, p. 383.—Rosin is dissolved in a solution of borax or ammonia or a combination of both, with or without the addition of soda. In engine sizing, the diluted size is preferably decomposed with aluminum sulphate before adding to the pulp. The size may also be applied to the surface of the paper which is subsequently dried at a temperature sufficient to fuse and dry the size.—E.K.M.

Utilization of Bark for Felts.—Paper, Vol. 20 (1917) No. 2, p. 15.—According to experiments carried out at at the F. P. L., Madison, Wis., spent hemlock bark bids fair to supplement rags to a degree of perhaps 30 per cent in the manufacture of roofing felts. The bark is now used chiefly for fuel and for this purpose is worth about one-fifth as much as soft coal per ton. The loss in chemicals caused by cooking unbarked chips of yellow pine was determined. For every ton of wood carrying 4 per cent bark, 23 lbs. of caustic soda and 8½ lbs. of sodium sulphite were used to reduce the bark and practically no fiber was obtained. The mill with which the laboratory co-operated in these tests is now utilizing 150 tons of bark a week and as a result is saving $1,300 a week.—E.K.M.

The Testing of Paper Yarns and Paper Fabrics. By Laaser. Kunststoffe 6, 221-5 (1916).—L. describes the usual methods for determining twist test, yarn number, length, moisture, strength and stretch of yarns, thread number of warp and woof, the number of the yarn used, surface weight, strength and stretch in the warp and woof direction of fabrics. Yarns and fabrics are tested for stretch and strength in natural condition, after 24 hours in H_2O, and again in air-dry condition. The tests are discussed in some detail and tables are given showing results of tests with several paper yarns and fabrics.—F. W. S. in Chem. Abs.

Spruce and Pulpwood Production Costs. — Can. Lumb., Vol. 37, (1917), No. 9, p. 26.—An analysis of figures furnished by several producers.

Pulpwood.—Camp operating costs:

Average daily wage	$1.25—3.00
Board per day	.40— .75
Supervision per cord	.08 |
Cost of camp per cord	.05 |— .30
Tools per cord	.04 |
Total	$1.82—4.05

The average number of cords per man per day is 1.22 so the cost of pulwood felled and peeled is from $1.50 to $3.35 per cord.

Further costs, per cord:

Trimming, cutting to length, and piling	$1.15
Hauling	.75
Loading on cars	.35
Crown dues	.25
Total	$2.50

The final cost per cord of pulpwod is then up to $5.85, and selling price must, of course, be higher to cover overhead and profit.

Spruce Lumber, cost per thousand feet, B.M.:

Stumpage and milage	$3.25— 3.25
Browing	$7.60— 8.50
Driving and rafting	2.50— 2.50
Sawing, mill upkeep, etc.	3.60— 3.90
Piling, insurance and handling	.90— 1.25
Office and selling costs	1.00— 2.00
Total	$18.85—21.40

—H.N.L.

The Function of Colloidal Chemistry in Paper Making. By Judson A. Decew, B.A.Sc. J. Soc. Chem. Ind. **Vol. 6,** (1917), No. 7, p. 357-359. Some of the problems that are met with in the manufacture of pulp and paper in which colloidal chemistry has an important part. The following are discussed: methods of hydration, coating materials, fillers, sizing processes, colloidal by-products in pulp making and losses from colloidal dispersion. Also in Paper (May 23) 1917.

Paper Yarn Textiles, Paper, Vol. 20, (1917) No. 6, p. 19. from Chem. Ztg., 1917, p. 41.—A textile finished by calendering from a weakly alkaline soda or soap bath becomes much softer and more pliable. The best treatment for paper yarns is impregnation in two baths: (1) passage through a glue, tannin and silicate bath at 50° C. without drying, and (2) passage through a cold basic aluminum formate bath of 6° B. (Sp. Gr. 1.04), and drying. The first bath is made by steeping 80 grams of glue in cold water for several hours and then melting. In a separate vessel 1.5 gm. of tannin is dissolved in hot water and 1.5 gm. of waterglass of 36° B. (Sp. Gr. 1.31) is added. The glue solution, heated to 50° C., is then treated with the tannin-silicate solution while stirring, and the whole made up to 1 liter. The impregnated yarn shows an increase of over 10 per cent in dry tensile strength and about 30 per cent in wet strength. The dyeing of paper yarns and fabrics is done exactly on the same principles as that of cotton. Great care is required in handling the goods, therefore dyeing machines are preferable to hand dipping and for the same reason the baths must not be too strongly alkaline and the temperature must be kept below the boiling point, preferably at 50 to 60° C. E.K.M.

UNITED STATES NOTES

The Ticonderoga Pulp and Paper Company, the principal owner of which is the Riordon Pulp and Paper Company, has declared an initial dividend of 10 per cent for an unstated period. The business of the Ticonderoga Company is stated to be very good and the profits excellent. Last year the company earned 126 per cent on its common stock and this year is expected to do better. Announcement of the acquisition of Ticonderoga by Riordon was made in November last. The fixed assets of the former, according to the last statement were about $1,700,000 and surplus of current assets over current liabilities over $650,000. The total surplus at the end of last year was over a million.

The Taggert Paper Company of Watertown, N. Y., goes down on record as the first paper concern in the country to grant its employees an increase in wages so that they may be financially able to purchase the Liberty Loan bonds. President Sherman appeared before the men at the mill and in a short address urged them to purchase Liberty Loan bonds. He pointed out that that was one way that they could be patriotic and do their bit, and advised them that it would be a glorious thing if they acted as a unit. He assured them that in order not to inflict a financial burden upon them through the purchase of these bonds, he was going to increase their wages three cents an hour, thus adding $10,000 a year to his pay roll and making it possible for them to buy that amount of bonds without touching their regular pay.

Advices from North Wilbraham, Mass., last week stated that the Collins Manufacturing Company, had started up its 102 inch machine and that all three machines are now in active operation.

The W. B. Oglesby Paper Company, of Middletown, Ohio, has been granted permission to increase its capital from $150,000 to $750,000. The increase in the capitalization was found necessary to make needed improvements in the company and also to extend its business.

Announcement was made at Holyoke, Mass., on June 14th, by the Eagle Lodge Paper Makers and other allied organizations that the proposed advance in wages will not be made. The manufacturers have decided that because of the present unsettled conditions in the paper industry no change will be made in the wage schedule at the present time. It is admitted by the paper manufacturers that it is a desirable thing to pay sufficient wages so that the cost of living can be met. There is such a thing as "Crowding the mourners," and in view of the generous advances made since January 1, 1916 the manufacturers feel that th employees ought to stay their demands for more wages until next fall at least.

According to the information received by your correspondent from Watertown, N. Y., an addition to the plant of the Brownville Paper Company will be built this summer. Plans have already been completed and the orders for materials signed. It is expected that the construction work will be finished in about three months and the building ready for occupancy. The new structure will afford greater storage facilities and relieve other parts of the mill for other use.

A credit bureau was inaugurated at the last meeting of the Metropolitan Bag and Paper Jobbers' Association at the St. George Hotel Brooklyn, N.Y. This bureau will be under the direction of Edward H. Lockwood. The principal function of the bureau will be the interchange of credit information. The fostering of co-operation among the members of the association is one of the paramount reasons for the organization.

The Miami Valley Paper Manufacturers' Association held its annual dinner meeting on Thursday evening of last week at the Butler County Country Club near Middletown, Ohio. About forty members attended. The election of officers resulted as follows: President, John Richardson, of the Richardson Paper Company; Vice-president, E. T. Gardner, of the Colin Gardner Paper Company; Secretary and treasurre, J. F. Dunifer., of the Miami Paper Company. The next meeting will take place whenever a call is issued by the president.

The Interlake Pulp & Paper Co., has completed the work of remodeling its wood room at Appleton, Wis. Among other improvements completed recently at that plant is the installation of steel lockers for the employees and the building of a new concrete retaining wall to hold back the pulp wood before it is taken into the wood room.

A suit has been filed by the National Cash Register Company, of Dayton, Ohio, against the Diem & Wing Paper, of Cincinnati, alleging that a contract was drawn between the two whereby the paper company, beginning July 1, 1916, was to furnish commercial sales book paper at $3.75 per 100 pounds for six months. Approximately 32,000 rolls were to be delivered each month, but the Register Company alleges the contract was repudiated and because of this the company was forced to pay $5,722.36 more than the contract price. The suit asks for the extra amount entailed in buying the paper in open market.

Officials of the American Writing Paper Company say that the new 152 inch paper machine that is being installed at the Gill Division at Holyoke, Mass., will be running by September 1st. So many other changes and additions to buildings and machinery were made after the revamping of the plant was undertaken that the total expended will be close to a half million dollars instead of a quarter of a million.

According to S. W. Murphy of the Riverside Fiber and Paper Company, plans are now being prepared for the erection of a new paper mill for the Riverside Fibre and Paper Company. The company has not yet fully decided whether the mill will be located in Appleton or at Little Rapids. The saloon issue in Appleton, which is objectionable, to mill men, has not yet been cleared up and unless it is before July 1, it is likely the company will decide to build the mill at Little Rapids on the property the cmopany purchased at the time it took over the property of the Lindauer-O'Connell Pulp Company.

The National Association of Waste Material Dealers held a meeting of the woolen rag division as the Hotel Astor, New York City on June 19th.

PULP AND PAPER NEWS

At the annual meeting of the Canadian Manufacturers' Association, held last week in Winnipeg, J. F. Ellis, of Toronto, President of Barber-Ellis, Limited, paper dealers and envelope makers, was elected Treasurer of the Association. He has long been a prominent member of the C. M. A. and was President of that body from 1898 to 1900.

Thomas W. Whalley, of Toronto, former proprietor of the Peterborough Review, has purchased the Pembroke Standard. He is one of the most widely known newspaper men in the province.

The Abitibi Power and Paper Co., have declared their regular quarterly dividend of one and three quarter per cent on the preferred stock of the company and the Riordon Pulp and Paper Co., Montreal, have also declared a dividend of one and three quarter per cent on the preferred stock of the company for the past quarter.

William Glocking, vice-president of the International Bookbinders Union, Toronto, was called to Montreal last week to adjust the question of wages between the bookbinders of that city and their employers.

Charles B. Gordon of Montreal, who is a director of the Provincial Paper Mills Co., has resigned as Vice Chairman of the Imperial Munitions Board. He will be attached to Lord Northcliffe's mission to the United States and will act there as representative of the British Minister of Munitions.

Many friends in the east have learned with deep regret of the death of C. H. Lugrin, editor of the Colonist, Victoria, B.C., and a former resident of Fredericton, N.B.

John Martin of the John Martin Paper Co., Winnipeg, was in Montreal and Toronto last week being called east to attend the funeral of his mother who passed away a few days ago.

T. H. McDermott, manager of the Toronto branch of the Lincoln Paper Mills, Merritton, Ont., has returned from spending a few holidays at Port Robinson, Ont.

An important step was taken by Canadian Press, Limited, at the annual meeting held in Toronto last week when it was decided to establish a national news service with a twenty-four hour daily leased wire from Coast to Coast. The daily publishers are very enthusiastic over the new move and, to make a national wire possible, the federal government has granted a subsidy of fifty thousand dollars a year. C. O. Knowles, of Toronto, was appointed general manager of the new national organization and J. F. B. Livesay, of Winnipeg, assistant general manager.

The Wax and Glassine Paper Co., of Cookshire, Que., expect to start operations early in July. The main building of the company has just been completed. The motive power used will be electrical and with various Reeves transmission gear for varying the speed of the different machines. A fifty horse power locomotive boiler for melting the wax and heating the buildings is also being installed. The company have also taken over the Chronicle printing plant of Cookshire, now being operated on job work. Later they intend putting in a glassine plant.

William C. Reynolds, for the past three years a member of the office staff of the Provincial Paper Mills Co., Toronto, has donned khaki, having joined the Canadian Mounted Rifles of Hamilton.

Among the recent callers on the paper trade in Toronto were: J. T. Eastwood of the Parsons Paper Co., Holyoke, Mass., and E. C. Martin of Buffalo, representing the Scott Paper Co., of Philadelphia, Pa.

Three complete companies of the Forestry Depot at Camp Borden will leave this week for a point in Eastern Ontario. Each company consists of one hundred and eighty-seven officers and men.

The Howard Smith Paper Mills, Limited, are putting in at Crabtree Mills a hydro development of 1,200 h.p. Sufficient of this power will be generated into electricity to drive the constant speed of the machine, the finishing room, etc. The beaters are in direct connection. All the contracts for the work have been let and the work is now in progress.

S. R. Parsons, President of the British-American Oil Co, Toronto, who has just been elected to the Presidency of the Canadian Manufacturers' Association, is widely and favorably known to pulp and paper men. He resided for sixteen years in Winnipeg, where he was head of the paper and stationery jobbing firm of Parsons, Bell and Co. W. J. Bulman, who was elected first vice-president of the Canadian Manufacturers' Association, is a member of the firm of Bulman Bros. engravers and printers of Winnipeg.

At the annual meeting of the Pacific-Burt Co., Limited, held in Toronto, the annual report, which has already appeared in these columns, was submitted, and S. J. Moore was re-elected President. The old Board of Directors was re-appointed.

Sir John Willison, editor-in-chief of the Toronto News for the past fifteen years and previous to that occupying a similar position on the Toronto Globe, has resigned. It is rumored that he is a prospective Minister in a possible reconstructed or coalition government at Ottawa.

The annual report of the Methodist Book and Publishing House, Toronto, which is the largest concern of its kind in the Dominion, shows a turnover of $830,000 with profits of $60,000. As the price of paper has gone up so high, it was found necessary during the past year to advance the subscription of the Sunday School publication. The net capital is $740,000 including the former building of the company on Richmond street west, Toronto valued at $291,000.

Mr. J. H. White, lecturer in botany and forestry in the University of Toronto, has been appointed Assistant Provincial Forester for Ontario. Mr. White has already assumed his new duties, in association with Mr. E. J. Zavitz, Provincial Forestor for Ontario.

Everything is in readiness for the first annual convention of Safety Engineers of pulp and paper mills, which will be held at St. Catharines, Thorold, Merritton and Niagara Falls on Thursday and Friday, June 28 and 29. A. P. Costigane, of Toronto, reports that he has assurances from mills in all parts of the country that they will have representatives present. There will be several instructive and timely papers read on the importance and value of safety work and many profitable pointers will be gained. All interested in safety propoganda are invited to attend and a splendid time is assured every one.

Mr. T. A. Weldon, vice-president of the Provincial Paper Mills Co., Limited, is still confined to his home at Thorold, suffering from a severe cold. It is hoped, however, that he will be able to be around again by the end of the week.

Supt. P. Byrne of the Merritton branch of the Riordon Pulp and Paper Co. and Supt. D. Daverin of the Montrose Division of the Provincial Paper Mills at Thorold, attended the meeting of the Technical Section at Three Rivers, Grand'Mere and Shawinigan Falls.

Billie Reynolds of the Provincial Paper Mills, Toronto, is the latest addition to the Canadian fighting forces, from that company.

OTTAWA NOTES.

A large if not a substantial decrease in this season's bush wood cut in comparison with the cut of last year is very likely to occur with the J. R. Booth interests, due to the British embargo on lumber and limited shipping facilities. A permit has to be secured now before even one thousand feet of lumber or wood can be shipped across the Atlantic to England or European ports. Mr. Jackson Booth stated last week that this season's cut of the firm would likely be considerably less than last year. As this firm does a very heavy export business, the reason of the light cut is obvious. While the lumbering end will be of principal concern the cut of pulpwood will also likely be affected, unless special attention is given to it. The transportation of pulpwood consumed by Ottawa mills is not very largely affected by rail facilities, as for the greater part it is transferred from the woods to Ottawa by water. In this connection the reoperation of the Steamer G. B. Green, which was destroyed by fire last summer will help matters a good deal and give a bigger supply, as when this boat is not in passenger service it is used for towing immense booms of pulp logs for the Eddy and Booth plants, from Chats Falls and Quyon Boom to Ottawa. At the time of the Green disaster, in which four lives were lost last July immense reserves of pulpwood were temporarily tied up.

By the will of the late J. G. Barnet, filed for probate a few days ago at Pembroke, it was shown that the deceased Renfrew lumberman left an estate of $1,084,693; real estate, $74,675. The late J. G. Barnet, who up to the time of his death was head of the Barnet Manufacturing Co., was one of the early pioneer lumbermen of the Ottawa valley. Aside from various general charitable bequests, donations of $1,000 and $500 were left to several employees, one of whom was Mr. E. Voudette, of Pembroke, who for many years was in Mr. Barnet's employ as a bush ranger.

The attention of the entire paper industry focused on the newsprint probe which held its third Ottawa session on Tuesday. The Commissioner held his first investigation on May 8th, and though a month has passed the newsprint situation so far as the manufacturer is concerned, is apparently no nearer a solution.

According to authentic figures reaching Ottawa the imports of paper, etc., into the United Kingdom during April amounted to 122,558 cwts., a decrease of 717,401 cwts., or 84.4 per cent., compared with the corresponding month of last year. The value stands £162,358, a decrease of £486,528, or nearly seventy-five per cent. During the four months ending April of this year, and the two preceding years the total British imports of paper were as follows:

January-April.	Cwts.	Values.
1917	1,042,778	1,213,689
1916	3,682,612	2,643,655
1915	3,347,174	1,819,238

MR. PRINGLE SAYS U.S. IS SURE OF CANADIAN PAPER.

In an interesting address on the pulp mill industry of Canada before the Canadian Club of Fort William on Saturday last Mr. A. R. Pringle, K.C., the commissioner investigating the news print industry said it was in the sixties that the industry first attained standing in the United States and mills sprang up quickly, but the development of Canadian pulp was delayed, largely by the tariff, until 1908, when the duty was practically removed, and the placing of pulp and paper on the free list in the reciprocity bill of 1911 encouraged American capital to come across to Canada.

We now supply the United States with one-third of all the news print that is used there, and it is of interest to consider whether this will increase or diminish. The large mills in the United States have depleted the timber of the eastern states, so in New York sixty per cent. of the timber used is from Canada. They have large areas of timber in the Rocky Mountains and Alaska, but from geographical reasons there are not now readily available, and cannot compete with Ontario or Quebec. Meanwhile the daily papers print forty million copies a day and in 1916 the States was using six thousand tons of paper daily on newspapers alone, a consumption that increases at the rate of ten per cent. per year.

Another question is whether the States is safe in looking to Canada for its supply, and this may be answered in the affirmative, since there is opportunity of retaliation by export duties on coal and other necessities, should Canada impose export duties on pulp and paper.

Canada has an enormous area, and sixty per cent. of it is better fitted for growing trees than anything else, and he rejoiced to see that the governments of the provinces were more and more inclined to treat the pulp areas as they would the farm areas, instead of allowing them to be mined, and in Quebec reafforestation is also being undertaken.

Coming down to more local conditions, Mr. Pringle assured his hearers that there was no province in the whole Dominion that was better adapted to foster an enormous pulp industry than Ontario, and no point in Ontario was better located to become the center of such an industry than the city of Fort William, in proximity to limitless timber areas and with access by water to the markets of the world, especially those most important markets, the larger cities of the eastern States.—Observer, Dryden, Ont.

The Markets

CANADIAN MARKETS.

TORONTO, June 18th, 1917.

The outstanding feature in the newsprint situation during the past week is the report made to the Senate by the Federal Trade Commission at Washington, that all paper mills in the United States should be placed under government control during the war and, along with this, that the Canadian government be requested to take similar action.

The report goes on to state that, with the demand for newsprint increasing all the while, and the supply remaining constant or diminishing, there will be a repetition of the market of last year and the exaction of prices that are entirely out of measure with the cost of production. After more observations of a similar character, all unfavorable to the producers of newsprint, the "joker" appears in asking that all pulp and paper mills be operated on government account. The humor of the situation becomes all the more subtle when Canada is invited to join in such an arrangement as about eighty per cent of the newsprint made in the Dominion is exported across the border. The Canadian government is asked to co-operate in the creation of a similar government agency during the pendency of the war. In case Canada does not join, what then? Well, the Federal Trade Commission would take a hand in other people's business, by proposing that the importation of paper, mechanical pulp and chemical pulp should be made only on government account to or through the federal agency charged with such supervision and distribution.

All this is a long story and a far fetched scheme in which Canada is not likely to acquiesce. Why should the affairs of the paper and pulp manufacturers of the Dominion be directed in the interest of another country? Many mills in the Dominion are now getting as high as three and a quarter cents for their product across the line, and those manufacturers, which are supplying the bulk of the domestic trade, are understood to be reimbursed by the exporting mills who are more fortunate in getting higher prices than the two and half cents which has been laid down in Canada. In this way all share alike.

Again such a proposal as that emanating from Washington is impossible at the present time, owing to the investigation going on at Ottawa, the outcome of which is still in doubt. The mills may get a higher price for their product and perhap not, but it is bad business to "swap horses while crossing a stream."

A rather startling statement was made by a publisher at the meeting of the Canadian Press Association in Toronto last week, which was to the effect that the daily newspapers had practically held a gun at the head of Sir Thomas White and demanded paper at two and a half cents, and had thrown cold water on the governmental proposal to appoint a commission. They had virtually handed out an ultimatum of "Give us newsprint at two and a half cents and never mind a commission." By their selfish attitude and unreasonable stand they had incurred the enmity of several members of parliament who had cause to believe that the big dailies were getting altogether too clamorous, insistent and selfish. However, when the Commission resumes this week further facts may come out. An auditor will be appointed to go thoroughly into the books of all the mills.

There are no changes in market conditions to report, but the outlook for higher figures grows more threatening all the time, owing to the demand of the railway for an increase averaging fifteen per cent in freight rates and the gloomy outlook for coal supplies. The labor problem is getting more troublesome and the threatened shortage of pulpwood for the mills is being accentuated by the trend of affairs and the prospect of conscription. Market conditions are regarded as shifty and warehouse business is rather slack at the present time. Mill business is fair. Printing establishments are not rushed in the main and paper box manufacturers and board mills could take more orders. The latter are generally very quiet after a busy season. Envelope manufacturers are only fairly active, but book and writing mills and wrapping paper plants keep going to capacity on business that has been placed in the past rather than what is offering now.

The sulphite and ground wood market remains in a state of status quo and, in the meantime, manufacturers are not anxious for they feel, if they have to pile up stock, they will get rid of it all at a high price later on when requisitions from the other side set in.

The mills along the Welland canal, which have been shut down for several days, have again started up and look for a busy season. Jobbers continue to hang back in the matter of placing heavy orders and the future is viewed with various feelings. There is not a mill man in any line, but who is talking higher prices this fall and still some large consumers refuse to be convinced of the gravity of the situation, in spite of the fact that the producers have nothing to gain by urging them to place business now, except the safeguarding and protection of the interests of their patrons.

There is nothing new in the rag and paper stock arena which continues dull. The mills are still holding aloof from buying and there are few price changes to record. New cotton rags are still quiet, but there is a better demand for roofing rags.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.25
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75

Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, Manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filld wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Grey folding board	$100.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $43.00
Easy bleaching sulphite	$95.00 to $100.00
Sulphite, news grade	$80.00 to $85.00
Sulphite (bleached)	$130.00 to $135.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.25
No. 1 soft white shavings	$3.10
Mixed shavings	70c
White blanks	$1.70
Heavy ledger stock	$2.35
Ledger and writings	$1.65
No. 1 magazine	$1.05
No. 1 book stock	95c
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.20
Folded news	60c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	45c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.00
Unbleached shoe clip.	$5.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.60 to $1.70
Tailor rags	$1.40 to $1.50

PAPER MAKERS TURNED INSIDE OUT AT NEWS PROBE.

High Handed and Improper Exposing of Private Manufacturing Costs to the Publishers.

(Special to Pulp and Paper Magazine).

Shortly after the Commissioner opened his morning inquiry on Tuesday he made it clear that the Abitibi Power and Paper Company, Limited, together with the Spanish River Paper Company, should assume their joint burden with the Fort Frances Paper Company of supplying newsprint to western publishers. Failing which, they would either be compelled to do so, or else make good the difference up to twenty per cent of their output in a cash remuneration. Calling upon Mr. W. H. Smith, treasurer of Abitibi. Mr. Pringle asked him if his mill was ready to help supply the publishers, or reimburse the Fort Frances Co., for paper they had supplied when the two other mills failled in this respect.

"No," replied Mr. Smith.

"Then I will have to compel you. We are not going to have any humbug about this business," sharply replied the Commissioner, who went on to tell every newsprint manufacturer present that every mill making newsprint in Canada would have to bear its twenty per cent burden of product, at the $2.50 price, or else make cash remuneration to the mills that lived up to the ruling. Mr. Pringle said he had made an order compelling the Fort Frances Co. to supply western publishers. The Spanish River and Abitibi Companies were selling their products in the United States at prices in advance of $2.50 per 100 pounds. It was thus "absolutely unfair to compel the Fort Frances Co. to sell at $2.50 while the other mills were making larger profits elsewhere," said the Commissioner. If the other mills readjusted their proportionate profits with the Fort Frances Co., the Commissioner would keep on compelling the latter company to supply newsprint to western publishers.

John F. Orde, K.C., counsel for E. B. Eddy Co., drew attention to the fact that his client was one of the few newsprint producing companies in the East who did not export. He asserted that the Eddy Company had not yet received its retroactive profit from the export manufacturers of newsprint, and said it was because a lumber firm had refused to pay its share.

Mr. George H. Montgomery raised strenuous objection to the Calgary sitting of the Commission, wherein the data filed by the newsprint manufactures in answering the forms sent out the Commissioner, had been turned over to the Western Publishers' Association, thereby revealing figures of production, etc.

Counsel for the manufacturers did not even have the figures contained in the replies. Mr. Montgomery called attention that the circulation of figures would reveal the operating costs and supplies, together with capitalization of one mill to another. He asserted that when the manufacturers of newsprint were asked to answer the questions set forth in the forms that their figures would be for the use of the Commissioner and his Auditor only. "I would have sooner gone to jail than have made the replies, if I knew they were to be made public,' was the overheard comment of a big Quebec manufacturer.

Mr. Pringle said that undoubtedly some of the figures contained in the forms had been revealed, and explained that when the Commission sat at Calgary that

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the western publishers had agreed that the paper manufacturers should receive a price entitling them to a profit on their product. The reason the information contained in the forms had been turned over was because of the difference revealed on comparison with the returns supplied to the Commission and those of the same Canadian mills as shown by the report of the Federal Trade Commission. The replies to the Commissioner had been turned over so the Publishers Association could investigate them. The accountants for the Federal Trade Commission had come to Canada and fixed a price of $28.50 per ton. Mr. George F. Henderson, K. C., appearing for the Booth and Fort Frances interests said that the Canadian manufacturers were not to be governed by the report or findings of the Federal Trade Commission.

It was explained that the object of holding the third Ottawa session of the probe was for the purpose of having the newsprint manufacturers appear and verify their statements as contained in the forms which had been returned to the Commissioner. On their replies and statements they were subject to cross-examination by Mr. W. N. Tilley, K.C., of Toronto, who appeared for the newspaper interests. Mr. W. H. Smith, treasurer of the Abitibi Power and Paper Company, was the first of the witness called and after telling of the compiling of the statement of the company, (then in the hands of Mr. Tilley), he said the Abitibi Power and Paper Company began operations on February, 1914, and that the report presented had not been got up in concert with other newsprint manufacturers, but had been taken from Abitibi records. He said the Abitibi Co. belonged to the Newsprint Manufacturers' Association, but was not prepared to say who composed it or what it was. Smith had only attended about two meetings. Weekly reports were sent, witness said, from the manufacturers to the newsprint section of the Newsprint Association. Questioned as to whether the Abitibi Power and Paper Company had observed the fixed price since March 1st, Mr. Smith said it had. The Abitibi Company submitted two reports to the Commission, one showing the actual cost of manufacture and the other based on arbitrary figures. At this point Mr. L. R. Wilson, also of the Abitibi Company, said that he and Mr. Smith had come to Ottawa under the impression that they submitted the figures to the Commissioner and not for public information. "What mystery is there about the figures?" Asked Mr. Pringle. Mr. Wilson said, "There is none."

Under the first statement submitted based on the actual cost, the following profits per ton were turned in by the Abitibi Power and Paper Company.

Year.	Profit per ton
1915	$ 2.21
1916	7.37
1917 to April	14.30

The second statement, based on the arbitrary figures, which dealt with the productive and ruling market prices of ground wood and sulphite, showed that if the Abitibi Power and Paper Company had not manufactured their own ground-wood and sulphite they would have incurred the following losses:

Year.	Losses per ton.
1915	$ 8.03
1916	10 45
1917	2.94

The arbitrary figures were $25 per ton for ground wood for 1916 and 1917, sulphite was reckoned at $50 per ton and applied to all three years on the instructions of Mr. Anson. Expense incurred in the groundwood mill and the sulphite mill was also figure in, as well as depreciation of plant at $4.65 per ton.

Conditions under which the auditors of the Federal Trade Commission report had examined the books of the Canadian paper manufacturers came up. Mr. Cahoon told how the Laurentide Company had repeatedly made requests to the chairman of the Federal Trade Commission for detailed information as to how they had set the price for his plant, but had been finally refused by the Chairman. Mr. Cahoon called to the stand to explain the methods employed by the United States auditors, said that three or four of them had come to the Laurentide plant and the books had been turned over to them. As the Laurentide Company is interested in making other products besides newsprint Mr. Cahoon suggested that after they had gone over the records themselves that the auditors come to him afterwards so that he could give them a clearer understanding. This, Mr. Cahoon testified the auditors promised to do, but, after four days search decamped in the night. "I don't believe that there is one member of the Federal Trade Commission who believes that the report presented the American Senate was correct," concluded Mr. Cahoon.

Mr. Pringle said that an accountant would be put on to see that the difference in price up to twenty per cent of manufacture, was paid to such mills as are supplying Canadian publishers above twenty per cent at the two and one-half cent per pound rate, and the price the product sells for in the United States.

Tuesday Afternoon.

Mr. Pringle said: "What I want to see is that the newspapers of the Dominion of Canada are supplied and the manufacturer of newsprint is given a fair profit for his work. I am not going into the question as whether there is a newspaperman's combine or not. The courts are there and anybody who wants to use them can do so."

The capitalization of the Abitibi Power and Paper Company came under fire. The capitalization of the Abitibi Power and Paper Company was $11,617,000 on the figures submitted to the commissioner. The company has fifteen square miles of timber limits. Witness did not know the value of them, nor of the water powers the company had. The prospectus said that pulpwood could be delivered to the mill at $4 per cord. Mr. Smith said it now cost about $9. "I know about one and one-half million cords of pulpwood are going into United States," said Mr. Pringle. The Commissioner wished to know what pulpwood to-day was actually worth per cord. Mr. Cahoon said that last week he had had an offer of sixteen dollars per cord for 10.000 cords taken away from the mill.

Mr. P. W. Wilson, vice-president of the Spanish River Paper Mills followed. He told of the taking over of the Superior Paper Mills and a company which was formerly the old Imperial Paper Co. Had the Spanish River Paper Company had to buy their sulphite and groundwood in the open market instead of manufacturing it they would have manufactured newsprint for the past three years at a loss per ton as follows:

Year.	Loss per ton
1914	$ 7.96
1915	9.68
1916	14.30
1917 (to April)	5.96

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Mr. Pringle inquired as to the labor situation. Mr. Wilson said it was very bad and that a neighboring steel company was very much concerned about it. Common labor was not worth thirty cents per hour, an advance of six or seven cents per hour over last year with lower efficiency. The cost of producing newsprint up to April 30th, 1917, had been $51.64, with the last eight months previous to December, costing $72,30. Witness said Spanish River was using sulphite, estimating it at $75 per ton when they could get $94 for it. Groundwood he set down at $45.00.

"If we could have foreseen this investigation," said Mr. Wilson, "it would have been the easiest thing to have formed a subsidiary company for the manufacture of groundwood and sulphite, and purchase our materials from it, and charge it up to actual cost of production." Manufacturing labor has advanced from $1.70 last year to $2.34 this year. Interest on bonds and other obligations was charged up to cost of production at $5.99. The capitalization of the Spanish River was stated to be as follows: Common, $2,300,000; preferred, $1,400,000; Ontario undertakings, $500,000; special debentures, $16,000.—Everett Andrew.

BIG DAILIES TRIED TO OUST THE TRADE PAPERS.

Two hundred publishers from all parts of Canada attended the fifty-ninth annual meeting of the Canadian Press Association in Toronto last week and the gathering was the most representative ever held in the history of that body.

J. H. Woods of the Calgary Herald was elected President of the Association for the coming year, succeeding J. G. Elliott of the Kingston Whig. Mr. Woods is one of the first western men ever chosen for this important and responsible office. L. H. Dingman of the St. Thomas Times, was elected Chairman of the Daily Section, Acton Burrows, Chairman of the Trade and Class Section for the third time and J. J. Hunter of the Kincardine Review, Chairman of the Weeklies Paper Committee for the coming year and also Chairman of the Standing Paper Committee of the Association.

The action of various papers both daily and weekly in increasing their subscription fees was favorably commented upon. Over a score of dailies during 1916 raised their rates and over three hundred rural weeklies jumped from one dollar to one dollar and a half. All reported being pleased with the result a decline in circulation had in most instances not been felt, while the revenue is much greater.

Another proposition which took up a great deal of time and aroused lively discussion, was the proposed elimination of the trade and class papers from membership in the Association on the ground that their interests were divergent particularly on the postage question and paper problems from those of the daily and weekly men; and that certain members of the trade and class section had taken action in regard to the investigation into book, super-calendered and coated papers, without the sanction or authority of the Executive of the C. P. A.

One of two things will probably result in the future. Either the daily papers will withdraw and form an association of their own similar to the American Newspaper Publishers Association, leaving the weekly and class journals in the Canadian Press Association, or the trade and technical papers will quietly organize by themselves, to be known as the Periodical Press Association. Which move is likely to develop only time will reveal but there is certain to be separation of some kind. The cleavage has been looming up for years and the matter pretty nearly came to a head twelve months ago on the suggestion of J. Ross Roberston.

The trade and class sections reported against any zone system for periodical papers of national circulation, but no definite action was taken on the postage question as, it is understood, there is not likely to be any change made at Ottawa this session.

The trade and class journals through their representatives indignantly denied the allegations and put up a stiff fight, massing their members from all parts of the country, in the event of the issue coming to a vote. The issue was postponed in the interest of peace and harmony during the war time and not to produce open ruction just at present.

ST. REGIS RE-ORGANIZING.

At a meeting on Monday of last week at Watertown, N. Y., the stockholders of the St. Regis Paper Company decided to re-organize its scheme of capitalization as previously announced in this Magazine at the time of the meeting the company had 10,000 shares of 6 per cent cumulative preferred stock par value of $100. Under the new plan the same number of shares of preferred stock is issued, but it bears interest at 7% instead of 6% and the company may retire it at any time by buying it up in the open market or by serving notice a month prior to any dividend day stating that certain blocks will be called in. One hundred thousand shares of common stock without par value is authorized under the new plan. Only half of that is to be issued now, however, five shares of it being exchanged for one share of the old stock.

The A. R. Pennington & Co. lumber and pulp mill interests at Forestport, N. Y., have been sold to Edwin S. Crabtree, of Wells River, Vt. The house formerly occupied by Mr. Albertson, store building without stock, pulp mill and water rights for power stream. Mr. Crabtree holds large interests in the Adams Paper Company of Wells River, Vt., and the Howard Smith Paper Company of Crabtree Mills, Canada. It is understood that Mr. Crabtree will operate the pulp mill at Forestport and that he expects to extend the business.

VANCOUVER, B. C., June 19.—George E. Harrison, for the past twelve years a manager of the Merchants' Bank of Canada in Vancouver, is leaving the service of the bank to join the Whalen Pulp and Paper Mills, Limited, as comptroller. This concern is a merger of the pulp and paper manufacturing properties at Quataine, Swanson Bay, and Mill Creek, with a capital stock of ten millions, and bonds of over three millions.

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The latest census of manufacturers in the United States shows that in America the manufacture of paper is second in importance only to the steel industry. The total invested capital is estimated at $500,000,000, while the annual value of the manufactured product of the paper and pulp amounts to $350,000,000.

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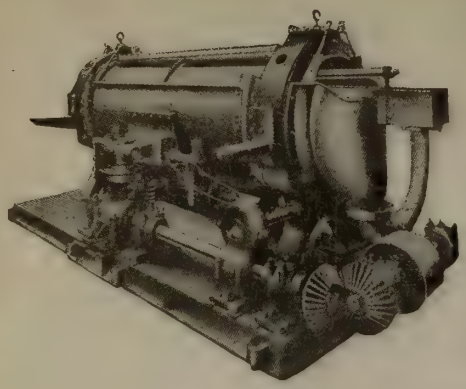
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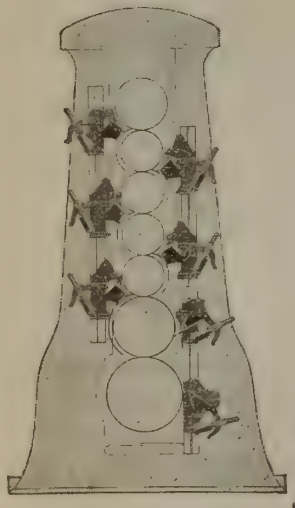
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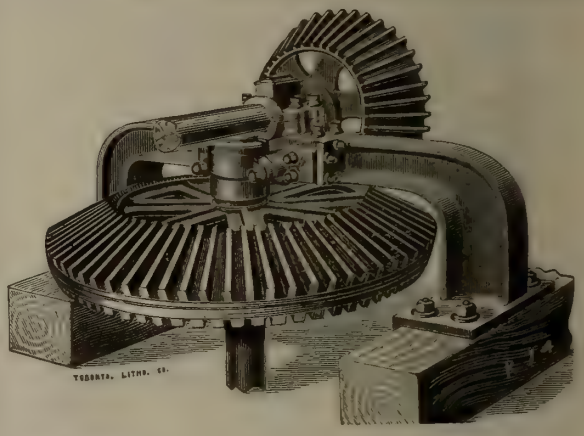
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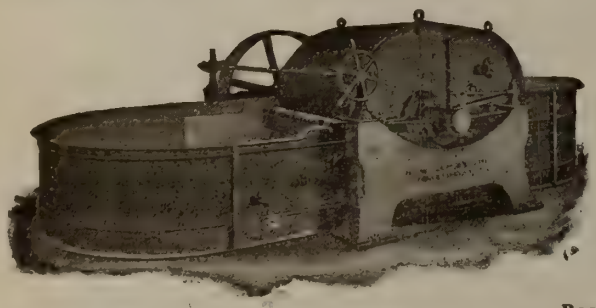
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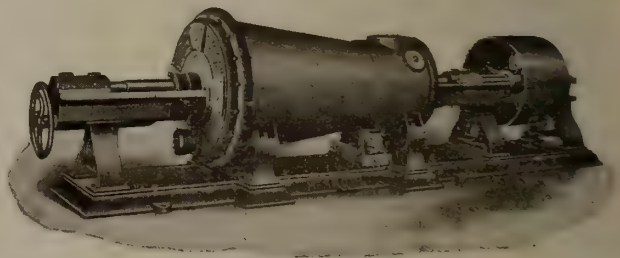
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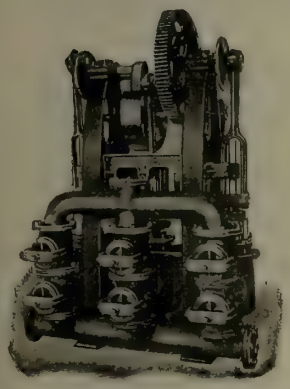
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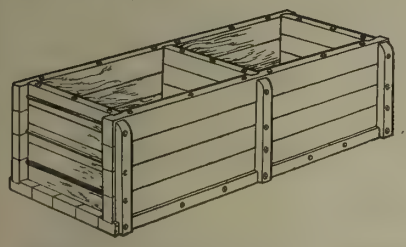
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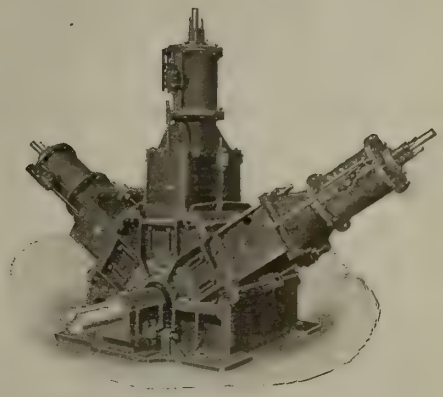
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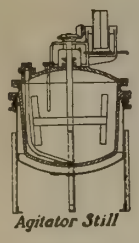
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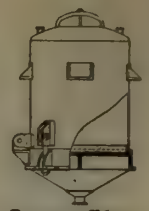
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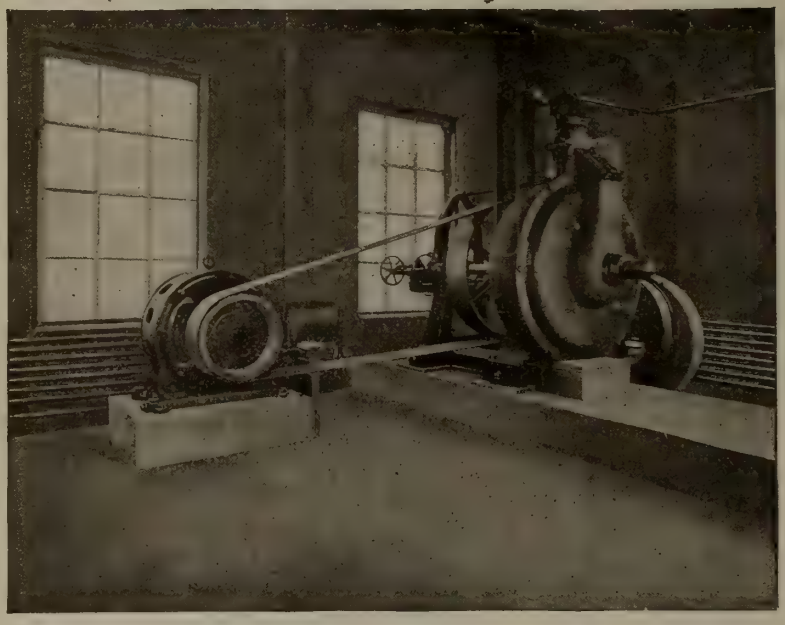
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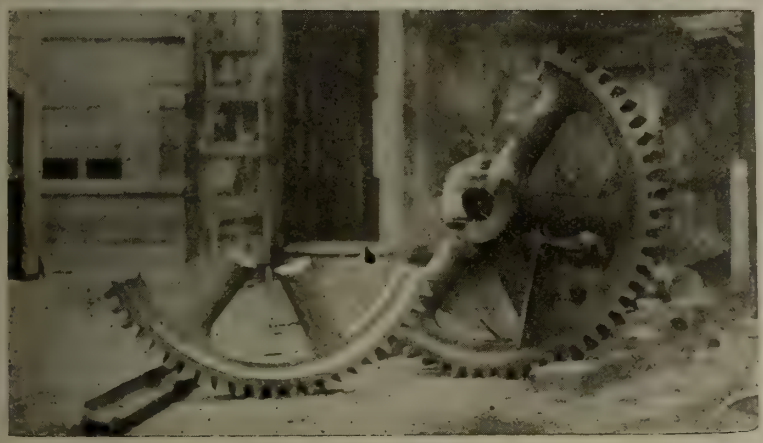
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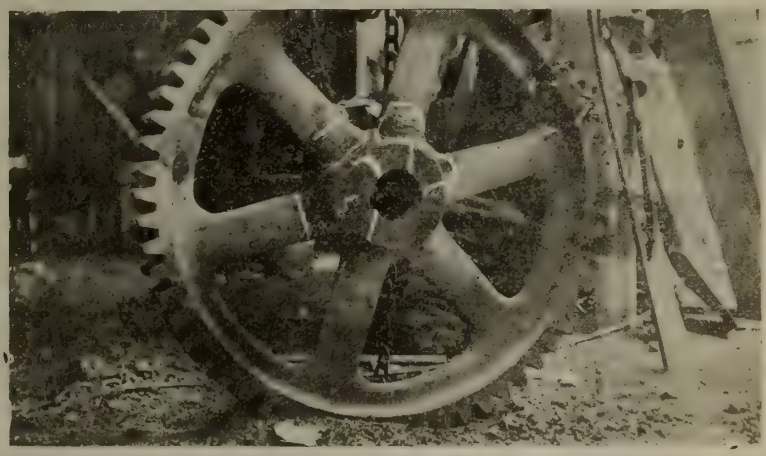
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EDITORIAL

PROBE LIKELY TO RESULT IN BETTER PRICES.

One of the hopeful indications in the newsprint probe last week is the evidence that some people are beginning to realize the true meaning to Canada of unfair treatment of the paper industry. The manufacturers have not had a really square deal yet, but it seems to be on the way. The present price will continue till August first. Then, if the auditor's report confirms the statments of the manufacturers, there will be an increase, retroactive as from July 1st. In all fairness it should date from March 1st.

The insistence of Mr. Tilley, who represented the publishers, in his inquiry as to the make-up and methods of the Export Sales Company, and the speed of his departure when he was shut up, would lead one to suspect that he was interested in something besides a sincere desire to see whether the manufacturers were really getting enough for their paper. Mr. Pringle is to be commended for upholding the paper makers' objection to the impertinent questions of the counsel for the publishers.

There are two acts of Mr. Pringle that are not so commendable. One is the appointment of an auditor without consulting the manufacturers, after having stated that their opinions would be asked for. The other is the exposing to the purchaser of the manufacturing costs of the commodity, when these had been given in confidence for the use of the Commissioner and the Auditor. There is no business man in Canada with a sense of decency, but who is shocked by such action. The counsel for the publishers had these cost sheets before him when the manufacturers' own counsel did not have the figures. If it was necessary to make the records public, the manufacturers should at least have been advised to that effect.

Even this cold wind may blow some good. It will at least show the publishers that they have been deceived as to the actual value of newsprint, and decidedly unfair in demanding and accepting an article for less than cost in some cases, and without a fair profit in others. It is more than likely that if Mr. Clarkson makes a careful and accurate audit of the manufacturers' books, he will find that, taking all items into consideration, the cost of making a ton of newsprint is even higher than the summary reports of the manufacturers. Mr. Pringle apparently is beginning to appreciate the value to Canada and the importance of the pulp and paper industry. He must also appreciate the bigness and fairness of the men who make the paper.

The industry has suffered severely from the unfair treatment accorded to it at the hands of the Government. When an industry, like a man, ceases to grow, it begins to die. An industry cannot grow without capital, and capital will not, as last week's stock sales prove, enter a field where a Minister of Finance first prevents the making of a profit, and then pre-empts a large share of profits made in the past.

Honest minded newspapers are open in their criticism and condemnation of the choking of an industry in the manner applied to the paper makers, holding that it is an evil thing to regulate and hamper a private business that other private individuals may profit by such Government interference. Did the publishers ask for price regulation because their business methods were faulty, because they didn't have the nerve (or the sense) to raise their price along with increases in all other commodities?

No! As the Financial Times expresses it:—

"It is that newspapers are of vital interest to the public 'in the efficient dissemination of news in this crisis.' That is sheer nonsense. Newspapers sell their product below cost—a very bad business principle. Furthermore, the waste in the average newspaper office is positively sinful. Page after page of printed matter is filled with grotesque picture 'features'; departments for the care of hands, domestic pets and sweethearts use up tons of white paper; column after column of demoralizing murder 'stories'; pages of sporting events—all these departments necessitate thousands of dollars of white paper daily, and the Government has decreed that the news print manufacturers shall meet the cost of these departments. That is what the price regulation amounts to! These 'efficient disseminators of news of vital interest in this crisis' are given price concessions which are denied those people who depend upon the lowly potato and the domestic loaf for mere subsistence. The news print restriction now in force is, in view of its isolation, the least warranted and the most outrageous measure ever put through the Federal Parliament. Let us have no more of it."

News print is worth three cents, let's have it.

A CONSULTING FORESTER-AT-LARGE.

The timber owners and users of New York State are to have the advantage of the services of a skilled forester and a trained woodsman in attacking the serious problems facing the forest interests of that state. Many of the individual members of the Empire State Forest Products Association could not afford the services of an expert forestry engineer, but through their association they can avail themselves of consultation and advice in regard to their problems. If this step had been taken twenty years ago, there would not have developed the present serious condition, as outlined in the following announcement of Professor Recknagel's appointment to the position of Consulting Forester.

"A few years ago, Clifford Pinchot, in addressing the Camp-Fire Club of America, said: 'Forestry in the State of New York is flourishing everywhere except in the woods.' It looks as if the old order were about to change. Professor A. B. Recknagel, of the Department of Forestry, at Cornell University, has been granted a year's leave of absence from his university duties in order to accept the position of Forester to the Empire State Forest Products Association; he will take up his new duties on the first of July. He will establish headquarters for the Association at Albany. The work which Professor Recknagel will undertake marks a new departure in the practice of forestry by private owners in the United States. The Empire State Forest Products Association is made up of prominent lumbermen and paper manufacturers in New York; the members of the Association own upwards of one million two hundred thousand acres of timberland in this state. The Association, at its last annual meeting, decided to establish a rational and constructive system of forestry for the handling of these lands.

"As President Schurman of Cornell University, said in an address at Syracuse on April 6: 'It is our national, yes, our interantional duty, in the present crisis, to produce all we can and to learn to apply the principles of conservation to our distribution and use of the necessities of life." Forest products are emphatically amongst the necessities of life, and are of increasing importance as the population develops. New York State is the largest consumer of forest products of any state in the Union. A recent report showed that over five billion board feet are consumed per year with an estimated value of $107,189,225. The value of farm crops in New York in 1916 was placed at $293,329,000. The products from the New York State forests have steadily diminished in volume until now they constitute less than one billion feet board measure per year. More than $65,000,000 are being sent yearly outside the state for lumber, and a great variety of other products which could be produced within the borders of the state.

"These figures show the urgent need of managing the timberlands of the state with a view to continuous production, a need which is emphasized by the advent of war. The Empire State Forest Products Association, in taking up this work, is therefore placing itself in line with the most patriotic and far sighted industrial organizations. The action of the Association will undoubtedly serve to stimulate other forest products associations in other states to follow suit. It is only by the practice of forestry on private holdings, which contain about four-fifths of the merchantable standing timber of the United States, as well as on State and Federal forests, which constitute the remaining fifth, that our forest resources will be adequately preserved; the democratic principles of our country indicate that this should be brought about by private endeavor rather than by governmental regulation."

Dr. Recknagel is well fitted for his task, and the Association is not only to be congratulated on obtaining his services, but also to be highly commended for their wisdom in retaining him to do this valuable work.

There is a lesson in this for Canada. Hardly a country in the world derives so large a proportion of its revenue and wealth from the forest as does the Dominion, and no other country will be as largely dependant on the forest in the future. Some of Canada's most important industries are based directly on our timber resources. The forest is the very life of the whole pulp and paper business, as well as of lumbering, shipbuilding, wood working, construction, wood distillation and other industries that can and should be developed.

Not so very long ago there was considerable shipbuilding in the Maritime Provinces. Now there is scarcely a timber big enough for the keel or mast of a decent sized smack. Timber is cut and used for purposes for which it is unsuited, and much is not used that could be very profitably and economically employed. The Forest Products Laboratories are doing a fine work on the uses of our timbers, but the problem begins in the woods. We should get at the root of the matter, as it were.

Trees are cut for many purposes and in many places by many different people. Some of them are cut unadvisedly and unwisely. Steep hillsides have been stripped of soil-retaining and thaw-retarding trees, with the result that little streams become torrents from the rapid melting of unprotected masses of snow, and the soil, no longer held by the dead roots of the forest giants, is washed down the hill, leaving a bare rock behind, and maybe burying a fertile farm below. The sudden loosening of vast quantities of water means trouble twice for the power plants of our mills. One can easily see the difficulty in having a ten-fold variation in the number of cubic feet per second passing a given point in a river. This, of course, is not wholly, but is largely, preventable.

Then there is the problem of so cutting the forest as to insure or facilitate reproduction, of cutting the right wood for the job ,and of what to do with the rest. There are problems of brush disposal and the continual fight

against fungus and insect pests. It may seem trite to mention it again, but **there is still a fire danger,** and there always will be. A letter came to the Magazine within a month, asking where advice could be had because a certain town in Ontario is afraid of a forest fire. It is well that they are afraid. If more of us were more afraid. there would be less reason to be so.

New York State is now cutting only one-fifth of its lumber requirements. Bangor, Me., recently witnessed the curious sight of the first cargo of lumber entering her docks. And Bangor used to be pictured in our geographies as the great lumber city. Maine, New York, Wisconsin,, and other states are importing enormous amounts of Canadian pulp wood. Why? Largely because they wasted and are wasting their own.

We are wasting ours. Do we want to import pulp wood? We can't. When Canada's pulp wood goes, her pulp and paper industry dies, and it will soon begin to feel sick unless prompt measures are taken to insure for all time the necessary nourishment. The difficulty is not all with the big operators, but very largely with the small one, who thinks it is nobody's business what he does on his own land, and the operator who cuts leased limits uncontrolled, caring nought what becomes of the soil when he has bled its lifeblood.

The problem is a big one. No lease should be given that allows uncontrolled cutting. Not an acre should be without adequate fire protection. No tree should be cut unless another, **equally good,** be assured in its place. There is in our country a man who is big enough for the job of giving this much needed advice to timber operators and owners, and who is public-spirited enough to offer his services for a year for the good of Canada's future forests, to get the work started. For the position of Adviser in Forestry, it is a privilege and an honor to nominate Mr. Ellwood Wilson, of Grand Mere. What is your pleasure?

WHAT THE TRADE COMMISSION MEANS.

According to the Fourth Estate, representatives of the Federal Trade Commission have appeared before the Senate Printing Committee and have explained the commission's position, and particularly have made clear the precise meaning of the term "for Government account," which has been used in connection with the proposal for paper control, and which seems to have been widely misunderstood by publishers and Congressmen as well as by owners of paper mills.

According to the reassurances given to publishers and to the Senators the Trade Commission has no intention that a Governmental paper pool, if formed, would disturb present arrangements between mills and publishers as to quantity and character of paper supply.

The commission fully realizes that the newspaper publisher who has been dealing with a given mill and has his presses adjusted for the paper coming from that source, does not want to be jolted out of that routine, and left to take pot luck in a general pool.

As the plan would work out, according to Thursday's explanation, every large publisher that cares to continue existing arrangements will keep on getting his paper in the same old way. The only difference will be that if he is paying his mill a price higher than the pool average, or if, to turn the case around, his mill has a cost of production lower than the average, then that mill must pay a rebate to the pool in order to take care of the inequalities of costs or prices in other directions, and enable the attainment of the level of price that is the goal sought.

* * *

A bill has been introduced in Congress, asking for the appointment of

> "an agency under the jurisdiction of the Department of Commerce to take over and to operate on Government account for the term of the war or the emergency occasioned thereby all mills producing print paper and mechanical and chemical pulp in the United States, or so many thereof as shall be necessary to effect the purposes of this Act; and such Government agency shall cause the supply of paper to be equitably distributed at a reasonable price, based upon the cost of production and distribution, allowing a fair profit per ton to the owners of such mills."

The publishers are strenuously opposing the bill, fearing that such action is not only a dangerous precedent along the line of government ownership, but that the newspapers might have to account for the manner in which they use their paper supply.

The New York Times sagely remarks that the way out of the difficulty is for the publishers, and paper makers to settle the matter "out of court." This is of course, the sensible and logical proceedure; but its success demands first a greater fairness on the part of the publishers in appreciating and acknowledging some of the fundamental rights of a business.

STORY HELD OVER.

The illustrated account of the visit of the Technical Section to the mills of the St. Maurice Valley could not be squeezed into this issue, so will appear next week.

INDEX FOR 1916.

The index for the Pulp and Paper Magazine, Volume XIV., 1916, is printed at last, and is being mailed. If anyone is missed, or an extra copy is desired, requests should be sent in promptly.

Postscript: There are about 10,000 forest fires in Canada every year, over 1,300 a month between snow and snow.

1917 is a year of thrift.

Let's cut that 10,000 fires in half!

Canadian Limestones and the Sulphite Industry

By "SNOWSHOE", Shawinigan Falls, Que.

There appears to be a lack of knowledge in certain sections of the Pulp and Paper Industry, as to the capacity of Canada to supply Limestone and burnt Limes suitable for use in the pulp industry. We find mills who are, at the present time, or who were, until quite recently obtaining their supply of lime and marble from the United States. This is not as it should be, and undoubtedly local resources should be taken advantage of, if available.

In Ontario and Quebec there are large deposits of limestone, and it is the purpose of this article to give an outline of some of these deposits and their value for use in Sulphite cooking.

Admittedly, there are excellent deposits of Dolomite and marble across the border in the states of Vermont, New York, Ohio and several of them are excellent for Bisulphite liquor, but there are deposits of quite as good a character in Ontario while Quebec has good deposits of marble and crystalline limestone in the Eastern Townships besides other beds of more or less pure limestone north of the St. Lawrence.

Having the assurance that good deposits are available locally in Canada our policy will be, to find the rock suited for our individual purposes, and to ascertain the nearest suitable source of that product, so as to save freightage. To do this properly we must ascertain the geological structure of the country over which we propose to search for our limestone and further must consider the relative distances of the deposits from the nearest coal supply for burning the stone (if used as lime).

We have then, three main things to consider in our search, (1) Chemical suitability of the stone; (2) Distance from fuel supply; (3) Distance from Pulp Mill, and by a judicious combination of these three factors, we can arrive at the cheapest and best available product.

Considering Ontario first, we can find considerable areas of the province, where we could roam over in vain, in an endeavour to locate, say, a pure deposit of high-magnesium limestone suitable for, say the Barker's system and on the other hand we could find large areas devoid of limestone suitable for use where high and pure calcium lime is required. It is therefore evident that a consideration of the geological structure of the province is essential to our quest.

Referring to the sketch map below, we see that the province is divided up into four main geological divisions or "systems": the oldest. Pre-Cambrian in ascending order up to the newest, Devonian on the south. These systems of rocks extend east and southeast into New York, Penna. and Ohio, and it is obvious to assume that the rock structure seen in Canada will have its counterpart across the border and conversely so, as the well known Dolomites and Marbles of New York and Ohio may be assumed to show up in Canada to the west and north-west.

This is found to be the case, and it will be shown that the high class Limestones of the Eastern U.S. are duplicated in Ontario in immense deposits, readily available.

Fig. 2 shows a section of the country from James Bay to Lake Erie and it will be seen that the same formations occur north of the ancient Pre-Cambrian rocks as to the south. This structure is due to what is known as an Anti-clinal fold in the earth's crust, the former beds from the summit of the Pre-Cambrian having been denuded away in past ages.

To the south of the Pre-Cambrian, then, we have four main belts of rock in which to seek our rocks.

Each of these four divisions of rocks has certain characteristics of its own, due to the fact that conditions varied more or less when the rocks came into being. The whole series of stratified rocks was laid down in water either fresh or salt, and it is obvious that fresh water strata will vary from salt water strata, and that a series of rocks formed millions of years after a former series, will likely show widely different characteristics. This is found to be the case, and it will be shown that Limestones laid down in Devonian times are widely different from similar rocks of the Silurian period, so that we cannot expect to find the rock we are looking for in both sections of the country.

The Pre-Cambrian, also known as the Archean or Laurentian is a mass of crystalline rock forming the actual base of the land masses and from the denudation of their mass, the whole of the stratified geological rocks have been formed. This ancient rock has been forced up in the molten state and coming in contact with certain deposits of limestone of unknown age has converted these into highly crystalline limestone rock and it is this type that we find in contact with the crystalline rocks of the Laurentian System. Then we can say that crystallised or Metamorphic limestones are typical of the Pre-Cambrian. Crystalline Dolomites of a high degree of purity are found in these rocks, notably at Portage du Fort and Renfrew County. The next series, the Cambro-Silurian contains large deposits of limestones of various qualities; the lower beds containing some Magnesia, while the upper beds are more or less pure Calcium Limestones.

Coming to the next series, the Silurian, we find Magnesium or Dolomite Limestones widely developed and in many cases of a high degree of purity and it is to be observed, that in this Silurian System of rocks, Calcium Limestones are conspicuous by their absence. In the next upper series, the Devonians, we find conditions reversed, and a marked absence of Magnesian limestones occurs; the beds being mainly highly Calciferous. Surely then, pulp mills in Ontario are highly favoured in respect to their limestone supply being within easy reach of very pure Dolomites and pure Calcium Limestones in inexhaustible quantities. The mills in Quebec are apparently not so highly favoured in this respect.

Next, considering Quebec province and taking the district north of the St. Lawrence, we find conditions very different to lower Ontario. Here we find a plain about twenty miles wide, wedged in so to speak between the river and the Laurentian range of hills. This plain is nearly entirely covered with thick deposits of clay and sand, there being comparatively few rock exposures south of the crystalline rocks.

The chief exposures of rock are at and near Joliette

where L'Assomption river cuts through and exposes the underlying Cambro-Silurian strata, consisting largely of high calcium limestones. Apart from this the exposures are somewhat meagre along the plain up to thirty miles east of the St. Maurice, except near St. Cuthbert.

It is as well to point out here, that in Ontario, certain sections of the country are covered with "drift" deposits, that is, debris from the present surface of the land, which in the peninsula between Lakes Huron and Erie reaches a thickness of about 200 feet, so that the Geological sketch map given, Fig. 1, is in reality, only a general indication of the rock structure of the country.

Coming now to the district south of the St. Lawrence we find again a circumscribed area only about 100 miles wide sandwiched between the St. Lawrence and the mountains on the U. S. boundary. This area has no broad geological deposits such as occur in Ontario, but is more or less of a jumble of rocks of different horizons, due to "folds" in the earth's crust, "faults", "igneous", etc. Most of the limestones appear to be of a dark and impure variety, but there also occurs beds of limestone of high purity, crystallised as marble and ordinary limestone.

Starting with Montreal Island (1) we find numerous quarries in existence which are entirely in the Cambro-Silurian beds and consist of Calcium Limestones. The average composition of rock from eight quarries is:

	Per Cent.	
Insoluble matter	= 2.00	Montreal Island (1)
Oxides of Iron and Aluminum.	= 0.70	
$CaCO_3$	= 95.30	
$Mg\ CO_3$	= 1.80	

An average from six quarries at and around Joliette:

	Per Cent.	
Insoluble matter	= 1.60	Joliette (2)
$Fe_2O_3\ Al_2O_3$	= 0.57	
$CaCO_3$	= 96.50	
$Mg\ CO_3$	= 1.25	

An average from three quarries in Berthier and Mackinonge:

	Per Cent.	
Insoluble matter	= 9.05	(3)
$Fe_2O_3\ Al_2O_3$	= 1.28	
$CaCO_3$	= 84.80	
$Mg\ CO_3$	= 4.80	

An average from three quarries in Champlain Co.:

	Per Cent.	
Insoluble matter	= 8.4	(4)
$Fe_2O_3\ Al_2O_3$	= 0.55	
$CaCO_3$	= 88.55	
$Mg\ CO_3$	= 2.35	

An average from eight quarries in Portneuf Co.:

	Per Cent.	
Insoluble matter	= 1.25	(5)
$Fe_2O_3\ Al_2O_3$	= 0.60	
$CaCO_3$	= 95.80	
$Mg\ CO_3$	= 1.30	

An average from twelve quarries in Quebec and Montmorency:

	Per Cent.	
Insoluble matter	= 8.67	(6)
$Fe_2O_3\ Al_2O_3$	= 0.78	
$CaCO_3$	= 86.55	
$Mg\ CO_3$	= 2.35	

An average from five quarries in the Lake St. John district:

	Per Cent.	
Insoluble matter	= 9.10	
$Fe_2O_3\ Al_2O_3$	= 0.95	
$CaCO_3$	= 85.90	
$Mg\ CO_3$	= 1.95	

The whole of these quarries along the St. Lawrence plain, are situated in the Trenton and chazy formations of the Cambro-Silurian system and a glance at the various compositions shows that, if the insoluble matters be eliminated, the limestones are of much the same composition.

Before going any further it is to be noted that the above analyses are taken from the "Summary Report of the Mines Branch," Department of Mines, Ottawa, 1915, also most of the analyses and information given below are takn from the above mentioned book and also from "Report of Bureau of Mines", 1904. "The Limestones of Ontario," by W. G. Miller, Provincial Geologist of Ontario; other analyses, figures, etc., are by the present writer.

Apart from the amount of insoluble matter in a number of the above limestones, they may be considered relatively good material for Lime Bisulphite liquor making. The amount of Iron is low, for the type of stone. In practice, however, in working a face of this stone in the quarry the tendency appears to be to get too high a percentage of insoluble matters as instanced by the following figures by the writer:

	Per Cent.	
Insoluble matter	= 3.78	(*)
$Fe_2O_3\ Al_2O_3$	= 1.19	
Lime	= 92.77	
Magnesia	= 0.75	
Carbonic acid and moisture	= 2.14	

(*)—Average analysis of "Trenton" lime from quarry near Joliette. Figures are mean of nine samples taken from bulk during twelve months supply to sulphite mill (Barker's system).

A Lime carrying nearly 4% of stuff insoluble in strong acid (HCl) is evidently not the best to use in an apparatus such as the Barker's system.

In addition to these Trenton limestones, north of the St. Lawrence there are various deposits of limestone north of the Laurentian hills, but these latter appear to be on the whole impure in composition, patchy in occurrence and in more or less inaccessible spots.

The following analysis by the writer shows the type of impure limestone which is frequently met with:

	Per Cent.	
Moisture	= 0.65	(*)
Insol. mineral matters	= 0.51	
$Ca\ CO_3$	= 92.22	
$Ca\ SO_4$	= 0.15	
$Fe_2O_3\ Al_2O_3$	= 2.26	
CaS	= 3.66	
Carbonaceous matter	= 0.55	
	100.00	

(*)—Limestone from Mattawin River district, Province of Quebec.

In addition to the Calcium limestones in Quebec, there appear to be certain beds of Magnesian stone scattered about, but these appear to be impure in composition and erratic in occurrence and of no particular importance to the trade as a whole, though certain individual mills might find some of the stone useful.

Turning now to the counties, south of the St. Lawrence, we find as mentioned above, no pronounced geological deposits such as in Ontario.

(7)—**Levis Co.** has a limestone outcrop of good stone carrying 4.72% Silica, 0.46% Fe_2O_3 Al_2O_3 and 4.55% Mg CO_3.

(8)—**Beauce Co.** an exposure of red marble showing 8.0% Silica, 1.50% Fe_2O_3 Al_2O_3 and 26.85%, Mg CO_3.

(13)—**Wolfe Co.** contains a deposit of crystalline limestone extending by Dudswell, Marbleton and Weedon samples from four localities near Weedon showing 5.86% Silica, 0.37 Fe Carbonate, 1.25% $MgCO_3$.

It will be noticed, that south of the St. Lawrence, the limestones contain considerably more Magnesia than the northern rocks do.

Before passing to the Ontario limestones we may



Fig. 1.

(9)—**Stanstead Co.** quarry shows 2.68% Silica, 0.34% Fe_2O_3 Al_2O_3, 5.20% Mg CO_3.

(10)—**Drummond Co.** quarry shows 16.48% Silica, 2.66% Fe_2O_3 Al_2O_3, 8.15% Mg CO_3.

(11)—**Bagot Co.** three quarries shows 2.19% Silica, 0.39% Fe_2O_3 Al_2O_3, 5.05% Mg CO_3.

(12)—**Missisquoi Co.** a belt of high grade limestone runs for about 13 miles N.N.E. in this county showing 1.78% Silica, 0.26% Fe_2O_3 Al_2O_3, 3.41% $MgCO_3$.

There are here also, some dolomites, which, however, show over 10% Silica.

mention a few U.S.A. limestones which have been used in Canada in Bisulphite liquor making. U.S. marble used by a St. Maurice Valley Mill:

	Per Cent.
Moisture	= 0.04
Silica	= 0.40
$CaCO_3$	= 99.05
Fe_2O_3 Al_2O_3	= 0.11
Etc.	= 0.40
	100.00

Admittedly this is an article of high purity, but there appears no necessity to go across the line for the stone, particularly so, as the pulp made, is, or was, making a very ordinary quality of "news" sulphite which could just as well have been made from a domestic stone.

Another mill was using a Massachusetts, U.S.A., Dolomite lime showing 0.72% Silica and 1.10% Fe_2O_3 Al_2O_3. This was an excellent lime, but lime of quite equal quality is found in Ontario. Later, this mill had dolomite lime from Pennsylvania which was badly burnt and picked over and showed an average of 3.37% Silica and 1.26% Fe_2O_3 Al_2O_3. This was finally discarded for an excellent Ontario Dolomite Lime and it is very unlikely that this particular mill will ever purchase lime from across the border again.

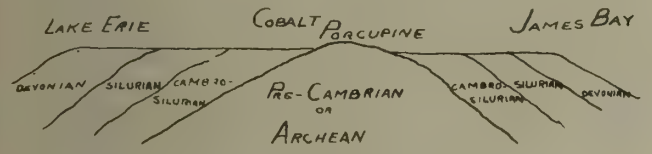


Fig. 2.

Below are given a few representative analyses by the writer of dolomite limes from the States and with which the various Canadian products may be compared:

	Mass., U.S.	Penna., U.S.	White Rock, Ohio.	Duchess Co., New York.	Bowling Green, Ohio, & New York State, "Griffin & Little."
	P.C.	P.C.	P.C.	P.C.	P.C.
Insol. Silica .	0.60	3.35	0.70	0.90	0.20
Fe_2O_3 Al_2O_3..	0.90	1.25	0.97	1.60	0.79
Lime	57.60	55.80	58.62	58.55	56.96
Magnesia . .	38.40	38.00	37.82	38.70	40.48
CO_2 and H_2O.	2.50	1.85	1.90	....	1.66

Except sample No. 2, these are all excellent dolomite limes, of a high degree of purity, but it will be shown that in Canada we have equally good limes.

Turning now to Ontario province we find as mentioned above, broad areas, underlaid by four district geological deposits known as "Systems", these systems are again divided up into what are known as "Formations" that is, layers of material more or less of a constant composition. By reference to the sketch map Fig. 1, it will be seen that the country south of the Ottawa to Lake Erie may be divided up into eight belts: (1)—Pre-Cambrian with Crystalline Limestones. (2)—Ordovician or Cambro-Silurian, with high Calcium Limestones. (3)—Unproductive shales and sandstones. (4)—Silurian with high magnesian limestones. (5)—Unproductive shales, etc. (6)—Lower Devonian with high Calcium limestones. (7)—Unproductive shales, etc. (8)—Lower Devonian with high calcium limestones plus some high magnesian stones.

The three belts termed unproductive, are not really so, as some of the beds contain thin beds of limestone, but the fact that these beds are inter-stratified with numerous layers of shale renders them of small importance to the pulp maker, particularly so, as we have both north and south of each such area large and thick beds of good limestones free from shales.

In Pre-Cambrian crystalline rocks we find crystalline limestones in many places, some of these are marbles (calcium) others Dolomites (Ca-Mg); most of them being relatively very pure stones. The Eastern counties of Hastings, Frontenac and Renfrew appear to have the largest deposits.

Hastings Co. average analysis of Crystalline marbles from four quarries:

	Per Cent.
Silica	= 1.93
Fe_2O_3 Al_2O_3	= 1.27
Lime	= 49.90
Magnesia	= 4.00

Addington Co. White Dolomite:

	Per Cent.
Insol. Silica	= 0.60
Fe_2O_3	= 0.24
$CaCO_3$	= 52.57
$MgCO_3$	= 45.97

Frontnac Co. White Dolomite:

	Per Cent.
Insol. Silica	= 2.52
Fe.Carb	= 0.64
$CaCO_3$	= 54.02
$MgCO_3$	= 42.63



Fig. 3.

Frontenac Co. average analysis of five quarries of Crystalline limestone:

	Per Cent.
Silica	= 2.85
Fe_2O_3 Al_2O_3	= 0.65
Lime	= 43.55
Magnesia	= 8.95
CO_2	= 43.15

Renfrew Co. In this county a number of "outliers" of Cambro-Silurian limestone lie on the eroded face of the pre-Cambrian rocks and there are also large developments of crystalline limestones, both marble and dolomite.

Average analysis from eight quarries. Renfrew Crystalline limestone:

	Per Cent.
Silica	= 1.11
Fe_2O_3 Al_2O_3	= 0.80
Lime	= 50.34
MgO	= 3.70
CO_2	= 43.07

There is a large development of crystalline dolomite which extends from Arnprior and Renfrew district, north, and crosses the Ottawa river where it is highly developed at Portage du Fort village. This is a pure white dolomite with large crystal development.

Renfrew Co.—Ross Township, White Dolomite:

	Per Cent.
Insol.	= 0.47
Fe.Carb	= 0.11
$CaCO_3$	= 55.32
$MgCO_3$	= 44.54

An analysis by the writer of two representative samples from Portage du Fort gave:

	Per Cent.
Insol.	= 0.68
Fe_2O_3 Al_2O_3	= 0.12
$CaCO_3$	= 55.76
$MgCO_3$	= 43.40

It is evident from these figures that these deposits are eminently suited to sulphite mill work, either for the Tower system or when burnt into lime for the lime systems.

Coming south to the Ordovician or Cambro-Silurian Beds we find two distinct areas marked 2 and 2A on the map, these being separated by a belt of the crystalline rocks. These rocks are composed mainly of the Trenton, Black River and Chazy limestones and are on the whole of much the same composition as the same rocks found in Quebec, though there appears to be less insoluble matter in the Ontario beds.

An average analysis from six quarries in various counties gave:

	Per Cent.
Insol.	= 1.90
Fe_2O_3 Al_2O_3	= 0.70
Lime	= 52.05
MgO	= 1.60
CO_2	= 42.85

These beds yield a limestone, only relatively good for liquor making.

The next section No. 3 is a region of shales and sandstones extending from Toronto to Collingwood and is of no account to us.

District No. 4 is undoubtedly the most valuable to the sulphite pulp maker as here we find a broad stretch of country remarkably prolific in high class dolomites. The lower beds here are known as the 'Clinton'' formation, the middle, comprises the ''Niagara'' series of limestones while the upper beds are termed the ''Guelph'' formation for the season that they are well developed near Guelph, Wellington Co. It is in this Guelph formation that we find the very highest dolomite rocks most suited for lime burning for sulphite mills.

The Clinton formation is from 80 feet to 180 feet thick, its lower part being composed of shales and its upper of dolomites. For the purposes of the pulp maker, the ''Clinton'' may be required, as we have the more prolific Niagara and Guelph beds above.

The Niagara formation enters the country in Lincoln Co. and extends North-west to Lake Huron and at many parts of the country it forms the ridge or escapement there abouts. This formation consists of thick and thin beds of limestone of the magnesian variety interbedded with bands and beds of shale; both the shales and limestones are frequently bituminous. Some of the limestone beds are thick and of a compact, relatively pure nature, although they are dark-coloured. One of the beds is about 20 feet in thickness and is composed chiefly of broken Encrinites or the stems of ancient sea-lillies.

This bed is burnt for lime in Halton county and has been used in St. Maurice Valley Mills for the Barker's acid system. The following figures give the average composition for 5 months supply (6 samples) examined by the writer.

	Per Cent.
Silica	= 1.26
Fe_2O_3. Al_2O_3	= 1.16
Lime	= 56.86
MgO	= 38.88
CO_2 and H_2O	= 1.78

This lime is relatively very fair, but can be improved upon.

The analysis below is of a sample of heavy blue Niagara Dolomite from Queenstown, near Niagara falls, made by the writer.

	Per Cent.	
Silica	= 0.75	
Fe_2O_3. Al_2O_3	= 1.25	This dolomite burns to a
Lime	= 29.75	lime of a very dark brown
Magnesia	= 20.75	to blackish colour.
CO_2	= 47.50	

There also appears to be a little carbonaceous or bituminous matter in the stone but it is apparent from the figures that it is a very good dolomite, notwithstanding.

There is no doubt that much of these various beds of Niagara limestone could be used profitably for liquor-making, but the nearness of the Superior Guelph dolomites render this inadvisable.

A Niagara formation dolomite from Nassagaweya township, Halton Co., gave:—

Insol.	= 0.30
Fe. Carb.	= 0.58
$CaCO_3$	= 54.12
$MgCO_3$	= 45.45
Al_2O_3	= 0.17

It is very interesting to note that there is an ''Outlier'' or island of Niagara limestone, surrounded by the Pre-Cambrian rocks at the north end of Lake Temiskaming near Haileybury. This limestone analyzes as follows:

Insol.	= 1.60
Fe_2O_3. Al_2O_3	= 0.66
Lime	= 29.50
MgO	= 21.59
CO_2	= 46.84
So_3	= 0.70

This stone is reported to be in use in mills north of Haileybury and it is fairly evident what a unique position this deposit holds, in being able to supply all the mills on the James' Bay slope and so save the long haul from southern Ontario.

We now come to the ''Guelph'' formation, a series of buff-colored or yellowish-white limestones, much of it of great purity. These rocks first appear resting on the upper Niagara formation in the north of Wentworth county extending through Waterloo, Wellington, Grey and Bruce into Manitoulin Island.

The chief exposures occur in a very compact district about 250 square miles in area with the town of Guelph as the centre. A circle of 15 miles radius from Guelph would enclose all the main exposures in this district.

Good exposures are found at Guelph as centre at Elora and Fergus to the north, at Galt and Puslinck to the south.

Much of this stone is a light buff colour, finely crystalline and porous in natfure.

The following analysis show the high purity of these limestones:—

Township of Puslinck.		Township of Guelph.
0.08	Insol. Matter	0.03
0.22	Iron Carbonate.	0.16
54.25	Ca. CO_3	53.97
45.17	Mg. CO_3	45.37
0.34	Ca. So_4	0.68

A sample of Guelph crystalline buff colored limestone examined by the writer gave:—

Silica	= 0.05
Fe_2O_3. Al_2O_3	= 0.15
$CaCO_3$	= 54.75
Mg. CO_3	= 44.45

The Guelph formation is estimated at 160 feet thick and 25 to 35 miles wide across country. The limestone from the five places mentioned, burns to a fine white lime, eminently suited for the lime systems of liquor making.

As showing what class of lime can be furnished by this formation, the following figures give the average composition of fine large consignments spread over five months, furnished to a St. Maurice Valley mill from the Puslinck district.

Silica	= 0.29
Fe_2O_3. Al_2O_3	= 0.38
Lime	= 57.58
Magnesia	= 39.86
CO_2 and H_2O	= 1.89

It is evident from the above figures, that in the Guelph beds we have in unlimited quantities the finest possible dolomite limestone for use in Bisulphite liquor manufacture.

District No. 5 may be regarded as unproductive, as it consists of shales and thin beds of dolomite mixed with gypsum deposits.

District No. 6 comprises chiefly the Coniferous limestone of the lower Devonian System. It consists of high calcium limestones with little or no Magnesia, much of the deposit is highly silicious, containing "chest" and organic remains and is of no use for our purpose. The two places where the best stone occurs are at Beachville near Woodstock and St. Mary's in Perth Co.

The Beachville stone particularly gives a very pure lime while the St. Mary's is distinctly inferior as the following analyses show:—

Beachville Limestone.		St. Mary's Limestone.	
Silica	= 0.13	Silica	= 2.32
FeO	= 0.22	Fe_2O_3. Al_2O_3.	= 1.05
Lime	= 53.71	$CaCO_3$	= 94.24
SO_3	= 0.35	Mg. CO_3	= 2.10
CO_2	= 43.92		

The Beachville limestone yields a lime as suitable as the Guelph dolomite for its particular purpose, in making Calcium Bisulphite liquors.

District No. 13 is practically unproductive as it consists of shales with a few high calcium limestone beds. District No. 8 is an extension of No. 6 but this section of the country is largely covered by "drift" deposits and need not be considered, although certain beds of good limestone are found of, both calcium and magnesium stones.

TEST ON CHLORINE PLANT AT MERRITTON.

After the Allen-Moore Cells installed in the plant of The Riordon Pulp & Paper Company, Merritton, Ontario, had been in operation a short time, representatives of the Allen Electrolytic Cell Corporation of Portland, Maine, which controls the patents, made an official test of the unit with the results tabulated below:

Current Efficiency Test of "Allen-Moore" Cells.

Cell No.	Test No. 1	Test No. 2	Test No. 3	Test No. 4	Average Efficiency
	P.c.	P.c.	P.c.	P.c.	P.c.
2	96.4	97.8	96.5	97.5	97.0
3	100.0	98.2	98.1	99,9	99.0
4	97.8	97.7	95.5	100.0	97.7
5	98.6	100.0	98.6	99.6	99.2
6	99.5	96.6	97.9	100.0	98.5
7	97.6	95.0	96.4	100.0	97.2
8	99.9	97.4	98.0	98.9	98.5
9	99.4	97.7	99.7	100.0	99.2
10	97.8	99.6	98.5	98.6	98.6
11	99.9	99.9	98.2	99.9	99.4
12	97.1	99.9	95.6	91.2	95.9
13	97.0	93.7	95.3	95.3	95.3
14	94.6	99.9	95.4	99.0	97.5
15	99.9	99.6	99.9	99.9	99.8
16	95.2	99.9	92.6	98.3	96.5
17	93.6	93.1	99.7	99.9	96.6
18	99.9	98.4	98.4	96.1	98.2
19	99.1	98.1	99.8	95.9	98.2
20	94.1	95.7	99.5	96.5	96.4
21	99.9	99.9	99.9	99.2	99.7
22	99.9	98.4	97.9	98.7	98.7
23	97.8	98.5	99.4	97.3	98.2
24	99.1	95.6	98.7	98.5	97.9
25	96.6	96.7	96.3	99.4	97.2
26	95.4	95.2	95.2	95.7	95.3
27	99.9	97.8	98.2	98.1	98.5
28	98.6	96.1	95.7	99.9	97.5
29	94.7	91.8	93.0	93.5	93.2
Aver. Eff.	97.8	97.4	97.2	98.1	97.6

Average Current .....1410 amperes.
Average Voltage (Switchboard) .....109.2 volts.
Average cell voltage ..... 3.48 volts.

The average load on each cell was 1,410 amperes; the average voltage on each individual cell, 3.48 volts; the average current efficiency, 97.6%; the average decomposition efficiency, 49.2%.

The test covered a period of twenty-four hours, each individual cell being tested by titration of the caustic soda effluent at intervals of six hours.

For the information of those unfamiliar with electro-chemical terms, the following explanation is given:

The current efficiency is the relation between the theoretical production of caustic soda and chlorine and the actual production of these products at the cell. In other words, during the test carried each cell produced an average of 97.6% of all that it was possible to produce with the amperes passed through the cell.

By decomposition efficiency is meant the ratio between the amount of salt fed to each cell and the amount actually decomposed within the cell body. The salt not decomposed is recovered by evaporation from the caustic soda effluent and returned to the system.

The Probe is Likely to Benefit Paper Makers

(Written specially for the Pulp and Paper Magazine)

By EVERETT ANDREW.

Prospects for an increased price for the sale of newsprint in Canada with a likelihood that three cents per pound will be allowed, appears to be impending after the three day session of the Canadian Newsprint probe at Ottawa last week, at the conclusion of which Commissioner R. A. Pringle, K.C. announced that he would recommend that the Order-in-Council, fixing the price at two and one half cents per pound, be extended to August 1st, and if any increase in the price was allowed that the manufacturers would be duly compensated for it from July 1st.

Canadian Newspaper Publishers are no longer a party to the investigation following the withdrawal of Mr. W. N. Tilley, K.C., when Commissioner Pringle ruled that his questions tending toward showing that an export paper combine existed were irrelevant. The inquiry as a whole reflected the conditions of the Canadian newsprint trade for the first time since the two and one half cent per pound order went into effect. By the majority of the statements backed by figures of the manufacturers it was shown that newsprint could not be profitably manufactured for $50 per ton. Another fact established was the many of the big paper manufacturers who have extensive limits find it cheaper to purchase wood in the open market than out of it, on account of the scarcity and cost of labor and supplies. The financial standing of some of the mills is not in very good shape, and other mills are operating at a loss.

Mr. Geoffrey Clarkson the auditor appointed by the Commissioner to investigate the books of Canadian newsprint manufactures, began his operations early, leaving the second day of the sitting for Toronto, and thence to the Spanish River mills. The audit of the books of the mills will take a long time and until Mr. Clarkson's report is in no further sittings of the Commission will be held. During the inquiry it was prophesied that there would be a hundred per cent increase in the manufacture of sulphite in Canada before the end of the year. The Fort Frances Company was the only paper making firm who did not have representatives before the Commissioner. Its report was filed.

"Now the newspapers have withdrawn I want to be extra careful, and will recommend the extension of the present rate until August 1st. If there is any increase in the price, during that time, it is only fair that the manufacturer should receive it dating from July 1st" said the Commissioner at the conclusion of the inquiry.

Among those present were W. H. Smith and L. R. Wilson, Abitibi Power and Paper Co.: P. B. Wilson, vice-president, and George R. Gray, woods manager, Spanish River: John R. Booth and H. I. Thomas, J. R. Booth: George H. Millen and Mr. J. H. Taylor, E. B. Eddy. Mr. H. Biermans, Belgo-Canadian: J. A. Bothwell, Brompton Pulp and Paper Co.; J. A. McCarthy, Price Bros.; George Cahoon, Jr., Laurentide Co.: F. J. Campbell, Canada Paper Co.: George McKee, Donnacona Paper Co.; W. Powell, News Pulp and Paper Co.; J. M. Imrie, sec. Canadian Press Ass'n.; A. L. Dawe, sec. Canadian Pulp and Paper Ass'n and others. Counsel at the inquiry were: Messrs. George Montgomery, K.C., and Mr. Gordon MacDougall, K.C., representing the Newsprint section of the Canadian Manufacturers Association; John F. Orde, K.C., representing E. B. Eddy; George F. Henderson, K.C., for J. R. Booth and Fort Francis; Mr. H. A. Stewart, K.C., Brockville, for the Crown; Mr. W. N. Tilley, K.C., The Canadian Newspapers Publishers Association; Col. J. B. McLean, Editor of the Financial Post also attended the inquiry.

The inquiry continued from our report in the last issue is as folows:—

Wednesday's Session.

The second day's sitting of the Commission on Wednesday last was of considerably more interest and importance than on the opening day. The outstanding features of the combined morning and afternoon sessions were: John R. Booth's statement that newsprint could not be profitably produced for less than three cents a pound. The ruling out of Mr. Tilley's questions in connection with the operations of the Canadian Export Company, The stand of Mr. Pringle that he would not be influenced a bit by what methods Canadian paper manufacturers took to supply their U. S. customers or what prices they were receiving, and the announcement that Mr. Geoffrey Clarkson, auditor of Toronto had been appointed by Commissioner and would go over the books of the various paper manufacturers and report thereon. Mr. Clarkson is empowered to call upon anyone whom he thinks or believes can give any assistance in determining the cost of production of newsprint.

Mr. P. B. Wilson, vice-president of the Spanish River Company, continuing his uncompleted testimony, presented a report on actual cost that he was asked to make for the benefit of Mr. Pringle. It was based on the figures of the Lake Superior Mill. It showed actual cost of newsprint to be $37.53 per ton to which were added other charges, interest, administration charges and stumpage, which brought the total up to $49 32. Stumpage was figured at two dollars per cord.

Mr. Wilson told of recently having purchased some pulp wood in the Superior district at slightly over one dollar per cord. The company took fire and sinkage risks. The question of purchasing pulp wood in the open market was raised. Mr. Pringle viewing a question that had caused dispute for two days between opposing counsel said that if pulpwood areas were capitalized, by companies, and their timber used in the production of paper, that this was a waste of capital and, should rightly enter into the proportion of production cost. George F. Henderson said the Booth and Eddy interests both owning large tracts of pulpwood limits had recently found it cheaper to buy pulpwood in the open market than take it off their limits. Mr. Tilley, K.C. argued that the pulpwood growing limits unless they were owned outright should not be capitalized and thus their original cost, should only enter into the cost of production and that capital thus capitalized should not enter into the cost.

Mr. Wilson said the cost of manufacturing sulphite at the Superior mill was $18 per ton, and there was $12.50 worth of sulphite in a ton of newsprint.

George R. Gray woods-manager for Spanish River said he had paid settlers $12 per cord for pulpwood

and considered this in view of the scarcity of labor cheaper than the company undertaking its own pulpwood producting operations. He estimated that from one third to one half of the pulpwood used by the Spanish River Co. last year had been purchased in the market.

The J. R. Booth firm was next called upon to verify its answers contained in the report to the Commission. Mr. H. I. Thomas, purchasing agent for J. R. Booth said John R. Booth was doing business as an individual and not as a Comany, and there was no bonded indebtedness. In the years 1914-15-16 the average output of newsprint paper from the Booth Mill was 37,000 tons. To March 30th, 1917, the amount produced was 9,895 tons. In the three years the selling price had ranged from thirty-nine to forty-one odd dollars. This year it was $50 F.O.B. the mill. The export price in 1916 was $46.50. This year $61.86. Ninety per cent of the open output was now being exported.

The profit per ton in 1914 was rolls, $1.75, sheets, $10.24 and a combination of both $2.45. In 1915 there was a loss on rolls of $3.40, sheets $7.87 with a combination of both $3.92. Mr. Thomas said it was a very bad year with the Booth plant, mainly as it tried to keep up 'color', in its production. Last year there was a loss on rolls of $9.38 per ton, a profit of 91 cents on sheets, with a combination loss on both of $7.70. A large number of unexpired contracts was responsible for the situation in 1916. To March 31st this year a loss of $6.16 per ton in rolls, a profit of $14.50 on the sheets with a combination profit of $3.54. In 1914 six thousand cords of woodpulp was purchased at $20.54 f.o.b. Ottawa. In 1915, 6.540 cords at $18.54. Pulpwood was bought because of low water conditions. This year the Booth interests consider it cheaper to buy pulpwood in the market than take it from their limits. Reservation of supply was not the fundamental reason. Last year between one third and one half of the pulp logs used by the Booth people were bought in the market. On an approximate consumption they used about 75,000 cords, some of which was bought in the Eastern Townships at $15 per cord. Delivered on the cars it cost about $19 per cord. The two principal elements of getting out the pulpwood from the limits were labor and supplies. The first estimated at 60% the operations, the latter at 40%. The cost of labor Mr. Thomas said has already doubled and the cost of supplies had not only doubled but they were very hard to get. He quoted an instance of beans which he had once bought at $2 per bushel. They now cost over $7. Pork once selling at $15 per barrel now cost $50 per barrel in 100 barrel lots. "You can't get your pulpwood out without having pork and beans", said Mr. Henderson, K.C., and every manufacturer enjoyed a laugh. Mr. Thomas said no company making newsprint today could continue to operate without a ten per cent profit on their product, and newsprint could not be profitably manufactured and sold under three cents per pound. In cross examination witness said Mr. J. R. Booth who was seated beside him had observed the government regulation as to price, and announced that the Lumber King was now paying his proportionate share of the retroactive profit, which was due the newsprint manufacturer who supplied more than twenty per cent of his product to the Canadian Trade. In cross examination witness said the cost of production was based on ground-wood at $25 per ton and sulphite at $50.

Asked by the Commissioner and Mr. Tilley to approximately detail the ingredients going into a ton of Booth pulp and estimate their costs together with the cost of production Mr. Thomas gave the following figures.

2 Cords of pulpwood at $19.00.....	$38.00
300 lbs. of sulphur at $45 a ton.. . .	6.75
200 lbs. of lime....	.75
Conversion—Labor, fuel, repairs, etc.	10.00
	$55.50

The profit of selling to the American trade at $61.86 F.O.B. the mill was about $5 per ton. He figured J. R. Booth was making five or six per cent at this price. The product is marketed by two principal selling agencies in the United States who guarantee accounts and get a three per cent commission. This was added to the cost of production as was two per cent for depreciation.

Mr. Pringle then called upon Mr. J. R. Booth to give him his honest opinion as to what price the newspaper publishers should pay per pound, taking into account all charges of cost of manufacture and allowing the manufacturer a fair profit.

"I think the manufacturer should have three cents a pound for newsprint paper today. Such is my honest opinion" replied the aged Lumber king.

Mr. H. Biermans of the Belgo-Canadian Mills followed, and told of losing money by selling at $46.83 per ton on long term contracts. He related how a few days ago he had been offered $80 per ton for 1,000 tons per month to the end of the year from a firm in Buenos Ayres. He refused it. Sulphite he reckoned was worth $50 per ton. Groundwood $35. Labor increased 10 per cent after May 1st 1917 and fuel he said 47%. Ten thousand tons of coal he said he had recently contracted for at $10.50 per ton. Formerly he paid $4.15 per ton. His mill uses 15,000 tons per year, though well supplied with water power. Reviewing his cost of manufacture of a ton of newsprint his total was $49,069, or about ninety three cents below the set price.

Interesting Contracts.

At this point of the investigation some of the most interesting evidence came out when Mr. Biermans told of signing a contract for the supply of sulphite at $45 per ton until two months after the signing of a peace declaration between the warring powers. The other party to the contract is the News Pulp and Paper Company of St. Raymond, Quebec, which had a previous contract at $36. per ton which expires July 1st, 1917. Another contract told of was that of a big American paper who offered three cents per pound regardless of any action that the Federal Trade Commission would take. It was refused by the Belgo-Canadian mills.

The most interesting of all was a new contract with Sir Hugh Graham for the supply of newsprint paper for the Montreal Star for 3.000 tons per year at $2.50 per pound, the contract to run until two months after the signing of peace. "Sir Hugh Graham must think the war will last a long time" remarked Mr. Pringle.

"I am absolutely sure that Sir Hugh Graham will come to me in October or November and offer me more" placidly replied Mr. Biermans, he knows what it costs to make paper. I have been doing business with him for ten years."

Mr. Tilley persisted in asking about the Canadian Export Sales Co. Mr. Pringle said he was not going to inquire into what methods the Canadian manu-

facturers used to export their product or the price they received for it. His function he said was to find the the cost of production of newsprint and seeing that the Canadian publishers had their needs supplied. Mr. Tilley persisted in pressing his claim to find out about the operations of the Export Co. Mr. Pringle after some warm argument of counsel denied Mr. Tilley the right to question witness further about the Canadian Export Co.

Mr. F. J. Campbell of the Canada Paper Company said the figures he had submitted were based on actual cost plus overhead expense. His plant manufactured groundwood and bought sulphite. In 1916 he got pulpwood for $7 and $8 per cord. This year he offered $12 but was asked $14. He purchased sulphite up to a certain amount on contract at $50 per ton. Above his contracted amount he paid $110 per ton. The Canada Mills made a slight profit in 1915. Last year they had been operating with some profit, their export sales helping to balance the rising cost of materials. These mills manufactured newsprint last year at $42.39 per ton. So far this year figuring groundwood at $25 per ton it cost $58.85.

THURSDAY SESSION.

Thursday was marked by the withdrawal of Mr. W. N. Tilley, K.C. from the inquiry. The probe continued without him, and the Canadian Newspaper Publishers Association ceased to be a party to the investigation. The withdrawal of Mr. Tilley came as the result of a ruling from which there is no appeal from Commissioner Pringle that matters pertaining to combine among newsprint manufacturers was not pertinent to the inquiry, nor was the investigation for the purpose of probing the selling methods employed by Canadian newsprint manufacturers who sold their product abroad. Neither was it the function of the inquiry Mr. Pringle said to have testimony recorded which might affect persons indicted on charges in another country. The two and a half per cent per pound price was introduced by the Government as a war measure, and his commission by Order-in-Council was to see that the newspapers of Canada were supplied with newsprint at a fair price, and the manufacturer given a fair and reasonable return upon his product. The cost of producing newsprint was of utmost importance to the Commissioner.

In the opening of his examination Mr. Bothwell told of purchasing pulpwood in the rough at $15 per cord, and of trying to get wood from the Brompton limits last winter, but was only able to get sixty five per cent of requirements owing to the scarcity of labor. The relative prices of sulphite were gone into for a period of three years. All of the product manufactured was exported, among the contracts being the supplying of two American papers, both of which were paying three cents per pound f.o.b. the mill. Mr. Bothwell denied to the best of his knowledge that the Canadian Pulp and Paper Association, or the Newsprint Manufacturers set or controlled prices of newsprint. The majority of the figures contained in Brompton report were not brought out in open court. The statement of the Donnacona Paper Co. was presented by Mr. George McKee, and was filed after Mr. McKee had been questioned thereon.

Mr. George Cahoon Jr. of the Laurentide Co. followed and was questioned on a few figures in the Laurentide return. Questioned as to sulphite he predicted a 100 per cent increase and the production of 1.100 tons per day in Canada before the end of the year, due to several mills installing digesters as the Scandinavian market was practically closed. He believed that sulphite would be sold cheaper than at the present market price before the end of the year.

Dealing with the export situation Mr. Cahoon said that the Laurentide Company had two contracts with Becker and Co., Eng. for fifty tons per day. One of the contracts was at a price of $100 per ton and the other $94.00. In the United States the product brought between $80 and $90 per ton.

The selling prices of newsprint manufactured by the Laurentide Co. in the United States last year was testified to be about $40 per ton. This year the company is getting three cents per pound. The cost of manufacture was quoted to be $56.

Mr. W. Powell representing the News Pulp and Paper Co. of St. Raymond, Que. estimated the cost of producing newsprint at his mill at $46.95 and that labor had advanced twenty per cent within a year and coal increased $3.40 per ton. There was no profit in manufacturing newsprint at this price. On April 1st a 12½% increase was granted the employees. Two weeks later they demanded more making a total advance of about twenty five per cent. This Company makes about 6,000 tons of groundwood and uses about 7.500 tons. Practically four dollars worth of coal it was estimated was used in the production of one ton of newsprint. One of the most interesting statements brought out from the examination of Mr. Powell was that Sir Hugh Graham was then one of the chief officers of the Company. The company supplies its newsprint at the low figure before quoted to the Montreal Star and the Montreal Herald.

J. A. McCarthy representing Price Bros. said they used about 90,000 cords of wood per year, but were only able to get 70,000 cords out, buying the remainder in the open market. United States sales of sulphite brought from $65.65 to $90 f.o.b. the mill. This company is also supplying Hamilton and London, Ont. publications at two cents per pound under old contracts which soon expire.

Mr. George H. Millen president and general manager of the E. B. Eddy company was the concluding witness of the investigation.

The company began paper making about a quarter of a century ago. They do not export nor are they in any agreement with any other print manufacturer to fix prices. Sulphite which went into their product was estimated at $80 per ton and groundwood at $30. The actual cost of producing a ton of newsprint in 1914 was $39.42, the selling price $38.53; in 1915 $39.-90 and the selling price $38.10. In 1916 the manufacturing price was $38.63. No selling price was quoted. So far this year the cost of production was $45.14. The Eddy Company now buys about 33% of its wood at $12.25 plus freight which brings the cost up to $14.15. Mr. Millen said that on account of the shortage of labor it was quicker and cheaper to buy wood in the market. Labor with the Eddy firm advanced thirty per cent since last fall and last week they had to add another five per cent. Mr. Millen, questioned as to what he thought of the newsprint end of his industry said, "If I had my own way today I would give up making newsprint paper." Sulphite that is not used in newsprint production is being sold by the firm for $107 per ton.

"Is there a fair and reasonable profit at the price you are selling newsprint for today?" asked the Commissioner.

"There is not," replied Mr. Millen.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Making Milk Bottles of Paper. — Paper, Vol. 20 (1917), No. 11, p. 23.—A western inventor has recently perfected a machine that will manufacture paper milk bottles at the rate of 5,000 an hour. A steel core is dipped into a tank of raw pulp and by means of four clamps the pulp is pressed around the core, forming a seamless body. During this operation the bottle revolves three times, the clamps pressing every one-third turn. The bottle then passes through a drier and over a stencil cut which prints on it the name of the dealer, etc. It is then removed from the core by a steel hand and deposited on a belt conveyor which delivers it to a machine which crimps on the bottom and top. The bottle is next given a paraffin bath and automatically packed in dust-proof cartons. One ton of pulp will produce 60,000 containers.—E.K.M.

The Filtration of Air. — Paper-Maker and Brit. Paper Trade J., Vol. 53 (1917), No. 4, p. 313.—Buildings equipped with mechanical ventilating plants are usually situated in cities or industrial centres where the atmosphere contains much dirt and other foreign matter, which owing to the numerous air changes is drawn into the building in larger quantities than in the case of natural ventilation. There are two general classes of air filters (1) dry, (2) wet. The dry takes up more room and there is a risk of fire due to spontaneous combustion. In the wet type of filter the air is thoroughly washed by passing the air current through a chamber filled with very fine dust, which causes the bulk of the solid matter suspended in the air to be precipitated down into the tank at the base of the machine. The air next encounters a battery of scrubber plates, on which any dust or dirt remaining in the air is deposited and then passes on to a series of eliminator plates by means of which it is buffeted from side to side, depositing during this process any free moisture upon the eliminators and leaving the washer in a thoroughly clean and cooled state with no trace of free moisture—E.K.M.

Effects of Moisture Introduced Into the Digester in Cooking of Soda Pulp. S. D. Wells, J. Ind. Eng. Chem. 8.601-2 (1916).—Whereas variation of steam pressure, initial concentration, amount of NaOH used, or duration of cooking caused no variation in the amount of bleach required to bleach aspen soda pulp to a standard white, for any given yield of pulp, variation in the amount of condensation within the digester had a pronounced effect; high condensation was favorable to the quality and bleaching properties of the pulp. The initially strong cooking liquor penetrates the chips sufficiently to effect their reduction, but dilution of the liquor by condensation reduces its concentration to a point where NaOH is but feebly absorbed by the cellulose formed, which accordingly remains unattacked.

Reducing Matter Extractable From Filter Paper. R. S. McBride and J. A. Scherrer. U. S. Bureau Standards. The Journal of the American Chemical Society. **39**, 928 (May, 1917). Some substance from filter paper reduces permanganate solution.—A. D. C.

Paper and Cellulose Yarns, K. Suvern. Kunststoffe 6, 200-2, 285-9 (1916).——A review and discussion, with cuts, of patents (mechanical appliances).—F. W. S., in Chemical Abstracts.

The Chemistry of Wood.—1. Methods and results of analysis of some American Species; 2, Discussion of methods and results. A W. Schorger. The J. of Ind. and Eng. Chem., Vol. 9, pages 555-566 (June, 1917). **General Composition of Wood.**—Wood belongs to the class of lignocellulose of which jute probably represents the purest form. Lignocellulose is generally considered to consist of cellulose chemically combined with lignin. There are also present in wood hemicelluloses, resins, gums, tannins, carbohydrates, dyes, ethereal oils, etc. **Lignins.**—These are carbohydrates derivatives containing methyl, methoxy, formyl, and acetyl groups and therefore have a higher carbon content than cellulose or the hemicelluloses. Lignin is partially soluble in water under pressure, readily soluble to a greater or less extent in dilute acids and alkalies, and is more readily attacked by oxidizing agents than cellulose. Isolated lignin has the properties of an acid and the term lignic acid is frequently applied. Characteristic of lignin is the occurrence of methoxy groups the estimation of which has been suggested as a means of determination of lignification. **Hemicelluloses.**—Schulze defines these as carbohydrates insoluble in water, but soluble in dilute acids and alkalies. The principal hemicelluloses are the pentesans whose empyrical formula is ($C_5H_8O_4$) taken n times of which the most widely distributed member is xylan or "wood gum" which hydrolyzes to give zylose. The determination of pentosans in wood by means of the furfural reaction is of doubtful accuracy. **Cellulose.**—Green's formula may be applied to cotton cellulose, but scarcely to wood cellulose. But a trace of furfural is obtained from cotton cellulose, while 6 to 17 per cent. is obtained from wood according to the species under the same conditions. This has been explained by Cross and Bevan by giving to wood cellulose an oxycellulose structure although this explanation has been rejected by some. But although cotton is doubtless the typical cellulose of the group (whose empyrical formula is $C_6H_{10}O_5$ taken n times) it is not reasonable to expect cotton to be the only cellulose in nature. It is probable that wood celluloses should be looked upon as definite compounds of hexosans with varying amounts of pentosans. The conifers appear to contain more cellulose than the hard woods. The author carried out the various tests suggested by the above general discussion on seven American woods; Longleaf pine, Douglas fir, Western Larch, White Spruce, Basswood, Yellow Birch, and Sugar Maple. The results are tabulated and the methods used are described and discussed in considerable detail. The paper cannot be adequately abstracted, and in any case those interested would prefer to read it in the original.—A. D. C.

Recovery products of black liquor. Alfred H. White and John R. Rue. Paper **19,** No. 23, 56-54 (1917). — Laboratory and mill tests show that concentrated black liquor from the soda pulp process can be destructively distilled to yield 6.9 gal. of MeOH and MeCO per cord of the original wood. There is no difference in yields between a hard wood such as beech and a soft wood like bass. Very little change in the equipment of the present recovery process is necessary, and loss of soda up the stack is eliminated. The net gain from a by-product plant is estimated at $1.86 per cord of wood cooked.—R. B. R., in Chem. Abstracts.

UNITED STATES NOTES

Special to Pulp and Paper Magazine, by R. W. Jolly.

Some interest was shown, during the week, in the meetings of the National Association of Waste Material Dealers which were held at the Hotel Astor, New York. The gathering of the Paper Stock division was of particular importance because the Trade Customs, submitted by the committee which had met with the committee from the Felt Manufacturers' Association, were read and also because of the fact that members of the Felt Manufacturers' Association were present at the meeting. Only a few minor changes were suggested, so they were unanimously adopted. The meeting also authorized the chairman of the Paper Stock division to appoint, at his discretion, a committee of five to co-operate with the Council of National Defense, in regard to matters in connection with the paper stock industry. Another matter taken up was a proposed classification for cotton rags. A tentative classification was read, a copy of which will be sent to all the members and this matter will come up for final consideration at the September meeting.

Announcement has been made that the 3rd National Exposition of the Chemical Industries is to be held at the Grand Central Palace, during the week of September 24. At the past two expositions, the paper trade has been well represented by various booths, together with conventions held by the Technical Association of the American Paper and Pulp Association. It is understood that the paper program at the coming exposition will be the equal, if it does not surpass any of its predecessors.

It is said that the American Writing Paper Company is about to put into execution several of the big plans it has been contemplating for some time in the past. The manufacture of light specialty papers was considered shortly after the war. As a matter of fact, something was done in the way of experimenting. Now, however, it is understood the work is to be conducted in a large scale, meaning a big expenditure. Additions will also be made to the book paper equipment, for the manufacture of phthalic acid and phtalicular class of paper about 35 tons a day, it is stated.

Announcement has been made by the Department of Agriculture of a new process, perfected on a laboratory scale by the Bureau of Chemistry, of the department, for the manufacture if phthalic acid and phthalic anhydride. This information is contained in a letter sent by Secretary of Agriculture Houston, to manufacturers of dyes and concerns interested.

According to an authority, the total amounts spent in advertising, in printed form, is about $650,000,000 a year. This includes both the United States and Canada. Newspaper advertising is estimated at about $375,000,000, of which $75,000,000 is said to come from national advertising. Magazine advertising, omitting mail order magazines, is estimated at $45,000,000 to $60,000,000. Various estimates give other items as follows: circulars, booklets and form letters, $100,000,000, farm and mail advertising, $75,000; department stores, $65,000,000; novelty, $25,000,000; bill posting, $25,000,000; electrical and painted signs, $25,000,000; street cars, $10,000,000; house organs, $7,000,000; theater programs and miscellaneous, $10,000,000; **trade and technical periodicals, $45,000,000.** The estimate also says that there are 25,000 publications, with an aggregate circulation of about 165,000,000.

According to a report, the plant of the Union Bag & Paper Company at Cheboygan, Mich., is shut down for two or three weeks for repairs and renovations. The plant has operated steadily for the past 15 years and the repairs contemplated are necessary to get it back into its proper shape.

It was made known that the York Haven Paper Co., at York Haven, Pa., is about to do considerable work in the way of getting its plant improved. An extension of the sidings, the erection of new buildings, an addition to the power plant and other items of some importance to the general welfare of the establishment.

William Randolph Hearst may soon substantiate the repeatedly and widely circulated rumors that he was to buy a paper mill. A rumor now current in various ports of the country is that he is negotiating for the Tidewater Paper Mill. This rumor is surrounded by certain facts that make it fairly safe to say that such a deal is under way and that it will be consummated by the sale of the mill to the Hearst interests.

It is known that the mill has just closed one of the most prosperous years in its history, and for this reason it is quite reasonable to expect that Mr. Hearst will be obliged to pay a record price for the property.

Mr. Hearst publishes three daily newspapers in New York and the proximity of the Tidewater mill to his enormous press room makes it an especially attractive proposition.

"CHEMIST-ANALYST" WANTS AN ARTICLE.

The Chemist-Analyst, published by J. T. Baker Chemical Co., Phillipsburg, N.J., want for their next issue an article on the Analysis of Paper, Paper Pulp and other Wood Products. They prefer short, original articles, about 700 words, and pay at the rate of about one cent a word. The article should be submitted within the next two months.

SAY NOTHING BUT SAW WOOD FOR THE EMPIRE.

For the past six weeks an active recruiting campaign has been conducted along the northern shore of New Brunswick, among practical lumbermen, with the view of filling the ranks of No. 2 Company, New Brunswick Forestry Unit.

Sergt. J. Pocklington, a war veteran of four hot engagements, is the chief speaker at these recruiting meetings, and his forceful remarks have had the effect of drawing a large number of young men to "quit the log," and don the khaki.

The towns already visited with marked success have been Bathurst, Carequet, Jacquet River, Campbellton and Petit-Rocher.

When this Forestry Unit is completed, Major C. Lionel Mannington will lead them to the north of Scotland, to cut down lumber to provide railway sleepers for France. Practical lumber men are heartily invited to come along and "cut roads to victory."

PULP AND PAPER NEWS

I. H. Weldon, President of the Provincial Paper Mills Co., Toronto, is on a business trip to Port Arthur, Winnipeg and other points in the West.

F. A. Ritchie of Ritchie and Ramsay, coated paper manufacturers, Toronto, is spending a few weeks with his family at Lake Couchiching, Orillia.

Alex. Buntin, of Buntin, Reid Co., wholesale paper dealers, Toronto, and family are spending a vacation at Kamouraska, Que.

F. R. Thorne of the paper sales department of Price Bros. and Co., Quebec, spent a few days in Toronto recently calling upon the trade.

Mrs. Bain, wife of Donald Bain, vice president of Bain and Cubitt, wholesale stationers, Toronto, passed away last week after an illness of some months. She is survived by her husband and three daughters.

A number of the wholesale stationery and paper houses in Toronto are closing at five o'clock every evening except Saturday and at twelve o'clock on Saturdays during the summer months.

Good progress is being made on the plant of the Mattagami Pulp and Paper Co. at Smooth Rock Falls, Ont. and it is expected that the first of the three large digesters will be put in use about the middle of July. The other two will be in operation in August.

Several improvements have been recently carried out at the plant of the Interlake Tissue Mills, Merritton, Ont. A new sizing system has been installed with large concrete storage tank, mixing and emulsifying vats, pumps and forcing chamber. An auto call system has been put in the building, and a new self recording tachometer on the Fourdrinier machine. A modern save-all system will be installed in the near future.

Charles V. Syrett, manager of the Victoria Paper and Twine Co., Toronto, has returned after attending the annual meeting of the Canadian Manufacturers' Association in Winnipeg.

The many friends of Thomas Gain, sales manager of the Don Valley Paper Mills, Toronto, will be pleased to learn that he is gradually recovering but will not be able to resume his duties for several weeks. F. L. Ratcliff, of the Ratcliff Paper Co., Toronto, who has been ill a month, is convalescing.

It is understood that the preliminaries in connection with the organization of a Paper Jobbers' Association are going on quietly and that progress has been made. The men behind the move are working industriously on the project but so far have not details to give out.

Joseph G. Mayo, of Toronto, formerly Assistant General Manager of the Mattagami Pulp and Paper Co., who are erecting and completing their sulphite plant at Smooth Rock Falls, Ont., has rejoined the company in his former capacity.

The Brompton Pulp and Paper Co., must pay Pierre Plante of D'Israeli, Que., $200 with interest and costs, for flood damage to his land on Lake Garthby, caused by the dam of the company.

The Great Lakes Pulp and Paper Co., is the name of the new concern which is being formed by J. J. Carrick, M.P., who some months ago was awarded the Pic River pulp wood concession in the Thunder Bay district. The new organization will have authority to issue six million dollar, six per cent, first mortgage, gold bonds, of which four will be issued at the present time, and will have twelve million dollars common stock. The site of the new plant will be on Thunder Bay just east of Port Arthur on land owned by Mr. Carrick. The company will erect a two hundred ton news print mill and will have a ground wood and sulphite pulp plant of three hundred and fifty tons. The company has the right to cut pulp wood on both the Black Sturgeon river and the Pic River concessions, which cover approximately twenty-four hundred square miles. Power has been contracted for with the Hydro-Electric Commission at fifteen dollars per horse power for 20,000 horse power annually. Among those associated with Mr. Carrick are: Lieut.-Col. Hogarth, of Port Arthur, Ryckman, Denison and Foster, Toronto, and Birmingham and Seaman of New York and Chicago, and others. The latter firm will manage the mill and sell the output. The Pic River Concession is 138 miles from Port Arthur and the Black Sturgeon River concession is 75 miles. The wood will be towed on Lake Superior to Port Arthur. The stumpage fees will be on the average about $1.10 per cord. With driving and towing, it is estimated that the cost of pulp wood laid down at Port Arthur will be eight dollars and a half per cord. It is stated that the limits of the Great Lakes Pulp and Paper Co. contain three million cords of spruce and two million three hundred thousand cords of balsam and poplar. Hardy S. Ferguson, of New York, is the engineer of the company. The land owned by Mr. Carrick just below Port Arthur, on which the mills will be erected, consists of 4,400 acres of which 800 are in water lots.

Installation of the plant of the Pacific Mills at Ocean Falls was begun about 12 months ago, but it is only within the last few days that the first unit has been put in operation. The mill is now turning out 75 tons of news print daily. By the end of the present year a second unit with a capacity of 120 tons of paper is expected to be in operation, and the daily production will then reach 195 tons.

Although England, Canada and France hold contracts which assure them adequate supply of American spruce for airplane construction purposes, United States faces shortage of this material so acute that a new and rapid method of drying must be devised to substitute for the old and slow method of air drying if aircraft industry is to accomplish this year construction of 3,500 airplanes called for by government's aircraft plans. It requires from 1,000 to 3,000 feet of spruce to construct single airplane.

Another cut in white paper supply, ranging from 11 to 44½%, faces German newspapers.

Lieut.-Col. Sir William Price, of Price Bros. & Co., who raised the 171st Battalion, with which he went overseas in November last, returned home on Saturday, after spending seven months in Europe.

After being used for seventy-five years as a piling ground, the Ottawa Board of Control has decided that Mr. J. R. Booth must remove his lumber from a yard at the northern end of Bronson Ave., to permit the opening of a street to the Ottawa River. The order will tend to inconvenience Mr. Booth particularily at this time when his export channels for his lumber market to England are closed and he needs all of his piling ground space for storage purposes. It may not be necessary to take any immediate action.

Campbell, Wilson and Strathdee, Limited have opened an exclusive paper department carrying all lines of wrappings and stationery, which they are distributing through eight branches in Western Canada, namely: Winnipeg, Regina, Saskatoon, Swift Current, Lethbridge, Calgary, Edmonton and Red Deer. Mr. P. G. Chambers, who has charge of the paper department, was formerly with the Ratcliff Co., Toronto.

Captain T. E. Ryder has just received his promotion from the grade of Lieutenant. He has also been awarded the Military Cross, and on more than one occasion has been mentioned in the despatches. Capt. Ryder is the manager of the St. John House of the Canadian Fairbanks-Morse Co., Limited, on leave of absence at the front. He was, previous to the war, an officer in the St. John Battery. When the war broke out he immediately enlisted for active service, and was attached to the Ammunition Column, Heavy Battery.

THE FOOD CONTROLLER.

The appointment of Mr. W. J. Hanna, Minister without portfolio in the Ontario Cabinet, recently appointed "food" controller, is an appointment that will very likely prove to be of much benefit to the paper and lumber trade, in face of the evidence given at the news probe inquiry last week concerning the big increase in the price of food supplies for the woods. During the inquiry it was repeatedly stated by representatives of some of the biggest paper making mills in the country and wood users, that they had found it cheaper to buy pulp wood in the open market, and pay around $12 or more per cord for it delivered at the mill than send men into the wood to cut it from their limits. The main reason for this being so was on account of the cost of labor and the greatly increased cost of supplies, the latter being sent down as being about forty per cent. of the cost of the pulp wood cutting operations. Beans, for instance, have increased in price from two to seven dollars per bushel, and pork has run from around $15 to $50 per barrel. If the food controller can bring down the prices of these essential commodities of the lumber camps, the manufacturers of paper will very likely attempt to get wood from their own limits, and a greater supply of pulpwood will be available.

The regulations which the food controller may make are of the following character:

1st.—Governing the price of any article of food, and the storage, sale and delivery thereof.

2nd.—Providing for the conservation of food and the prevention of waste thereof and governing the consumption of food in hotels, restaurants, cafes, private houses, clubs and other places.

3rd—The manufacture, storage, preparation and transportation of food.

4th.—To purchase, sell, store, requisition and deliver food.

The lumberman or pulp wood cutter should be very much affected by such regulations, except for clause three, which virtually relates to the transportation of foodstuffs to England. If the ordinary supplies are available at reduced prices, the owners of pulp wood limits it would appear, could profitably cut their logs and get them down to the mill (allowing a ten per cent. loss in transportation) as against buying them at the prevailing market figures.

THOROLD ITEMS.

The Kinleith Paper Mills at St. Catharines have only had one machine in operation for the past few weeks, owing to the construction of new floors and other repairs. They expect, however, to be running full capacity this week.

The finishing touches are being made at the new sulphite mill of the Lincoln Paper Co. at Merritton, and they expect to start up within the next two weeks.

Mr. Howell, of the Howell Litho Co., Hamilton, and a party of his friends, paid a visit to the Montrose Division of the Provincial Paper Mills Co. at Thorold last week.

A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, was in Thorold during the week, conferring with F. M. H. Cushing, secretary of the Provincial Paper Mill branch, who is making strenuous efforts to assist Mr. Costigane in making the coming convention a big success.

An unfortunate accident occurred at the Montrose Division of the Provincial Paper Mills, Thorold, when Con. Stanley, machine tender, while stretching the second felt, got caught in one of the felt rolls, which wound his arm around, breaking it above the elbow.

Accident Proves Fatal.

Wassila Filip, a Roumanian employed at the Beaver Board Works, Thorold, sustained injuries Saturday which caused his death about two hours later.

He was engaged watching the pulp wood elevator and was working alone. The other workmen noticed the elevator stop and heard Filip scream, so immediately went to his assistance. He was found fast in the machine, caught by one limb and his back. It is not known if he was taken sick and fell, or was caught in the elevator. Dr. Publow was called about 9.30, and did all in his power, but the unfortunate man expired about eleven o'clock.

Coroner Herod deemed an inquest necessary, so last night the coroner's jury viewed the remains and adjourned until Tuesday evening at 8.30. In the meantime a post mortem examination will be held by Dr. Publow.

REPORT OF THE DIRECTOR OF FORESTRY.

In his 95-page report of the Forestry Branch for 1916, Director R. H. Campbell covers the present conditions of Canadian forests and forest products, reforestation, fires and their prevention, forest surveys and the Forest Products Laboratories. Several reports of divisions are included. Mention is made of the work done by the staff of the Forest Products Laboratories on waste sulphite liquors, beating, blotting paper, baling pulp wood chips and chemistry of wood and pulp.

JAMES WHALEN ORGANIZES NEW $13,000,000 PULP AND PAPER CONCERN IN BRITISH COLUMBIA.

A very important bringing together under one name and control of three pulp and paper companies of British Columbia is under way, the outcome to be the organization and formation of a new company named the Whalen Pulp and Paper Company, Limited, headed as President by Mr. James Whalen of Port Arthur, who is the sole organizer. The combined capital of the new company, including bonds and stocks, will mount up to $13,602,500. The new company will take over and will acquire the entire capital of these properties, says Toronto Saturday Night.

British Columbia Sulphite Fibre Co., Limited, engaged in manufacture of high grade pulp at Mill Creek, B.C., about 32 miles from Vancouver.

Present production, 20.000 tons.

Extension production, 24,000 tons.

Empire Pulp and Paper Mills, Limited, manufacturing sulphite pulp at Swanson Bay, B C., about 110 miles from Prince Rupert.

Present production, 6.000 tons.

Capacity production, 12,000 tons.

Colonial Lumber and Paper Mills, Limited, constructing a mill at Quatsino Sound, B.C., a modern sulphite mill, the present installation of equipment provides for production of 18,000 tons and finished capacity of 36,000 tons.

These mills, with ultimate capacity, are intended to fill the increasing demand of business already established in the United States, Japanese and other export markets, for book, writing and wrapping papers. Each mill is favorably located on tide water, with own wharve sto accommodate large ocean steamers which may conveniently load at all seasons of the year. Mr. Hardy S. Ferguson, of New York, has been retained as consulting engineer for the construction and development of the company's mills and water-powers. These latter are capable of developing a minimum capacity of 25,000 continuous h.p.

The company holds leases and licenses from the Government of B. C., in addition to other timber cutting rights, over an area of approximately 155,000 acres, estimated to contain over six billion feet of timber, sufficient for 30 years operation at double the proposed capacity, practically all located on tide water, which permits of economical logging.

Under present plans the total capital to be authorized and issued will be divided as follows:

6% First Mortgage Bonds	$2,000,000
7% 15 Year Mortgage Deb. Stock	1,500,000
7% Preferred Shares (cumulative from Jan. 1, 1918)	2,102,000
Ordinary shares of $100 each	8,000,000
Total	$13,602,500

The new company will commence business with assets comprising three pulp mills properties, power development and equipment including $1,800,000 cash, for construction, totalling $5,000,000 against $3,500,000 bonds and debenture stock.

The directors are: James Whalen, president, Port Arthur, Ont.; George F. Whalen, Vancouver, B.C.; W. H. Whalen, Vancouver. B.C.; George M. Seaman (president Birmingham & Seaman Co., pulp and paper merchants, Chicago and New York); Frank H. Milham; (president Bryant Paper Co.) Kalamazoo, Mich.; W. D. Ross, director Bank of Nova Scotia; I. W. Killam, Montreal, and M. J. Haney, president Home Bank of Canada.

Mr. James Whalen, the organizer and president of the Whalen Pulp and Paper Company, Limited, is one of Canada's notable business figures. He was born in Collingwood in 1869, and went to Port Arthur with his parents in 1873, where he first engaged in the logging business, later becoming a railroad contractor. He has organized the Canadian Towing and Wrecking Company, Canada West Coast Navigation Company, General Realty Corporation, and he is president of the Port Arthur Shipbuilding Company, besides being behind and connected with other organizations.

NEWSPRINT WILL BE SCARCE.

The following timely comment on the paper situation is sent out by Secretary G. F. Steele to the members of the News-Print Manufacturers' Association:

"Although the number of mills reporting is less than a year ago, the production of the United States and Canadian mills for the month of May averages 57 tons per day higher than in the same month in the year 1916. One observes that the production in the month of May, 1916, was equivalent to 93.1% of maximum productive capacity, while this year it is equivalent to 101.1% of maximum productive capacity.

"Total shipments were larger to th extent of 5,900 tons in May, 1916, than they were in May, 1917. This is largely accounted for by the inability of the exporting mills to obtain vessel space in which to ship export orders, and this shortage has resulted in the piling up of export stocks to a larger extent than has taken place at any time during the past year. The increased stocks of one large exporting company alone are more than the total increase in storage stocks. The situation, therefore, continues to be a strong one, and is likely to continue in this way indefinitely. In ordinary years stocks have accumulated from June 1st to September 1st, and it is possible that there may be some increase in storage stocks this summer against the great Autumn demand, particularly as some mills ordinarily running on other grades of paper are now and have been for some months past turning out considerable quantities of news-print paper. If it were not for the relief furnished by these mills, the present situation would be very much worse.

"Reports in the month of June from various quarters show considerable interference with the operation of mills due to labor troubles, accidents, fires and other contingencies beyond the control of various companies. There is every reason to believe that with the growing shortage of labor, due to the employment of men in the Army, and also due to the shortage of pulp wood and to the overstrained condition of many mills on account of excessive tonnage output for the past two years, we cannot fail to face decreased production from these various causes.

"Water conditions in the eastern part of the United States have been extremely favorable. In fact in some cases operation of mills has been interfered with during the month of June on account of floods. On the other hand, one of the largest operating companies in the west reports shortage of water and lack of rainfall, resulting in reduced pulp output, which may interfere with the successful operation of this property in the very near future.

"It will be observed that production of the reporting mills in the United States is higher in the month

of May, as shown by the percentage of maximum, than for any previous month this year, and 10% higher than it was in the same month last year. Practically the same condition obtains in the Canadian reports."

SIDELIGHTS FROM THE PROBE.

When Mr. W. H. Smith of the Abitibi Power and Paper Co. told the Commissioner that his company was not willing to supply the Western Canadian publishers with newsprint at $2.50 per pound or reimburse the mills that did above the required twenty per cent, a buzz of comment went up from the manufacturer and the "straw" indicated the direction of the breeze, which later showed that the Newspaper publishers were not going to have everything their own way. Wonder how long the "compelling" of Mr. Pringle is going to take?

Mr. P. W. Wilson, vice-president of the Spanish River Pulp and Paper Mills, told the Commissioner "he did not think he would be called on to tell the ancient history of the Superior Paper Company." The Spanish River mills supply about 1 per cent of its product to the Canadian trade.

"Fort Frances is endeavoring to show a loss of seventy-five cents on every hundred pounds of newsprint they supply over their proportion," remarked Mr. Pringle.

John R. Booth, draws a salary stated to be around $10,000 per year, for his taking an interest in the workings of his immense plant at the Chaudiere, and part of it is charged up to cost of production on every ton of newsprint. Very few persons and certainly not the general public knew that Mr. Booth was on the payroll of his own firm. This very interesting sidelight was brought out when Mr. George F. Henderson, K.C., was questioning Mr. H. I. Thomas as to the cost of production of print particularly on the conversion charges. Depreciation, fixed charges, etc., when enumerated and Mr. Thomas added, "a small sum for Mr. Booth's salary for the attention he gives to business." A smile swept round the horseshoe of the Carleton County Council chamber when the information came out. Mr. Tilley thought he smelled a rat in the matter of adding a salary to Mr. Booth to the cost of manufacturing newsprint. Mr. Henderson and Mr. Thomas set his doubts at rest, however, by stating Mr. Booth had received such a salary for the last two or three years, and it was not an artificial item introduced for the purpose of the inquiry.

The E. B. Eddy Company was highly praised by both Crown Counsel and the Commissioner for the excellence of its report to the Commission. The report was the most complete of any submitted by the various mills and all the information requested by the Commission was contained therein and concisely set forth. The Eddy Company was the only firm that was praised for its report. Owing to the excellence of the report and the ready answers of Mr. George H. Millen, president of the Eddy Co., the inquiry into this plant took only about twenty minutes time of the Commissioner.

"If I had my way we would never grow old," runs a popular song hit, and after hearing Mr. George H. Millen, head of the E. B Eddy firm giving evidence at the inquiry one is inclined to suspect that the song writer must have known Mr. Millen. Mr. Millen though well on in years positively refuses to grow "old", and backed by a wealth of experience says, "If I had my own way today, I'd give up making newsprint." The Eddy Company have been making paper for about twenty-five years.

Every courtesy was extended to John R. Booth at the inquiry by Commissioner Pringle. As his hearing is not the best the Commissioner permitted him to take a chair on the witness stand, so that the Lumber King could follow the testimony of Mr. Thomas without difficulty. Mr. Booth's honest opinion was that newsprint could not be manufactured today for less than three cents per pound to give the manufacturer a fair profit.

The importance of the bean family to the production of pulpwood was clearly brought home to Mr. Pringle.

Mr. Tilley, K.C., would not or could not see why pulp wood limits should be capitalized and kept sawing away on this string of inquiry with every new witness. Mr. Pringle differed with him and said that pulpwood cut from limits and used in the production of newsprint was a waste of capital and should rightly be charged into the producing cost. Mr. Tilley was willing to let the cost of pulpwood go in, but he wanted the actual cost—or in other words what it cost the owner of the timber limits years ago with or by his arrangements with the government who granted his timber rights to him. The pulp wood Mr. Tilley maintained should not be charged in at the prevailing market price today as it had not cost the owner of it that price years ago. Rather it should be charged in at its actual cost price. Mr. Montgomery, K.C., however, had a few words of enlightment for Mr. Tilley contending that the paper mill owner of limits had to carry the cost of them from year to year, fire insurance, losses through fire and other causes. He maintained that if the question of the first cost of the pulp wood limits was gone into, charter rights searched, etc., that the inquiry would never get done and it would take about two years. He asserted that the owner of pulp wood limits today had a perfect right to charge for his product at market prices, even though said limits had been acquired years ago at prices less than today's market price. Supporting his contention he said the pulp wood limit owner had carried them through the years at his expense and was entitled to the market value thereof.

Mr. Pringle said that the pulp wood cut on the limits owned by the manufacturers was a waste of capital. "You want me to order the manufacturer to furnish paper to the newspapers of Canada and ask them (manufacturers) to throw in their wood for nothing?" shot back Mr. Pringle to Mr. Tilley.

Mr. Clarkson, the newly appointed auditor of the Commission is empowered to call on anyone whom he believes to have information relating to the manufacturing cost of the newsprint. In face of the ruling of the Commissioner which caused Mr. Tilley to withdraw from the inquiry, it is hardly likely that he will inquire into the selling methods or agencies employed by Canadian paper manufacturers of delve into the operations of the Canadian Export Sales Co., Mead and Co., or Craig and Co.

The audit of the books of all the mills should take about six weeks or two months.

Mr. H. Biermans of the Belgo-Canadian mills caused many broad smiles when he told of his great confidence in Sir Hugh Graham, particularly when he said he felt sure Sir Hugh would reimburse him or give him a higher price for newsprint in the fall months, even though he had a contract at a stated price with him. Mr. Biermans, when he warmed up expressed

himself a lover of the $2.50 price about as much as the rest of the manufacturers did.

The only sorrowful tears that will be shed if the new set price is three cents per pound will be supplied by the publishers. Outraged indignation on the part of the manufacturers will likely express itself in a similiar vein with tears of joy and thanksgiving, for equity.

The paper manufacturer when he found out that his confidential figures supplied to the Commissioner, had gotten around to the publishers and competing mills mentally said, "I would that my tongue could utter the thoughts that arise within me." Alas for the paper manufacturing trade it has not yet got operating figures, profits, production costs, and various sources of revenue, which some of the publishers use or receive. Just to be fair and equitable how would it be if the paper manufacturers insisted that the Government start an investigation in the costs and operation of newspaper plants, such being in the face of raising selling prices and advertising rates, truly "in the public interest?"

The Commissioner made it clear that the inquiry was brought about as a war measure contingency. Judging by the way Mr. Tilley dispensed the Christian charity of the publishers, it might be well for the manufacturers to remember the kindly feeling of the newspapers, when the war is over. Its a poor game that two can not play at, especially when the protection of a war measures act ceases.

Eastern and western publishers appear to hold different views as to the paper manufacturer. In the west they told commissioner Pringle they were willing to allow the manufacturer a fair return of profit. In the east it appears by Mr. Tilley's remarks that pulp wood owned and carried for years should not enter into the cost of production at market prices.

Mr. George Cahoon, Jr., of the Laurentide Co., was one of the principal figures during the three day session. He caused quite a smile when during his examination he referred to Sir Hugh Graham as the "dear friend" of Mr. Biermans.

Just before Mr. Tilley withdrew Mr. George F. Henderson told him to stop bluffing, and asked the publishers counsel, "Are we to have division court methods here?"

Mr. J. A. Bothwell, head of the Brompton Mills evidently took deep satisfaction over the attempts of Mr. Tilley to examine him about the Canadian Export Sales Co. Mr. Bothwell made a foolscap paper telescope and as intervals permitted through argument among counsel viewed Mr. Tilley. Mr. Bothwell was perhaps the most genial man at the inquiry.

One of the characteristic statements of Mr. George Cahoon, Jr., was "We (Laurentide) never sell anything to anyone at cost unless compelled to."

Mr. William Powell of the News Pulp and Paper Company, had to tell that Sir Hugh Graham was one of the directors of the company. Mr. Gordon MacDougall, K.C., brought the information out. The News-Print Section of the Manufacturers' Association was well represented by Mr. Montgomery and Mr. MacDougall, the former did most of the questioning and talking, but what Mr. MacDougall fell short of in this respect, he made up in sizing up the trend of questions and doing a heap of thinking.

Price Bros., utilized 90,000 cords of wood last year and only took 70,000 out themselves buying the remainder in the open market. About six per cent. of their output is sold in Canada, some of which goes to western Ontario publishers at two cents per pound under old contracts.

John F. Orde, K.C., like Mr. Montgomery and Mr. Henderson, did not allow Mr. Tilley any too much leeway beyond the stated latitude.

Mr. H. A. Stewart, K.C., crown counsel, did not take up nearly as much time in his cross-examination of witnesses as Mr. Tilley did. Mr. Stewart questioned very fairly and manufacturer appeared well satisfied with his examinations, and attitude toward them.

The cost of the manufacture of sulphite is to become part of the Newsprint inquiry according to a statement issued this week by Commission, R. A. Pringle, K.C. The Commission resumed sitting on Wednesday when the representative of the Ontario Paper Company and the Fort Francis Paper Co., came up for examination. The procedure followed was the same as at the inquiry last week.

The statement of the Commissioner is as follows:

"The investigation into the manufacture as well as prices and supplies of newsprint paper with the Dominion of Canada will proceed on June 27th notwithstanding the withdrawal of Mr. Tilley, K.C., representing the newspapers. The investigation will not only include the actual cost of manufacture of newsprint paper, but also the cost of sulphite largely used by smaller manufacturers of newsprint.

"Prominent accountants have been retained by the Commissioner and will make a thorough investigation into the actual cost of manufacture of newsprint as well as the manufacture of ground wood pulp and sulphite.

"The Commissioner will not be deterred from his purpose in getting at the actual cost of newsprint. Some of the manufacturers have put forward statements based on an arbitrary price for ground wood pulp and sulphite. The price of both ground wood and sulphite is much lower than the price that can be obtained for the same in the open market. At the same time the Commissioner while receiving these statements has compelled the manufacturers to furnish statements of the actual cost of ground wood and sulphite. This phase of the inquiry will probably be gone into in more detail when the Commissioner deals with the cost of other classes of paper as many of the mills manufacturing the other classes of paper do not manufacture any of their ground wood or sulphite and are entirely dependent upon the pulp mills."

From the evidence that came out on Thursday some of the manufactures gave the actual cost of sulphite at approximately $50. They are now getting from $90 to $100 in the open market for the same.

PUBLISHERS BACK SOUND PAPER CO.

The Sound Paper Company mill at Seattle, Wash., which has the backing of the newspaper publishers, is now under construction.

The plan of the builders of this mill is to have the publishers guarantee the mill owners $10 per ton profit for a period of fifteen years. It is known that more than 400 tons of the product of this mill has been contracted for. According to men who are in close relationship to this mill, more than enough news print has been contracted for to keep the mill running steadily when it is completed.

Mr. McIntyre's estimate of production cost include 1,800 lbs. of groundwood at $11.84 per ton and 400 lbs. of sulphite at $19.11 per ton.

The Markets

TORONTO, June 25th.

These are trying times in the paper trade with Governement investigations, threatened federal control, increased taxation of profits, conscription, irregular deliveries of raw material, the shortage of coal, increased freight rates dearth of pulp wood and scarcity of available help. It requires courage and optimism to keep things on the move nowadays and no one can accurately predict the future. Jobbers are holding back and large consumers of paper are not rushing into the market. Business on the whole is spotty and there are many plants outside of news print mills, which could take aboard more than has been coming for the past few weeks.

One thing is noticeable and that is three or four large undertakings in the pulp and paper line which, it was expected, would go ahead and erect mills, have either given up their plans for the present or are simply marking time. It is felt by shrewd members of the trade that, with the obstacles in the way already referred to, and the tightness and uncertainty of the security market, no large proposition can easily be carried out at the present time.

"It is like this," remarked one leading mill manager this week, "If one could see ahead it would be all right. Let us take the question of labor alone. It is well known that the majority of skilled hands in large plants are from the other side of the line. All the American young men have had to register and if they should be called home to fight, think how acute the labor problem, already serious would become. The new freight rates will hit us hard and supplies are so uncertain that the run on machines has to be changed oftener. This all means added expense. Wages are going up all the while and we have to put up with inefficiency and indolence at the present time, which would not be tolerated a moment in a normal period. The only thing is to do the best we can and not cross a bridge until we come to it."

At the recent sitting of the Methodist Conference in Toronto Rev. D. W. Snider, assistant secretary of the Lord's Day Alliance, said that the Canadian Press Association had about a year ago discussed a plan of amending the Sunday Observance Act and allowing paper mills to run continuously for seven days a week in order to increase the supply of news print. The plan had been discountenaced by the Lord's Day Alliance and subsequent events showed that there was no need at any time for the proposal.

The result of the resumption of the newsprint investigation at Ottawa and the evidence given there needs no extended reference at the present time as the proceedings have been fully reported in the daily papers, There will not likely be anything fresh in the news print game until after August 1st, to which date Commissioner Pringle has decided that Canadian mills will have to go on supplying print paper at two and a half cents per pound. Jeffrey Clarkson, chartered accountant of Toronto, will in the meantime, examine the statements put in by each manufacturer and verify them by going through the books of the companies. Just what the outcome of the investigation will be it is impossible to tell, but paper maunfacturers are of the opinion that, withdrawing from the inquiry, the newspaper publishers have not strengthened their case. In an ordinary court, when one of the parties in an action steps aside because it is impossible to get all that party wants, it usually betokens weakness, prejudice or selfishness. The news paper publishers wanted to go altogether too far and, when Mr. Pringle refused to delve into the operations of campanies engaged in the export of paper, on the ground that he had not the power to investigate operations of Canadian firms doing business across the line, the publishers threw up the sponge and walked out.

In a recent address in Victoria, B.C., James White, assistant chairman of the Canadian Commission of Conservation, spoke of the pulp wood resources of British Columbia, which were in the neighborhood of 250,000,000 cords. The situation was, however, serious throughout the country and especially in the East. Where the extent of the pulp wood had been grossly over-estimated. Cruisers in Eastern Canada and the United States have reported that there was enough material to last fifty years. Later investigation had proved that about thirteen or fourteen years would be nearer the limit. The result is that eastern North America now looks to the West for its supply of pulp wood. With the East facing exhaustion, British Columbia's pulp making woods are destined to meet a large part of the continental requirements. If regulated, the forests of British Columbia could continue to give six million cords per year for an almost indefinite period.

Business with jobbing houses is a little quiet at the present time and no change is expected for a few weeks. Trade is, however, ahead of last year at this period and prices remain unchanged. All dealers look for higher figures in the fall. Board mills and paper box factories are not rushed, the latter being operated to only part capacity. Printing plants also are not active.

There is no change in the sulphite market, and as for ground wood, the prevailing quotations are from forty to forty-one at Ontario mills, in limited quantities. Manufacturers are not worrying about the future as they feel that with the scarcity of pulp wood, which will be keenly felt about the end of August, values will be enhanced. The Dominion Conservation Commission in a recent bulletin, called attention to the fact that recruiting for th forestry and other battalions was taking many woodsmen out of the country and, during the past season, the cut had been very much below the average. It is pointed out that, with the scarcity and increased cost of pulp wood, every effort should be made, on the part of the public to assist matters by saving waste paper, and that in one day in Winnipeg, five and a half tons were turned over to the Red Cross Society. Through the use of collecting boxes in Ottawa the Daughters of the Empire are securing thirty-five tons per month.

According to recent advises, Newfoundland may

now export pulp wood to the United States. The wood was intended for shipment to England and France, but because of the shortage of ships, its transfer to those countries has been impossible.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) in less than carload lots	$2.75
*News (rolls) at mill, in carload lots	$2.50
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Easy bleaching sulphite	$95.00 to $100.00
Sulphite, news grade	$80.00 to $85.00
Sulphite (bleached)	$130.00 to $135.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

The prices on white paper are purely nominal and very little is moving. There is some life apparent in old papers and news, and it looks as if they might go



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to be absolutely clean

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is purest, strongest and highest free rosin size made.

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is the best soluble paper makers' rosin size made. Ready to use in cold or warm water.

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Our sizings are cleaned by our new patented process and we guarantee this size to be absolutely clean, without the least speck of impurity in the same, preventing thereby black specks in the paper.

We are shipping our size in barrels or tank-cars.

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OF CANADA, LIMITED

FREEMAN P.O., ONT.

NORTH MILWAUKEE, WIS., U.S.A. STONEHAM, MASS., U.S.A

up again. Cotton rags are still quiet, but there is a better demand for roofing stock.

No. 1 hard white shavings	$4.10
No. 1 soft white shavings	$3.00
Mixed shavings	70c
White blanks	$1.80
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.05
No. 1 book stock	95c
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.20
Folded news	60c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	45c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.70
Tailor rags	$1.70

NEW YORK MARKETS.

NEW YORK, N.Y., June 23, 1917.

While there seems to be an optimistic feeling, firmly upholding a certain standard business in the trade, the general tendency of activities at Washington during the week caused much hesitancy in what would have been a fairly satisfactory market. There seems to be considerable clamor about government control of different resources. Nothing definite is implied and for that reason many industries among which the paper industry is included, are acting slowly waiting for what might be called the "shut down." It was understood, early this week, that the government had decided to take over the coal supplies in such a way as to best serve all concerned.

One of the most interesting events of the week was the news that representatives of South American and Australian publishers had just arrived in this country to purchase about 100,000 tons of newsprint paper for consumption in their own countries. There must have been some truth to the news for it was treated seriously and, for a while, seemed as if it would reflect against some of the markets in rather dangerous shape. Wires from Washington, last night, were to the effect that the seriousness of the situation, with these foreign buyers was recognized by members of the American Newspaper Publishers' Association who were gathered there for the purpose of discussing questions of momentary importance. The members of the association went on record as supporting the export control act, providing for the prohibition of exportation of newsprint. This, of course, was merely a demonstration considered timely, in view of the facts just stated. Other things brought out by the meeting was that they asserted that Canada's high excess profits tax on newsprint mills had been adding discouragement to the production of that commodity and threatens to create a new shortage.

In ground wood, the firm condition of the market remains undisturbed. It is generally felt that a good demand will be current for some time to come and that prices will remain at about the present, or higher levels. That is, however, if government action does not interfere and change matters altogether. It is commonly known that the chief item in the manufacture of newsprint is ground wood pulp. With ground wood pulp selling at very high figures, it would evidently be impossible to get newsprint down to the much talked of 2½c per pound. On the other hand, as we have at one time pointed out, it would be necessary to fix prices on the supplies of pulpwood in order to put a check on the ground wood pulp. No provision of this sort was made in the recommendations of the Federal Trade Commission, nor does it seem likely, from the wording of this body's report that it understands the situation thoroughly. It is generally felt that, at this time when the government is professing a desire to aid business in every way possible, and at this time when the production of ground wood should be at its highest, that federal officials are not acting with discretion. No matter how acute the situation may have been considered up to this time, the belief is that "the worst" has not yet been seen. Just now,, the draft hangs like a sword over the door of each concern. Until it is over, none of them will know his exact status—and, therefore, until it is over, none dares to look ahead too far. One large concern in the city was notified that it might lose 75 per cent of its young men (the largest part of its organization).

Chemical pulps remain firm, with activities still lagging. This market has felt more keenly than ground wood, the suggestion of federal control, for it is generally known that the government idea of prices is far under those now considered current in the trade. It is true that, if the government were to succeed in gaining the co-operation of the Canadians, it would have the paper industry at "its thumb." There is no doubt that the uncertainty of the present situation is a big factor in keeping the market from progressing. The producer fears to go ahead "as usual," while the consumer does not care to put in large stocks, when, he calculates, the government may succeed in getting the price down within a short time. Foreign pulps, of course, have reached the stage, where they are not considered in reckoning the future—that is, by those who are well acquainted with conditions. Everyone is pretty well reconciled to acknowledge that we cannot expect supplies from abroad. It is true that there have ben some who have been waiting for the usual spring arrivals from the Baltic Sea. These have either changed their viewpoint, or they are still waiting.

Better feeling is reported in the rag market. Roofing stock seems to be the centre of the greatest activity, while, the rag men say, the general prospects are much brighter than they have been in some time. It is still maintained that when it comes to the "show down," the mills will realize that they have been erring in the belief that stocks are in abundance. Latest reports are that the spring collections this year were far from reaching the quantities that have been recorded in past years. It is generally upon these that the market depends for the next few months. Of course, there are accumulations in the hands of dealers in different parts of the country, but these are not sufficient to stand much more than a medium "strain."

Bagging has shown more activity during the past week. Dealers claim this market is destined to enjoy

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WOOD PULP

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interest for some time. From the way the buying is going on now, it is evident that the mills have been doing their best to keep out of the market as long as possible. Gunny is quoted at 3½ cents to 3¾ cents; bright bagging, at 3 cents to 3¼ cents; sound bagging, at 2½ cents to 2¾ cents; mixed bagging, at 2 cents to 2¼ cents. Manila rope is active, and it is said its prospects are that it will continue so for some time. Prices range at about 6¼ cents to 6½ cents.

An improved market in waste papers was reported. Dealers say they find interest more active than it has been, but declare it is still lacking much that it ought to have. Confidence is apparent that conditions will continue to better and the predictions are that, because of many inevitable things, the quotations must go higher. The low grades continue in greatest demand, because of the great amount of reclaiming for ground wood that is going on at the present time. Strictly over-issue is quoted at about 1¼ cents, strictly folded, at about ½ cent to ¾ cents; mixed papers are going at about a little less than ½ cent. Hard white shavings are in fair demand, selling at a range of 4¼ cents to 4¾ cents; soft white shavings, at 3 cents to 3¼ cents; magazine stock, at about ½ cent; ledger stock at about 3 cents to a little more than 3¼ cents. Old kraft papers continue at 3 cents to 3½ cents.

On the whole, the trade is still somewhat disappointed in the paper market. Confidence had been expressed some time ago, that things would be in an active state by this stage of the game, but it is evident that the many things that have been coming up from time to time have altered the aspects of things at each turn that was made, so that predictions were of no account. Newsprint, we have already described. Wrappings of practically all grades are going fairly well, with prices being maintained. Tissues are said to have gained a little in strength. Shading of prices is reported in boards. It is evident that consumption has taken a slump and that the manufacturers are doing their utmost to keep things moving.

New York Quotations.

(These are a nominal range of prices):

Ground wood f.o.b. mill	$42.50 to $47.50*
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	7c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5c*
Domestic unbleached sulphite, f.o.b. pulp mill	4½c*
Kraft, pulp, f.o.b., pulp mill	6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c*
Bleached soda pulp, f.o.b. pulp mill	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	6c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6½c*
Bond papers, sulphite	11c*
Best grade writings	20c*
Regular superfine	19c*
Ledgers papers	11½c†
News, contracts, f.o.b. mill	$3.00 to $4.25
News, spot lots	$3.50 to $5.00
News, side runs	4c*
Book, super	8½c*
Book, coated	8c*
Tissues, good sulphite, bleached, per ream	$1.20*
Tissue, ground wood, manila, per ream	$1.25*
Kraft	8½c*
Wood manilas	7c*
Jute manilas	10c*
News board, per ton, f.o.b. New York	$50.00*
Strawboard, per ton, f.o.b. New York	$50.00*
Chip board, per ton, f.o.b. New York	$45.00*

(*)—And higher. (†)—And way up.

Rowland W. Jolly.

CANADIAN CHEMICAL MARKET.

MONTREAL, June 26th.

The last week has seen several changes in the market for paper makers' chemicals. Bleaching powder is easier, due to overproduction. Caustic soda, 76% has advanced during the past week and is quoted at prices ranging from 6¼ to 7¼ cents. Casein also shows an advance costing now from 30 to 40 cents. Brimstone is quoted nominally at $35 per long ton at the mines, but transportation difficulties make New York quotations almost unobtainable.

Alum, ammonia lb.	5½c @ 6½c
Alum, potash, lb.	7½@8c
Blanc, fixe-paste, lb.	4c @ 4½c
Blanc, fixe-powder, lb.	5c @ 5½c
Bleaching powder, lb.	4⅞c @ 5¼c
Brimstone, f.o.b. mines, long ton	$35.00
Casein, lb.	30c @ 40c
Caustic soda, 76 per cent., lb.	6¼c @ 7¼c
China clay, imported, ton	$30.00 @ $40.00
China clay, Canadian, No. 1 white, ton	$20.00
China clay, Canadian, No. 2 white, ton	$15.00
China clay, Canadian, No. 3 white, ton	$12.00
Lime, ton	$7.25 @ $8.00
Sal soda, bags, 100 lbs.	$1.25 @ $1.30
Sal soda, barrels, 100 lbs.	$1.35 @ $1,40
Salt cake, 100 lbs.	85c @ $1.00
Soda ash, lb.	3c @ 3½c
Starch, pearl, in bags, lb.	6½c @ 7c
Sulphate alumina, technical, lb.	3½c @ 4c
Sulphate alumina, iron free, lb.	5c @ 5½c
Talc, American, ton	$13.00 @ $18.00

GERMANS CLAD IN PAPER.

London, June 21.—Germany's facilities for clothing her armies are fast disappearing. A careful examination of the clothing worn by German prisoners reveals an appalling shortage of materials for the manufacture of cloth. Most German uniforms are now woven of various fibres, which prove useless in heavy weather. Water soaks through them, they shrink and crumble, and fall easily into disrepair.

Under their uniforms the Germans wear even more atrocious imitation clothes of pulp paper, and the people in the German towns long ago saw the last of good cloth materials and became resigned to imitations. The white shirts which are displayed for sale in Berlin shops look like good linen, but one trip to the laundry brings a quick revelation. If anything at all comes back from the laundry, it is merely a soggy mass of paper.

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BOILERS

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Two 400-H.P. Cross Compound, Corliss Engines, direct connected to Swedish General Electric Generators, 3-phase, 60-cycle, 550 volts, 100 R.P.M., with exciters and switchboards.

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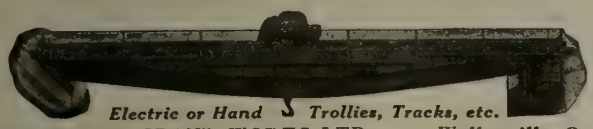
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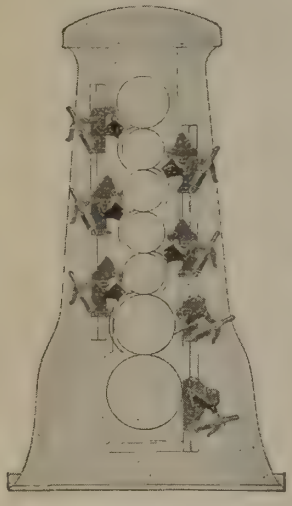
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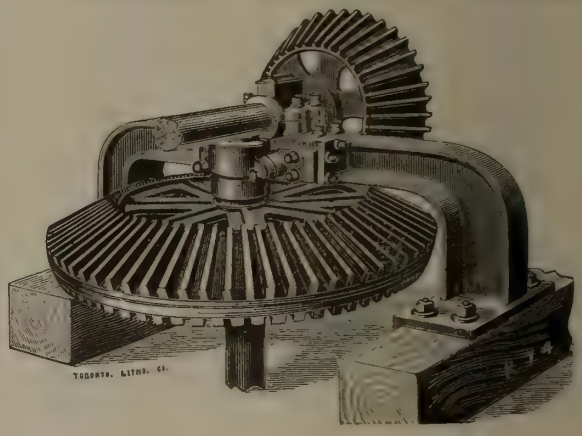
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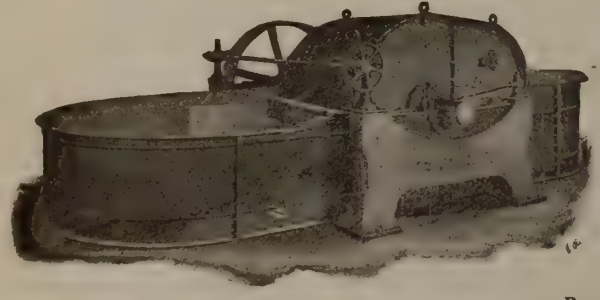
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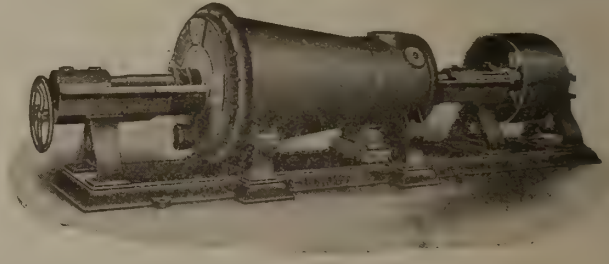
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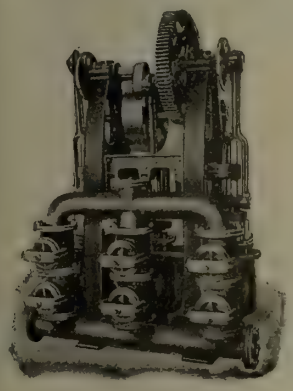
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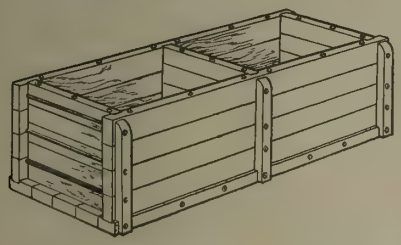
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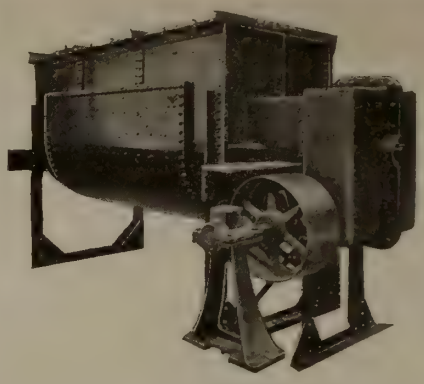
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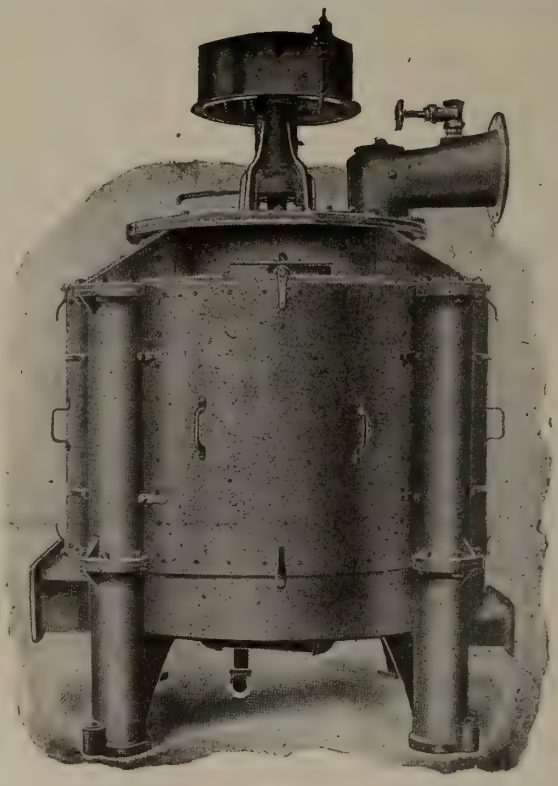
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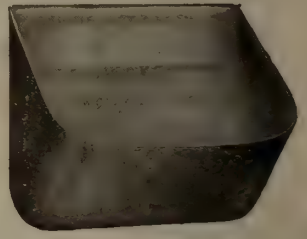
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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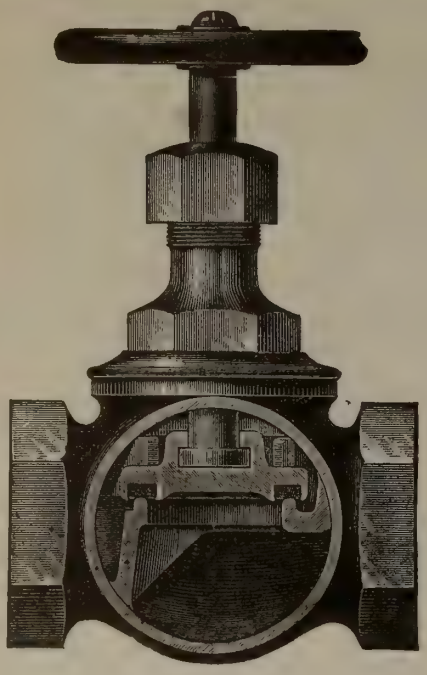
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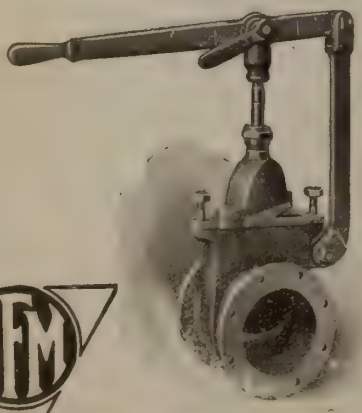
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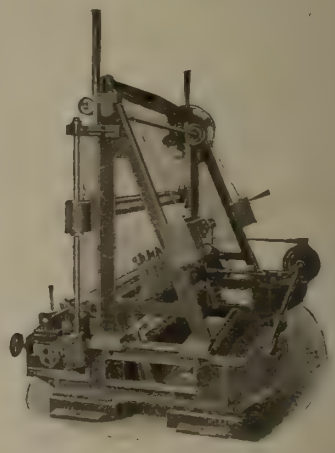
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

CANADA'S CENTENNIAL.

Probably no one who is to-day in the paper business in Canada was in it fifty years ago, certainly not in Canada. Some who are in it now may still be connected with paper making at Canada's "centennial." We hope so, anyway.

Much has been read and said during the past week about the progress the Dominion has made in the past fifty years. No one will deny that this progress has been remarkable and no one has aught but intense admiration for those who have achieved marked success and gratitude for those who, though their names are not known, yet by their valiant efforts have made possible for us the Canada of to-day.

What will the next fifty years bring? In what direction will be the growth that shall be the text for the sermons and speeches of Canada's centennial celebration? The growth in the last half century has been largely in material things. Canada has grown rapidly in a physical sense. Railroads, agriculture, manufactures, trade, wealth and population have developed. People are beginning to wonder if there is any limit to material prosperity.

That there may be such a limit is suggested by the growth of other ideas and ideals. To-day sees the English speaking peoples of the whole world united on a platform of individual freedom combined with individual responsibility, while fifty years ago saw our neighbors just recovering from a split on one of these principles. Democracy is no longer an experiment. It was an experiment, but it has supported the theory on which it was based.

Other experiments are now being performed by the people. They will demonstrate whether or not certain theories are sound. Some of the experiments will appear to fail, because the apparatus is too crude and awkward or too delicate and unsuited to the strain of use. Some experiments will appear to succeed because of skillful manipulation, but will not work when turned over to the ordinary conductor. What are these theories and experiments?

The laboratory is already set for some of them, such as education. The theory is old and experiments under certain conditions have been successful. Under others there have been failures. The experiments must go on. The conditions of labor in industry; hours, sanitation, accident prevention, pensions, workmen's compensation, never had so much attention. Profit sharing experiments are being carried out. Working hours have been decreased till the next question will be, not "Does he get what he earns?" but "Does he earn what he gets?"

The double standard of morality is in the balance. The old saying that "Business is business," must be sung to a new tune. These are only a few of the ideas that are to be demonstrated. They will be worked out by experiment. The big problems ahead are physical, economic, social and the last will be the greatest. Their successful solution lies in a sound and sensible application of the principles of Christianity, as truly as the cooking of sulphite involves the principles of chemistry.

A PAPER MILL "SNIPPING BEE."

In many ways the paper mills have aided Red Cross, Y.M.C.A., Liberty Loan, and other worthy movements, mostly in a financial way. But for novelty and effective helpfulness we heartily commend the bit recently done by the B. D. Rising Paper Co., of Honsatonic, Mass.

It happens that the wife of one of the officials is an officer in the Red Cross. The ladies at their Snipping Bees had been laboriously cutting up new ite rags to make absorbent pads for use in the hospitals. Somebody had the happy thought that this work could be done by machinery in the mill. The company loaned their auto truck, the driver gave his time, several men in the mill volunteered to run the machines. The result was that in an hour or two the men had cut up more rags than the ladies could have done in as many weeks, leaving their time and energies for other work. It was, of course, necessary that the rag cutter be very thoroughly cleaned first, but there was plenty of bleach to disinfect with.

The mill expects to go a step further, and render available by bleaching them, rags that would not otherwise be suitable. There are many mills in Canada and the United States that could render a similar service to the Red Cross of their town or neighboring city. Mention it to Mrs. Reader when you get home. Every little bit helps.

WHICH IS WHICH?

Should the pulp that goes into a ton of paper be charged at what it costs or at what it is worth? Perhaps the work in the hands of Mr. Clarkson, auditor for Commissioner Pringle, will throw some light on this question. Several papers have pointed out a case where a loss of $10.45 became a profit of $7.37 per ton of paper by using actual cost of production instead of an arbitrary value in figuring the amount to be charged to pulp. The statement of the witness was that the difference between the loss and the profit was the difference between making his own pulp and buying it. From other statements made at the inquiry it is very doubtful if he could have bought pulp at the arbitrary figures used in his calculations. Even these arbitrary figures did not allow the minimum profit that should accrue to the pulp maker, and would have allowed none to the paper mill.

The fact that the paper maker referred to gave two sets of figures, furnishes two points of interest. It shows that he has an idea as to what his pulp costs (which is quite an accomplishment these days) and that another man who is forced to sell at a price that would just let him get by, would sell at a loss. It further shows that he is not making anything on his paper mill, but is simply running that for the convenience of his customers. In calculating the cost of production where certain factors have been so uncertain as in the newsprint business there is an advantage in using an arbitrary figure if it fairly represents the average condition.

The report of the auditor will show how closely the figures presented at the inquiry represent actual manufacturing costs. The opinion of a man of Mr. Clarkson's ability will be of value to the manufacturers if he "lets them in" on his methods of arriving at conclusions—which the investigators for the Federal Trade Commission evidently did not do. We strongly condemn the airing of the private business affairs of a concern for the benefit of a few disgruntled customers. The findings of Mr. Clarkson should not be bawled out from the house-tops as to what this mill pays for oil or how much clay another mill uses per ton of paper, but each mill has every right to know in detail, just what steps the auditor takes in regard to its business. His job will not be an easy one. It will not be a simple problem in a mill with hardly the semblance of system to determine the cost of production when one of our best organized mills can not tell from day to day the amount of pulp produced per cord of wood. This is a fundamental factor in manufacturing paper, yet not easy to obtain, and not constant either. An arbitrary figure is used oftentimes to cover such cases.

We venture to suggest that some of the auditor's deductions will necessarily be founded on arbitrary figures. The paper makers, with their usual courtesy and fairness, will give Mr. Clarkson all the assistance they can; he is not to blame for the investigation, any more than a policeman who is ordered to search a house as a result of somebody's too vivid imagination. The house of the paper industry is clean, let it be opened for inspection, without hint or attempt at concealment, that it may officially be pronounced "as described."

The Safety First Convention at Thorold and vicinity was a great success, especially in the promise it gives of the possibilities in such meetings. Gatherings of this kind are both an incentive and a reminder, an inspiration to make conditions ever safer and better, and a reminder that the work is worth while.

And now the Senate is going to jump on the Trade Commission. Wonder who will jump on the people who incited the publishers to induce Congress to sic the Commission on the manufacturers who were begging the pulp makers for pulp that they didn't have because the — well it goes back to the coal that didn't come from the mine and wood that is still growing in the forest.

The newsprint probe will be reduced to pulp next week when Commissioner Pringle has the sulphite, groundwood and other pulp makers "on the carpet." They will have a chance to exhibit the three graces of today's business man—cheerfulness, hopefulness and truthfulness.

HELPING THE LITTLE BELGIANS.

The Committee of the "Oeuvre de la Santé de l'Enfance Belge" in Holland, moved by the alarming and ever increasing mortality among the little Children in Belgium, have since August, 1916, and with the permission of the German authorities organised the bringing of starved, consumptive, rickety and ailing little ones from Belgium into Holland, where they are cared for, homed, intensively fed, medically attended and clothed for a period averaging six weeks, until they are restored to health. They are then returned to their Parents in Belgium, having gained in weight some 2 to 4 pounds per week.

Unfortunately it is not possible to do more for lack of funds, for there are at the present moment 15,000 or more children waiting in Belgium for their turn to go to Holland, and the number increases weekly and especially since the deportation or slavery.

From the point of humanity the little children of Belgium should come before all in obtaining sympathy and relief, and you need only picture to yourself what you would do, were your child dying of starvation, to decide whether you will assist in this good work.

All donations to be sent to the Belgian Consul-General, Ottawa, (Ont.), (earmarked "Oeuvre de la Santé de l'Enfance Belge.")

What the Technical Section Saw

In the Pulp and Paper Magazine for June 21st there was an account of what the Technical Section did at their summer meeting. This article will give an account of some of the things that were seen, namely, the mills of the Laurentide Company and the Belgo-Canadian Pulp and Paper Co. Next week the plant of the St. Maurice Paper Co., will be described. The first of the following illustrations is from By Water Magazine, the others from the report of the Dominion Water Powers Branch:

LAURENTIDE COMPANY, LIMITED.

(The following description is from the pamphlet handed each visitor as the train approached Grand Mere.)

The mills are located at Grand Mere, P.Q., for the production of groundwood, sulphite, newspaper and cardboard.

The drainage of the St. Maurice River above Grand Mere is about 15,000 square miles.

The storage dam now being built by the Government at La Loutre will give an additional lake storage of about 160 billion cubic feet, in an area of about 300 square miles. After this is in operation, the Government engineers estimate that the minimum flow at Grand Mere will be increased to 15,000 or 18,000 sec. feet.

The new hydraulic development at Grand Mere has raised the level of the head water about 35 feet, and created a pond in front of the dam, extending about 20 miles up the river, and having an area of about 7 square miles.

The gates in the dam are 40 ft. wide in the clear; 20 ft. deep, and designed to vent a flood flow of 200,000 sec. ft., or about 25 per cent. more than the maximum recorded flow. When closed there is hardly a trickle escaping.

The head at Grand Mere averages from 80 to 85 ft.

Each water-wheel will develop about 25,000 h.p., at 85 ft. head, and 120 R.P.M.

Six units are installed, and foundations and head gate work are completed for three additional units.

Current is generated at 6,600 volts (3 phase, 60 cycles), stepped up to 100,000 volts to transmission lines, and stepped down to 600 volts for all Laurentide Company motors, except on pulp grinders.

Electrical Equipment.

Laurentide Company uses at present about 22,000 electrical H.P., the balance of power developed going out over the lines of the Shawinigan Water and Power Company.

All machinery in the mills is driven by motor, with the exception of three heating fans.

Exclusive of grinding motors, the total number of motors in operation is 170, and total motor H.P. is 8,295.

The grinders are driven by 6,600 volt., 2,800 H.P., 240 R.P.M. synchronous motors.

Wood Department.

All wood is floated to the mill and cut into 4 ft. lengths by slashers. Wood with bark on is first passed through the barking drums, then through the wood preparing room, where any necessary portion is hand dressed. Wood with no bark on is sent direct to the mill, or the storage block pile. The winter's supply of wood is all cleaned during the summer months, and conveyed to the pile by a steel suspension cable conveyor.



Laurentide Mills, Grand'Mere.

In the wood preparing room the wood is sorted, that portion for the sulphite mill being dropped to a storage tank in the basement, from which the three chippers are supplied. After screening, the chips are conveyed by an incline belt to the chip loft in the digester house.

Groundwood Department.

Wood for the grinders is stored on the floor above. The magazines are kept continuously filled to the level of this floor.

There are six lines of two grinders each in operation, and one line of two grinders under construction. The stock from the grinders is first screened by means of Voith oscillating sliver screens, and is then pumped to the screen room, where it is further diluted and

screened by horizontal quiller screens. The tailings are re-screened by flat screens, the accepted stock being No. 2 grade; the rejected stock is treated by Howard refiners for use on the board machine.

The groundwood used at this plant is pumped to the deckers situated on top of the slush storage tank on the floor above the beater room. The beaters are charged from this storage tank by gravity.

The surplus groundwood production is taken off in laps and hydraulically pressed for sale.

White Water Systems.—Practically all of the groundwood white water is returned to the grinder room, together with a small surplus from the paper mill. The wash water from the wet machines is passed through a pneumatic save-all.

Sulphite Department.

Acid is prepared by the tower system. Calcium lime stone is used. Cold spring water is pumped to the top of the towers, which finds its way to the acid storage tank, and from there to the digesters entirely by gravity. Each sulphur burner is connected to one tower. The gas passes through a 12'' lead pipe in a tank cooler, where spring water is used.

The stock is washed from the blow pits, into a concrete storage tank holding about 20 dry tons, from which it gravitates to the screen room as required. After being diluted with rewater, it is passed successively through knotter and centrifugal screens. The tailings are screened by flat screens, the rejections from which, together with knots, go to the Howard refiners, where they are mixed with groundwood tailings to make wrapper stock.

All surplus rewater and water from floor and wet machines is sent through pneumatic save-alls.

Paper Department.

Groundwood in slush form and sulphite in laps are mixed in Jones & Horne beaters, and, if necessary, passed through direct connected Jordans to the usual individual chests for each machine.

All the news machines are running between 600 and 620 ft. per minute at the calenders, except one machine, which is running largely on half tone at 500 ft. per minute.

The following is a detailed list of pulp and paper making equipment, giving name of machine, number, type, capacity and description:

Wood Department.

Slashers—2, Ryther & Pringle type.

Barking Drums—5, Continuous type, 14 cords per Bbl.-Hr., 45' x 8', gear drive, trunnion support.

Knife Barkers—4 Green Bay, 2 Waterous.

Block Storage—Suspension Cable conveyor, 100,000 cords, Main span 600 ft. 120 ft. high. Approach span, 475 feet.

Chippers—3, Carthage, 4 knife.

Chip Conveyor—Incline belt, 30'' wide (to digester house).

Groundwood Department.

Grinders—12 Voith magazine, 22 tons daily each, at 55 h.p. per ton, for 4' wood, 235 to 250 R.P.M., 62'' x 54'' stones, 125 to 150 lb. pressure on 2-24'' diameter cylinders. 2 Voith magazine, under construction.

Sliver Screens—3 Voith, 16 ft. oscillating type, 5-16'' and 3-8'' perforations.



Dam, Power House and Part of Mills of Laurentide Company.

Sreens—18 Waterous Quiller, 15 tons each daily. Horizontal Centrifugal, .062 gauge plates, flat for No. 2 stock and tailings. 7 Packer.

Slush Machines—27, own make.

Wet Machines—12 Sandy Hill and Sherbrooke, various sizes.

Hydraulic Presses—2 R. D. Wood, 2 Canadian Boomer & Boschert, 35 tons each daily.

Sulphite Department.

Tower System—10 acid tubes.

Burners—10 Flat, connected to individual towers. 2 Flat, auxiliary.

Digestors—5 Manitowoc, about 10¼ tons, 15' x 45', with 7⅛-in. double brick linings. 1 Manitowoc, 9¾ tons. 14' x 45', with 7½'' double brick linings.

Blow Pits—6 Roundwood, 2 blows, perforated wood and tile bottoms.

BELGO-CANADIAN PULP & PAPER CO.

(This description was very kindly furnished by Mr. John Stadler, assistant manager and chief engineer).

The Belgo-Canadian Pulp & Paper Company Mills are located at Shawinigan Falls, on a narrow strip of land between the St. Maurice River and the Shawinigan River. The difference in level between these two rivers is over 140 feet. The St. Maurice forms a bay before the fall, this affords facilities for storing logs, and on the banks of what may be termed the upper bay is located suitable equipment for handling the log supply for the mill.

On the upper bay is also located a penstock intake, from which the water is taken to produce power for the operation of the mill; the water is then discharged into the Shawinigan River, which forms a natural tail-race.



Belgo-Canadian Pulp and Paper Mills.

Knotters—5 Baker & Shevlin, 35 tons each daily, 1-8'' perforations, copper plates. .....

Screens—9 Waterous Quiller, 20 tons (about), horizontal centrifugal, .055 gauge plates. 12 Packer Flat, for No. 2 tsock and screenings.

Wet Machines—8 Sandy Hill, Sherbrooke & Rogers.

Refiners—3 Howard, Pebble Mills.

Drying Machine—1, 25 tons daily.

Paper Department (News & Cardboard.)

News Machines—6 Pusey & Jones and Bagley & Sewall, 210 tons daily, 1-90'', 1—100'', 1—110'', 1—120'', 2—124''.

Cylinder Machine—I Pusey & Jones, 50 tons daily, 6 cylinders, 120'',

Wood Handling.

The wood is received entirely by water, in a two-unit cutting up mill located on the bank of the upper bay. The logs are out in 24'' lengths, and conveyed down hill to the wood storage yard, located on the bank of the Shawinigan River.

Suspension type conveyors are used for pulp wood storage. For preparing wood, disc barkers are used, and one 8' x 36' barking drum is installed, but at present is not used on account of change of conveyors. The chips for the sulphite mill are produced by two Carthage chippers and screened on rotary screens.

Ground Wood Mill.

There are 24 three pocket grinders set up in units

of two grinders with direct connected hydraulic turbines.

The screening is done by horizontal Quiller screens, of which there are 3 in use, 9 being used as first screens, 3 as re-screens. The tailings from re-screens pass to horizontal shaft disc refiners with lava stones, and from thence to a Quiller screen.

Two grades of groundwood are made. For direct use the stock is passed over 12 feltless wet machines having cylinders 48'' diameter by 96'' long. Pulp not used direct is made in laps on 72'' wet machines, 11 of which are available and in order to reduce moisture, pulp made for shipment is passed through hydraulic presses. A belt conveyor carries wet laps.

Sulphite Mill.

The digester house contains 3 digesters 14 x 45 ft. Blow pits are rectangular, made of concrete with wooden drainer bottoms, and semi-circular wooden tops. The stock is pumped to screen room, where it is passed through 3 cylindrical knot screens, thence over rifflers and thrown over ''Improved'' horizontal centrifugal screens.

Kollergang process is run over a standard 72'' wet machine, and since the company is making news paper only, this kind of sulphite pulp is all shipped.

Paper Mill.

The paper mill has in operation 4 Fourdrinier news machines operating at 600 per minute, at following widths: 2—128'', 1—152'', 1—202''. Three of the machines are steam driven, the other is driven by hydraulic turbine. The stock for the paper machines is prepared in the beater room in 7—2,000 lbs. capacity beating engines.

The beating engines serve as mixers only; no attempt is made to beat the stock which is mostly all received in slush form. The waste paper is ordinarily worked up in a revolving wetting drum and passed through a defibrator, which has proven sufficient. provided the water temperature is kept high enough to soften the paper rapidly.

All the stock for the paper machine whether obtained from slush broke, or lap pulp is passed through Jordans before being delivered to the machine chest.

The paper produced on the machines is wound up on



Gorge Below Shawinigan Falls.

Six screens are used as first screens and two as tailing screens. The tailings from the second screens, together with the knots and sediments from the rifflers, are passed through a kollergang, and thus reduced to wrapper stock.

The kollergang is arranged for a continuous process, in connection with a Quiller screen, the tailings from the screen always returning to the kollergang for further reduction.

The screened stock from first and rescreens is passed over pneumatic thickeners. For direct use the stock coming from the thickeners is passed through concentrators which correct the percentage of moisture, thus supplying sulphite slush to paper mill at 6 per cent. consistency. Surplus sulphite for storage or shipment is run off from a 96-in. wet machine having 3 baby presses and 2 driven presses with lap cutter. The sheets obtained from this press are around 42 per cent. air dry; if dryer sheets are necessary same are obtained by hydraulic presses. The screened stock from the constant speed reels, and the reel thus obtained is transported to the finishing room by means of an electric monorail hoist.

The finishing room contains 6 two drum winders, only one winder is operated for each paper machine, the extra units are kept in reserve to help out in case a winder gets behind, thus avoiding delays, and the making of too many culled rolls.

Whereas the separation of winders from the paper machines is quite common in Europe, this we believe is the first attempt in a North American news mill and since this arrangement has been in use only a comparatively short time comments as to the advantage or disadvantage will preferably be put off.

In the upper story of the finishing room is suitable equipment for making sheet paper, consisting of a rotary cutter with automatic lay-boy; also a baling press for export paper.

Shipping.

Since the main floor of the mill is over 150' lower than the railway siding, all manufactured articles have

to be raised to the shipping shed level, which is done by an inclined railway, on which are operated two large platform trucks.

Steam Plant.

The steam required is produced by water tube boilers. Economizers are used, and the draft is produced by electrically driven fans. Nine boilers are equipped with Murphy stokers for coal firing exclusively, 3 boilers are equipped with underfeed stoker for firing is the first attempt in a North American news mill, with wood refuse and coal, 7 of the boilers have 250 h.p. rating; 5 of the boilers are rated 375 h.p. each. The feed water is supplied to boilers by centrifugal pumps.

The ashes fall into a channel, out of which they are squirted into the river with a 2" stream of water.

Power Equipment.

The principal part of power is supplied by direct connected hydraulic turbines. Twenty turbines are in use, producing over 14,000 h.p. under a head of 140 ft.

Electric power is produced on the premises, and also purchased from outside.

The electric power is applied in 142 motors, in size from ½ to 200 h.p. As far as possible electric motors are direct connected; if this is not possible, silent chain drives are used where conditions permit, and belt drives are used where preceding methods cannot be applied.

Production.

The normal production of the plant is: 150 tons ground wood pulp; 90 tons sulphite pulp, 180 tons news print paper.

The Attendance.

The attendance at this meeting of the Technical Association included: H. P. Carruth, of Holyoke, Mass., president of the Technical Association (American); Thos. J. Keenan, of New York, Editor of "Paper" and Secretary of the Technical Association; Martin L. Griffin, Oxford Paper Co., Rumford, Me.; Thos. L. Savery, Chicago; J. Leslie Sensenbrenner, Kimberly-Clark Co., Neenah, Wis.; J. D. Jenssen, and D. Jenssen, New York; R. B. Roe, A. D. Little, Incorp., Boston;

Carl G. R. Arbo, R. W. Arveson, Alf. Brecke, Stuart L. Burns, P. Byrne, C. E. Carpenter, G. W. Dickson, Gosta Hallberg, John Hedalen, Raymond A. Marsden, Verner A. Strand, C. B. Thorne, Stanley Roy Turner and Sigmund Wang, of Riordon Pulp and Paper Co., Hawkesbury and Merritton, Ont.; R. B. Best and Harold A. Radford, Process Engineers, Ltd., Montreal; John S. Bates, O. L. Bryant, W. B. Campbell, Rex W. Hovey, E. K. Mansfield, B. Johnsen and Horace N. Lee, Forest Products Laboratories, Montreal;

A. O. Bowness, E. B. Eddy Co., Ottawa; C. F. Buss, Provincial Paper Mills, Mille Roches; R. H. Campbell, Dire. of Forestry, Ottawa; A. P. Costigane, Ontario Paper Makers' Safety Assoc., Toronto; David Crabtree, Crabtree Mills. Que.; Dan Daverin, Provincial Mills, Thorold; Edward P. Foley, Foley-Rieger Co., Thorold; Wm. Gorman, Provincial Paper Mills, Montreal; Thos. Ford, Port Neuf, Que.; Enoch Lindbom, St. Lawrence Lumber & Pulp Corp., Chandler, P.Q.; E. R. Low and Timothy H. Nevill, Beaver Board Co., Thorold: K. Nayudu, Forest Service of India;

Wm. F. Norton, Canadian Leatherboard Co., Chambly Basin, P.Q.; Olivier Rolland, The Rolland Paper Co., St. Jerome, P.Q.; J. N. Stephenson, "Pulp and Paper Magazine,' Montreal; J. H. Thickens, Bathurst Lumber Co., Bathurst, N.B.; Charles D. Waters, Price Bros., Ltd., Kenogami, P.Q.;

George Chahoon, Jr., president, Louis Armstrong, J. J. Brennan, C. R. Vande Carr, Jr., Allan A. Lowe, J. O. Mason, A. Richardson, F. A. Sabbaton, E. B. Wardle and Ellwood Wilson, of Laurentide Co., Grand Mere; John Stadler, Belgo-Canadian Co., Shawinigan Falls; F. W. O'Rourke and J. T. O'Reilley, St. Maurice Pulp and Paper Co., and Earl G. Wilen, Wayagamack Pulp and Paper Co., Three Rivers, P. Q.

ECHOS FROM ENGLAND.

Consignments of wood pulp, both sulphite and mechanical, have been arrivng so fast of late that there has been a great difficulty in dealing with the discharge of the cargoes.

During the last two weeks something like 10,000 tons of chemical pulp has arrived at British ports.

The situation, which had become very serious among the mills, has been eased in a most agreeable manner.

It has already affected prices by at least £5 per ton in favour of the paper-maker, though the matter of price is not altogether a barrier, because in most instances the paper-maker can pass the increase on to his customers.

While sulphite changed hands at £55 per ton in the earlier part of last month, £45 to £50 is more like the price to-day.

The feeling of optimism in business circles is a feature that no one can afford to ignore. Even the paper trade has caught the prevailing spirit, and immense efforts are being put forth to be ready to develop trade as soon as the war comes to a close.

Never were British manufacturers and merchants so confident of the future than just now. We, of course, have a fair sprinkling of pessimists, but no one takes them very seriously, even those of their own persuasion.

My peregrinations in various parts of the country have failed to convince me that the restricted output of paper has caused really serious inconvenience in a general way.

I account for this in two ways—firstly, owing to a pretty substantial stock being still held by large users, and secondly, on account of the wholesale cutting down of requirements all round, and reducing superfluous consumption to a minimum.

The Royal Commission on Paper.

His Majesty the King has issued a commission under the Royal Sign Manual in which he declares that it is expedient to xtnd the terms of reference of the Royal Commission on Paper. His Majesty revokes the Royal Warrant which appointed the Commission in February, 1916, and he authorises Sir Henry Birchenough (who becomes chairman in place of Sir Thomas Whittaker), Sir Albert Spicer, Sil Walter Richard Nugent, Sir Frederick Macmillan, Sir Rowland Bailey, Mr. George Brown, Mr. Walter Howard Hazell, Mr. John Jeremiah, Mr. Ernest Parke, Mr. Albert Reed, and Mr. Lewis Evans to be Commissioners for the grant of licenses to import paper.

The Commissioners are given power "to regulate in accordance with orders made under the Defence of the Realm Regulations, the distribution and use of paper and cardboard, manufactures of paper and cardboard, and materials for the manufacture of paper, whether imported from abroad or produced in the United Kingdom."

The powers of visit and inspection which were conferred on the late Commission are continued in the new Commission.

Review of the World's Pulp and Paper Markets

By G. F. STEELE, Secretary, Newsprint Manufacturers' Association.

Pulp and paper markets for the month of May were at a generally higher level, and most trade journals write pessimistically as to future output. Production in Scandinavia is growing more uncertain weekly and the coal shortage has reached a serious state. Freight rates and insurance have risen to an almost prohibitive figure for the shipment of pulp and paper. Production costs have reached a point where business is almost prohibitive, and it is believed that Scandinavia, especially Norway, is systematically curtailing the production of wood-pulp. Toward the end of May the shipping situation brightened and some stocks, especially mechanical wood-pulp from Norway, were cleared. Sweden still forbids the export of chemical pulp to England.

FRANCE

The French newspapers are every month facing more serious difficulties in obtaining supplies of paper. The French Commission in the United States in endeavoring to obtain paper here, but, so far as we know, they have not been successful. In our Digests for the months of February and March we recorded the curtailment of the size of the editions by Governmental order, and it now appears that further restrictions are to be imposed.

The World's Paper Trade Review for June 1, 1917, quotes the following prices of wood pulp c.i.f. Rouen per short ton:

Mechanical Wood Pulp.

Pine, wet	$ 87.54	—	$105.05
Pine, dry	105.05	—	113.80
Aspen, dry, fine dry	105.05	—	113.80

Chemical Wood Pulp.

Sulphite, unbleached, 1st quality	$157.58	to	$175.09
Sulphite, ordinary	140.07	to	157.58
Sulphite, ordinary, 2nd quality	131.32	to	140.07
Sulphite, bleached, superior	330.65	to	350.17
Sulphite, bleached, inferior	297.65	to	315.16
Soda and sulphate, unbleached	192.60	to	210.10
Soda and sulphate, 2nd quality	175.09	to	192.60

DENMARK.

Following the limitation of production of all grades of paper, because of coal shortage, the newspapers have established an office for the joint purchase of foreign news-print paper. If the efforts of this office are successful the newspapers will be able to maintain the present size of their editions. It is expected that the required quantity can be obtained from Sweden or Germany, and the co-operation of the Secretary of State has been requested. "**The Politiken**" is reported in the "**Svensk Pappers. Tidning,**" Stockholm, Sweden, May 15, 1917 (just received) to the effect that the Government has agreed to lower the import duty on news-print paper for the fiscal year 1917-18 from $13.40 to $9.80 per short ton. The exportation of paper from Denmark has been prohibited, dating from March 30, 1917.

SPAIN.

"**The Board of Trade Journal**". London, England, has published a Spanish Royal Order imposing an export prohibition on all paper and board, with the exception of hand made paper, paper cut into sheets for envelopes and writing paper, cardboard cut into boxes and other articles, straw packing paper, and cigarette paper. The export embargo includes paper clippings, waste paper, rags, etc.

ITALY.

In a criticism to the "**Perseveranza**" of the Governmental handling of the paper question, a manufacturer writes as follows:

"For over two months not a pound of cellulose has arrived in Italy; and everything indicates that none will arrive for a long time to come.

"The only actual supplier of cellulose and mechanical pulp on our continent is Scandinavia; and today the only quotations that can be had are F.O.B. shipping point.

"Shipments of chemical wood pulp, contracts made some time ago, are no longer being made from these ports. The few steamers that left before the blockade took refuge in other ports, and all things indicate that they are not willing to continue their journey.

"For this reason, it is impossible for our country to obtain the cellulose now or in the future, no matter what the members of the commission appointed for this study may have to say.

AUSTRALIA AND NEW ZEALAND.

"**The World's Paper Trade Review**", London, England, states that the newspapers in these colonies have increased the price of their papers, the "**Sydney Mail**" going from six to eight cents. The cause of this general increase was the exhaustion of paper stocks purchased at lower market prices and the increased working expenses. Papers in Australia have been put on the non-returnable basis.

GERMANY.

In our Digest of April conditions in the industry, we mentioned the boycotting by the press of Dr. Helfferich's speech, and we give herein the views of "**The Paper-Maker and British Paper Trade Journal**", London, England, May 1, 1917, on the matter:

"The seven or eight leading Berlin newspapers issue a joint public statement indignantly denying the charge of Dr. Helfferich; the Imperial Secretary of the Interior, that they boycotted his recent speech in the Reichstag in order to coerce his Department into increasing the printing paper rations. The journals declare that they simply compelled to curtail long-winded parliament reports because of the limited space with which they must now be content."

RUSSIA.

When war conditions rendered impossible the supply of Russian wood, the wood-pulp and cellulose mills in Sweden and Norway began to suffer a shortage in raw materials, for which reason some concerns were forced to limit their production and exports of wood-pulp. As a matter of fact, the exports of cellulose wood to Norway during last the year have assumed larger proportions. But to a much greater extent than Sweden and Norway, Germany has been using Russian wood for the development of its paper industry.

"In contrast to the Scandinavian countries, Germany

refined the wood-pulp to paper and board and articles made thereof, and then exported the finished articles to the world market.

"Whereas other countries as much as possible restricted the export of raw materials, Russia's exports of pulp-wood increased enormously. In the course of ten years this export has increased more than thirty times; from 23,406 cords in 1903 to 710,938 cords in 1913, while for Finland the corresponding figures are 132,813 for 1903 and 15,625 for 1913.

"In the period between 1900 and 1912, the production of wood-pulp and board in Russia has increased 250 per cent, and that of cellulose 600 per cent. However, considering Russia's enormous wealth in forests, this increase must be said to be small, especially in comparison with the development of this industry in countries like Sweden, Norway, Germany and Canada.

FINLAND.

As a result of the recent political changes in Russia, paper authorities believe that the pulp and paper industries in Finland will shortly enter a new era of prosperity. In order to give our members a view of the conditions on which the industry is based at the present time, we print parts of a review of the development of the industry gathered from a statement by the "Tidskrift for Papirindustri," Christiania, Norway, May 15, 1917, quoting Dr. G. R. Snellman (Helsingfors; Finland). Dr. Snellman does not concern himself with the abnormal conditions obtaining in the past few years:

"The number of laborers employed in the paper industry, including board and paper mills, ground wood-pulp mills and cellulose mills—has since 1885 increased from 2,159 to 11,135 in 1908, which was 8.4 per cent of all industrial workers. The number of women workers was 30 to 35 per cent, minors under 15 years was 0.1 per cent and from 15 to 18 years was 4.7 per cent.

"The production value as averaged per laborer remained at about $772.00.

"The production of mechanical wood-pulp and board has increased in the twenty years preceding 1910 about four and a half times, cellulose about sixteen times and paper about seven times.

"Inasmuch as wood-pulp and paper are among the most important export articles of Finland, it is but natural that the import is very small. The import value of wood-pulp, paper and paper-making materials has increased.

"Some of the raw materials used in the paper production, namely rags and shoddy, are imported in great quantities from Russia, and very little from other countries.

"The exports of the products of the paper industry from the country are wood-pulp, board and paper and manufactures of board and paper. This last group is, however, of relatively little importance, and comprises chiefly wall-papers.

"The export value of these articles altogether was $9,669,300.00 in 1910 and this value was 17.4 percent of the total export value of the country.

At present the wood-pulp and paper exports are second only to the lumber exports.

"Concerning the paper exports to different countries, Russia takes the place of the largest consumer. But the export thereto shows quite a considerable decrease; whereas it formerly was up to 80 per cent of the whole export it has in later years gone down to about 60 per cent. But on the other hand, the export to Germany has increased greatly, and is now 11 per cent of the whole export value.

"The export to Holland and Belgium is not very great, but it seems to remain constant.

"Next to Russia England is the greatest consumer.

"In 1909 and 1910 the exports of the different articles to the different countries were in percentage of quantity thus:

	Wood-pulp 1910 P.C.	Board 1910 P.C.	Paper 1910 P.C.
Russia	15.5	23.5	79.6
England	33.5	39.4	12.5
Germany	13.9	18.7	5.8
Holland and Belgium	11.0	12.8	.....
Other countries	26.1	5.6	2.1

It is to be regretted that these statistics and remarks are not based on more recent conditions, but we will endeavor to obtain subsequent articles.

ENGLAND.

The resumption of steamship traffic with England to more nearly normal proportions has not helped the market but has allowed the Government a little more freedom with the paper industry.

Swedish ships which had been detailed in port have been released and the cargoes have been delivered. War insurance rates, however, have increased. In February there was a shrinkage of 83 per cent in paper making materials compared with the corresponding month of last year.

"The Government has forbidden the establishment of new newspapers. It is stated that over 10,000 tons of paper went to making shells last year.

In regard to the price of news-print paper, "**The World's Paper Trade Review**", May 11, 1917, quotes as follows:

"News paper manufacturers had a conference with the Paper Commission last week in regard to fixed selling prices. With one or two exceptions, the makers work in agreement, being guided by current circumstances in settling upon a monthly figure for their product. For instance, during April the standard price was 8.1 cents per pound, but the voice of the consumer has to be considered, and the Paper Commission tentatively recommended for the month in question 7.1 cents, pending the result of inquiry as to manufacturing costs. The latter question is likely to become more prominent in its relation to "news" prices, as buyers, although they recognize the abnormal conditions which papermakers have to face, are becoming very insistent in placing their own burdens before the official mind. For May, the price quoted for "news" is 9.1 cents. subject, of course, to modifications at a later date if circumstances warrant."

"The newspapers are showing signs of genuine alarm at the increasing shortage of news-print. The "**Daily Express**" treated the subject at length in a recent issue and put down the price of paper at 9.1 cents per pound, while imports for the last month only reached 10 per cent of even the restricted quantity allowed under license. That the situation is decidedly serious for some papers is common knowledge in the trade, while it is also known that other publications have supplies which will take over a few months. In France, where paper conditions are worse than they are here, the Government has arranged with the Press Union to curtail the number of pages from May 5th onwards. We have become accustomed to the four-page sheet in this country, but there are still some pub-

lications which run to six, eight and twelve pages. Further, there are still a number of enterprising papers eager to seize upon the opportunity of publishing a special, as in the event of the "Fall of Lens" (which did not materialise) a week or two ago. The situation would be relieved somewhat if a standard size (reduced) and prices were agreed to for all newspapers, with resources pooled and Governmental guarantees for continuance of publication."

The mechanical wood-pulp situation during the early part of May was very discouraging, but the week ending May 19th showed a betterment in the receipts of both mechanical and chemical pulps, particularly the latter. This may be due to the scarcity of mechanical in Norway owing to the high freights demanded. Freights are quoted by this authority at $30.39—$36.47, but the F.O.B. market has continued fairly normal, although mechanical for prompt delivery is up $9.00 to $12.00 per ton, especially dry stock—to $126.00 — $130.35 for wet and $117.32—$121.66 for dry, adding freights and insurances to the F.O.B. prices.

Prices for chemical pulps, quoted by **"The World's Paper Trade Review"**, London, England, May 25, 1917, are about the same as a month ago, except for a slight rise in easy-bleaching and news-sulphite. These prices are obtained by adding freights and insurances to the F.O.B. prices:

	Per short ton.
Sulphite, Bleached, good quality.	$260.71 — $282.43
Sulphite, Easy Bleaching, 1st quality	243.32 —
Sulphite "News" 1st quality	228.11
Soda, Unbleached, 1st quality	225.94 — 238.98
Soda, Unbleached, Kraft or Strong	208.56 — 217.25

SWEDEN.

According to **"Svensk Pappers Tidning,"** Stockholm, Sweden, April 30, 1917, the Buying Association of Swedish Paper Mills has not yet materialized, owing to the opposition of some of the mills. The question is being kept alive, however, and will undoubtedly be stimulated if the Swedish Paper Mills Association is successful in organizing for the purchase of pulpwood.

There has been little improvement in manufacturing conditions. Coal, oils, sulphur, etc., are very scarce, as well as foodstuffs, and the labor element is restive. Toward the middle and end of the month shipping facilities improved. The great demand for spinning paper in Austria and Germany has helped the paper business greatly, but **"Svensk Pappers Tidning"**, Stockholm, Sweden, states that it appears as though this interest was about to decrease, and that market conditions are no longer as favorable as they were. This authority, in its April 30th issue, states that "newsprint is in demand from Norway, where the coal shortage has greatly limited production."

According to **"Affarsvarlden"**, Stockholm, Sweden, the market for dry mechanical wood-pulp is very strong, owing to the great demand from England, and the prices for prompt delivery are around $51.06 to $53.50 per short ton net F.O.B. The Chemical pulp situation can be described as one of waiting, with prices firm and unaltered at about $89.96 to $91.17 per short ton net F.O.B. Gothenburg, and opportunities for shipment very limited. Sulphate pulp is quoted about $103.33 to $109.41 per short ton net cash F.O.B.

"The World's Paper Trade Review", London, England, June 1, 1917, says: "We hear that there is very little early prospect of the embargo on the exports of chemical pulp to the United Kingdom being lifted."

NORWAY.

According to Einar Sundt, Editor of **"Farmand"**, Christiania, Norway, it is difficult to give very specific data in regard to conditions in Norway. The Norwegian Government has suppressed the publication of export statistics and information in regard to actual coal and shipping conditions. The manufacture, sale and shipment of pulp and paper is so problematical and changes so greatly from week to week, due to unsettled labor and transportation conditions, that the trade journals are loath to quote prices. Freight rates have gone from $5.20 per short ton to $48.60 per short ton.

"The all-absorbing topic of discussion is getting a sufficient quantity of fire wood down to the towns, if the coal situation has not been relieved before the coming Winter.

"Spring is very late this year, and some anxiety is felt as to the effect upon harvest prospects."

"Tidsskrift for Papirindustri," says that almost five million cords of wood will be needed for fuel this Winter, because of the coal shortage, and that this will fall heavily on pulp manufacturers, especially as their plants may be needed as depots for the collection and handling of the wood. 3,250,000 cords of wood is felled annually in Norway. Coal is now costing $51.06 per short ton.

"All Swedish fine paper mills have at a meeting in Stockholm last Thursday decided to raise the prices immediately on account of the enormously increased expenses for raw material. News on reels cannot be had now at less than $133.72 per short ton net F.O.B. Some mills demand more, and only very limited quantities are available."

Norwegian prime strong sulphite is quoted May 15th at $133.72 and easy bleaching at $143.44—$145.87 per short ton net F.O.B., with dry mechanical wood-pulp firm at $49.84—$51.06, and aspen pulp at $70.51—$72,94 per short ton net F.O.B. **"Tidsskrift"** for May 15th quotes wet mechanical wood-pulp around $31.61 —$34.03 per short ton net F.O.B. but states that tonnage is exceedingly difficult to obtain.

The following statement by **"Tidens Tegn"**, one of the largest papers in Norway, throws a sidelight on the conditions prevailing with the newspaper publishing business in that country.

Expenses for news-print paper were: 1914, $50,000.00; 1915, $75,000.00; 1916, $110,000.00 and the estimate for 1917 is $225,000.00 for 2650 short tons.

"The total consumption of news-print in Norway amounts to about 15,000 short tons a year, or about 10 per cent of the whole domestic production.

WASTE PAPER FOR MUNITIONS.

The importance of waste paper for munitions is very great, and it is probable that there will presently be in the shop windows of London, exhibits of Munitions various purposes to which the Ministry of Munitions can put the most unexpected waste. Charger cases can be made of old sweetstuff boxes, an explosive tube can be made from half an envelope or a couple of tram tickets. Other paper articles are cartridge cylinder linings, shell charge containers, various exploder tubes, washers, paper collars for fuses, fuse boxes, smoke boxes, 4'5 howitzer boxes, stokes charge boxes, and Leon torpedo tubes (made of millboard).

Mr. Pringle Probes Papermaker Curtis

(Written Specially for the Pulp & Paper Magazine.)

By EVERETT ANDREW.

Mr. Curtis and Mr. George H. Millen, of the E. B. Eddy Company, were the only witnesses heard at the last session of the newsprint probe last week, as the representatives of the Fort Francis Company did not put in an appearance. The investigation of the sulphite situation was formally announced by Commissioner R. A. Pringle, and the probe adjourned until July 10th. Mr. Geoffrey Clarkson, the auditor appointed by the Commissioner to search the books and records of the paper manufacturers was delayed in beginning his investigation at the Spanish River plant. It was expected at the time of the inquiry that he would begin operations this week.

Though the last session of the probe occupied but half a day, it was crammed full of facts and figures relating to the inner workings of the Ontario Paper Company, which are of much interest to the paper trade generally, as Mr. Curtis touched on nearly every phase concerning the newsprint manufacturer. Mr. Millen again made it plain that the sulphite his plant had sold for $107 per ton was not news sulphite.

Mr. Stuart G. Shepard of Chicago, was the third American lawyer to appear in the Canadian Newsprint probe. He, along with Mr. Anglin, K.C., of Toronto, appearing for the Ontario Paper Company. Mr. H .A. Stewart, K.C., Crown Prosecutor, was present, and Mr. John F. Orde, K.C., represented the E. B. Eddy Company.

John F. Orde, K.C., who represented the E. B. Eddy Company, stated that some misapprehension might have gone abroad from the testimony of Mr. George H. Millen, president of the Company, having given evidence at the last sitting of the probe that sulphite was manufactured for about $45 per ton, and the Eddy Company had sold it for $107.

On being recalled Mr. Millen explained that the sulphite his plant had sold was practically of the highest class, and was not generally used in the manufacture of newsprint. The selling price of newsprint sulphite Mr. Millen testified, was between seventy and eighty dollars per ton, but the Eddy Company was consuming all the news sulphite it made, and did not sell any, though it has had an application from the Provincial mills at Thorold to supply a quantity. "What would be a fair and reasonable profit to the manufacturer per ton?" asked the Commissioner.

"From twenty-five to thirty per cent. of the cost of manufacture, or fifteen dollars per ton, would be a fair profit, I imagine, to the manufacturer," replied Mr. Millen.

Mr. Shepard began his direct examination by having Mr. Curtis tell the condition of the Ontario Paper Company when he (Mr. Curtis) became acquainted with it five years ago.

The Chicago Tribune takes all the product of the Ontario Paper Company, with the exception of some short rolls, which are traded in Canada for larger ones. The trading of these short rolls is the only distribution of newsprint manufactured by the Ontario Paper Company that is circulated in Canada. Mr. Pringle had a communication from a publisher to which the closest paper making mill is at Thorold, who wanted to be supplied with rolls at 52¾, 70 in.,and 35 inches. Mr. Curtis said that his mills did not turn out this size rolls, though it could do so.

Some idea of the vast amount of paper consumed in a big American daily newspaper was given when Mr. Curtis was questioned as to the amount the Tribune consumed. He said it used from one hundred and fifty to one hundred and eighty-four or eighty-five tons per day, for six days per week. A low average of a week's consumption would be a thousand tons per week.

The export prices given by Mr. Curtis for the sale of the product of the Ontario Paper Co. to The Tribune for four years, anl up to March 31st, 1917, are as follows: 1914, $43.50; 1915, $42.44; 1916, $42.20; 1917, $53.62.

The Ontario Paper Company, Mr. Curtis said, had no connection or agreement, with other paper manufacturing companies in Canada, nor was it working in concert with other paper making concerns as regarding the sale price of newpsrint. Asked for a detailed statement as to the profits and losses per net ton since 1914, Mr. Curtis gave the following figures: 1914 and 1915, profits of $6.89 and $5.66; 1916 and 1917, losses of $2.90 and $8.29. The cost of manufacture increased from $32.91 to $58.21 since 1914, to which mill costs and other charges must be added.

Mr. Curtis could not estimate the cost of the production of newsprint for the remaining months of this year. He told of the Ontario Paper Company having about 25,000 cords of pulpwood lying on sidings and at shipping points because of inadequate supply of railway cars, and the lack of labor to load the wood into the cars. In comparison with his coal contracts and cost of 1914 the present price is $3.80 per ton increase. Two coal contracts had been practically repudiated, and the Ontario Paper Company was not getting the amount of coal that it had contracted for. Mr. Curtis said his company had agreed to buy about 15,000 cords from the C. N. Railway at a price delivered at Thorold at $11.90 per cord. After the arrangements had been made some unexpected developments soon cropped up. They (officials of the Canadian Northern), came to us and said they could not get the wood unless we paid a higher price. Last year the Ontario Paper Company cut about 10,000 cords of wood in the region of the Gulf of St. Lawrence, but has been unable to get any of it to Thorold. Some of the wood the Ontario Paper Company uses is purchased from jobbers.

Mr. H. A. Stewart, K.C., Crown Counsel, began his cross-examination. Mr. Curtis admitted that the plant was modern and efficient, and was well situated for the delivery of fuel to it. Regarding the power, Mr. Curtis said that he did not think that the Ontario Paper Company had advantage over other mills in this respect. On the other hand Mr. Curtis told how the Ontario Paper mill at Thorold was at a disadvantage of being situated so as it was difficult to get pulpwood to it. Questioned as to why he added from three to five dollars per ton for special charges, Mr. Curtis said for overhead charges, officers' salaries ,etc. But on further examaintion it was brought out that he was

the only officer of the company receiving salary, and this had already been included in the manufacturing cost. Further questioned by Mr. Stewart as to why this charge should be added, Mr. Curtis said: "Because when you are spending money you don't know if you are ever going to get anything for it or not." This applied particularly to the Ontario Paper Company being unable to get in such a position as to be sure of getting wood from its limits regularly delivered at Thorold in large quantities. It also included interest on borrowed money. Five per cent. depreciation on the plant is allowed annually. No dividends have been declared or paid.

For the last three months the Ontario Paper Company as been making its own sulphite. Before the commencement of European hostilities it got most of it from Sweden and Norway at a cost of about $37.00 per ton delivered at Thorold. The last sulphite that the Ontario Paper Company bought on the market it paid about $95.00 per ton. From the experience gained in the first three months' operations of the manufacture of sulphite at the Ontario Paper mills it was stated that cost of manufacture had been $47.50 per ton. This was allowing about $15 per cord for wood. As to the Rotogravure or Photogravure paper supplied, it cost about $2.50 per ton more than newsprint to manufacture, and The Tribune consumed about forty-five tons of this class of paper per week.

Regarding contracts for pulp wood Mr. Curtis said that his company had one contract for the delivery of 50,000 cords, but that he only expected to get about 20,000 cords of it. The price on this contract was about $14.00. There was another contract made early last fall for the supply of 12.500 cords at a price of about $12.75 per cord. Another contract had been placed with an American concern at $13.90 per cord delivered. By a contract made late last fall with a Quebec concern, offered to supply 3.000 cords of wood at $18 per cord. The best price the Ontario Paper Company could get for pulpwood was $12.50 loaded on the cars in Quebec, which would cost them about $17 per cord at the mill. The average price in the statement to the Commission for pulpwood was $15, per cord.

Mr. Shepard figured out that if the Ontario Paper Company was paying six per cent. interest on $3,000.000, and produced 35.000 tons of newsprint per year, that about $1.75 interest charges would be added per ton to the mill cost of production.

"What would you say would be a fair and reasonable profit for the manufacturer of sulphite?" asked Mr. Pringle.

"From ten to fifteen dollars per ton," was the reply of Mr. Curtis.

"Don't you think that when a Canadian manufacturer charges from ninety to one hundred dollars per ton for sulphite, that he is taking advantage of a war situation, with the Scandinavian market practically closed, and is asking the extreme price for his product?" asked the Commission. Mr. Curtis replied "I do." With a mill maufacturing cost of $58.21 to which was added $3.50 for the special charges, the cost of the production of a ton of newsprint was brought up to $61.71, and the Ontario Paper Co., in supplying The Tribune at $53.62, was operating at a loss at present, but Mr. Curtis said he expected The Tribune would give them a higher price later on. It was also testified that The Tribune was paying three cents per pound f.o.b. the mill for paper that the Ontario Paper Co., could not supply. This amounted to about $80 per ton in Chicago. "Is not that largely due to the cost of sulphite and groundwood?" queried Mr. Pringle, and witness said it was.

"What do you consider a fair profit per ton for groundwood at the mill?" asked Mr. Pringle. Witness thought about five dollars per ton. Later on Mr. Curtis said that he would not consider a paper manufacturing proposition unless it paid from $8 to $10 per ton, or a twenty to twenty-five per cent. profit on capital invested.

POLICY OF GREAT NORTHERN.

During the 18 years that it has been in business Great Northern Paper Co. has rigidly adhered to the policy of turning its surplus earnings back into plant improvement and development. In this interval its $6 000,000 stock has remained unchanged. Dividends were started in 1903, but since that date there have been three years in which no return was made to shareholders. For 1914, 1915 and 1916 stockholders received a dividend of 10%.

In view of the large amount of money invested in the business and the relatively small stock capitalization, its directors have decided to put the stock on a 20% basis. This dividend is, however, equal to hardly 4% on the actual property investment.

Logically it might be expected that the company would declare a stock dividend to bring capital and property into closer accord. While it is possible that something of this kind may ultimately be done there is no present plan to this effect. The 20% dividend is being comfortably earned and property condition is being held at top notch.

Great Northern Paper is the second largest newsprint producer in the United States.

AMENDMENTS PROPOSED TO B.C. FOREST REGULATIONS.

A bill entitled "An act to amend the 'Forest Act'" has been introduced in the British Columbia Legislature by Hon. T. D. Patullo, Minister of Lands. The act contains a number of amendments to the existing act, which include regulations regarding the sale of crown timber for the manufacture of wood pulp. One clause states that in connection with such sales the Minister may require proof that the intending purchaser has spent not less than $350,000 upon the erection of a wood pulp and paper mill to be operated exclusively in connection with the limits under consideration; or, alternately, may require the intending purchaser to furnish a bond of $50 000 and other suitable guarantees for the expenditure of not less than $350,000 for the erection of such mill, of which not less than $100,000 shall be expended during each of the first two years of the license. Pulp licenses shall be limited by the output capacity of such mill, and shall not comprise at any one time more than thirty years' supply of pulpwood for the said mill.

SUITABILITY OF WOODS FOR SULPHITE PULP.

At the Forest Products Laboratory, Madison, Wis., cooks were made of noble fir, lodgepole pine and western hemlock to determine their suitability, for pulping by the sulphite process. Noble fir produced a pulp of a reddish tinge and with a long, coarse fibre. Lodgepole pine pulp has a fibre that is very similar to the fibre in spruce pulp, light, and fairly strong. Western hemlock produces a fibre with a reddish tinge, but somewhat longer than the fibre from eastern hemlock,

Review of Recent Articles of Interest to the Pulp and Paper Industry

(From Chemical Abstracts).

Cellulose industry. C. Cross. Engineering 103, 228-9 (1917).—A lecture giving an historical development of the industry from 1866 to 1916.—R. B. Roe.

The analysis of sulfite liquor. R. Dieckmann, Kelheim; Erik Hagglund, Eksjo, Sweden. Chem. Ztg. **40,** 581 (1916).—Dilute 20 cc. of the liquor to 200 cc. with distilled H_2O. To 10 cc. of this solution add starch solution and titrate with 0.1 N I to the blue color, then add 5 cc. KIO_3 solution (3%) and titrate back with 0.1 N $Na_2S_2O_3$ solution. Cf. Hagglund C. A. **10, 2636.**

Recovery products of black liquor. Alfred H. White and John D. Rue. Paper **19,** No. 23, 56--64 (1917). — Laboratory and mill tests show that the concentrated black liquor from the soda pulp process can be destructively distilled to yield 6.9 gal. of MeOH and MeCO per cord of the original wood. There is no difference in yields between a hard wood such as beech and a soft wood like bass. Very little change in equipment of the present recovery process is necessary, and loss of soda up the stack is eliminated. The net recov-gain from a by-product plant is estimated at $1.86 per cord of wood cooked.—R.B.R.

Methyl alcohol and acetone as by-products of the soda pulp industry. Jas. C. Lawrence. Met. Chem. Eng. **16,** 416-7 (1917).—A letter commenting on the paper of White and Rue (C. A. 11, 1544). According to L. the process for the recovery of MeOH and Me_2CO from esparto black liquor is being commercially developed in England and on the Continent with results which even exceed the figures of W. and R.—R. B. Roe.

Investigation into prospects of establishing a paper-making industry in South Australia. W. A. Hargreaves. Dept. Chem., S. Australia, Bull. I, 1-50 (1916) ; through J. Soc. Chem. Ind. **36,** 27-8.—Australia depends mainly on imported paper. There is one mill in Victoria and one in New South Wales. There is no soft wood suitable for ground wood pulp. The staple cellulose fibre is straw, which could be delivered at a mill in Port Adelaide for not over $7.00 per ton.—R. B. Roe.

The setting of litharge-glycerol cement.—H. E. Merwin. J. Ind. Eng. Chem. **9,** 390 (1917).—Glycerol, pure or diluted with 5-10% of alcohol or water, when heated to boiling and agitated with litharge gave crystals of a new substance. An examination of this showed about 10% by volume of unattacked litharge and about 90% of the new crystals. An analysis of the crystals showed 70.8% of Pb, corresponding to 5% residual PbO and 95% of the compound $C_3H_6O_2PbO$ which represented the new crystals. The crystals are apparently orthorhombic.—E. A. Tschudy.

The resin of coniferous woods and the de-resinification of wood pulp. R. Sieber. Schriften Vereins Zellstoff- u. Papierchem. **9**; J. Soc. Chem. Ind. **35,** 1151—The so-called resin isolated from pine wood by extraction with organic solvents, contains, on the average, 50% of fatty matter. Only traces of turpentine can be extracted from freshly-cut, relatively young wood by extraction with ether, but when the same wood is boiled with caustic soda solution, under a pressure of 8 atmospheres, the vapors discharged during the "blowing off" operation contain measurable quantities of turpentine. The "resin" extracted from sulfite-pulp by ether and alcohol contains, respectively 63 and 74% of fatty matter, and it is to this fatty matter that the so-called "resin specks" (J. Soc. Chem. Ind. **28,** 438 (1909)) on paper made from sulfite pulp are due.

United States government publications pertaining to pulp and paper. Henry E. Surface. Paper **19,** No. 4, pp. 25-30 (1916).—A bibliography.—V. Nunez.

Forest products of Canada, 1915. Pulpwood. Anon. Dept. Int. Canada, Forestry Branch Bull, **58B,** 12 pp. (1916) ; Expt. Sta. Rec. **36, 45.**—A statistical account of the pulpwood industry of Canada for the year 1915, including comparative data for the previous year.—E. H.

The determination of the fat permeability of parchment substitute and "pergamyn" papers. C. Bartsch. Mitt. kgl. Materialprüfungsamt, Gross - Lichterfelde West **33,** 441-5; **Chem.** Zentr. **1916,** I, 1279.—A fat impermeable paper may in general be expected to possess a reasonable impermeability t o the common fats under normal conditions. Application of butter and lard in a suitable fashion served as a suitable method of testing. The turpentine oil test, was also applied in doubtful cases. None of the papers investigated was absolutely fat impermeable. Both varieties of paper are noticeably inferior to real parchment paper. The impermeability toward butter was greater than toward lard.—R. L. Stehle.

Measuring the color of paper. Otto Kress and G. C. McNaughton. Paper **19,** No. 24, pp. 15-16 (1917).—A large number of samples tested with the Ives tint photometer showed that any two-colored papers which matched visually, gave readings on this instrument which agreed within the allowable experimental error. It is possible to follow numerically the effect of calendering with the Ives instrument, and also with the Ingersoll glarimeter in the case of white papers. The latter instrument does not seem of value in determining the finish of colored papers.—R. B. Roe.

Standard papers in 1915. W. Herzberg. Mitt. kgl. Materialprufüngsamt, Vol. **33,** pp. 453-60; Chem. Zentr , 1916, I. 1284; cf. C. A. **10,** 274.—A comparison of the results of examination of 594 papers of which 541 did not comply with the specifications in regard to strength or composition.—E. A. Tschudy.

Some words about acid making for the sulfite pulp process. M. Hirsell, Paper 19, No. 12, 16 (1916).—Thermochemical calculations show that the heat evolved in making 1 liter of cooking acid by the limewater system is 14,060 g. cal., and 6,065 g. cal. when made by the limestone system.—From Pulp & Paper Magazine, Vol. 14, p. 380 (Nov. 15, 1916).

Hemp Hurds as paper-making material. L. H. Dewey and J. L. Merrill. U. S. Dept. Agr., Bull. **404,** 26 pp. (1916).—Semi-commercial paper-making tests on hemp hurds showed that a good bleached pulp may be obtained from this material using the same treatment given poplar wood. The paper produced was of good quality. Raw material storage and low digester capacity are the most important objections to the possible use of hemp hurds as a paper-making material. Also in Pulp & Paper Mag., Vol. 15, p. 53 (Jan. 11, 1917).

Utilization of American flax straw in paper and fiberboard industry. J. L. Merrill. U. S. Dept. Agr., Bull. **322,** 24 pp. (1916).—Lab. and semi-commercial experiments show that a satisfactory fibre board can be made by cooking flax straw with lime. Better results were obtained using a flax tow. From the results obtained domestic flax tow can quite profitably replace imported flax waste for making fibre board, and possibly come into use for making fine papers.—R. B. Roe.

UNITED STATES NOTES

Special to Pulp and Paper Magazine, by R. W. Jolly.

A loss said to be about $75,000 was sustained, during the week, by the St. Regis Paper Co., at its plant at Carthage, N.Y. The report states that the plant was totally destroyed by fire. As it had been running heavily on news, the tonnage will be missed at this time. Although there has been nothing definite learned, it is expected that work will be started soon to replace the mill.

A queer, though somewhat serious experience has been reported at the Tonawanda Board and Paper Co. Tonawanda, N.Y. With the general demand for boards easing a little, it was found advisable to shut the plant down for overhauling. In the meantime, it was learned, the mill operatives became affiliated with the Paper Makers' union, organizing a branch. Demands for an increase of 50 cents a day were formulated and presented and it is understood that it is the intention of the workers to go on strike until they get what they demand.

Paper makers and the trade in general are interested in the adoption, during the past week, of the Daylight Saving bill, by the United States Senate. The bill is now before the House of Representatives and is expected to be on the statute books before very long. It provides that the clocks of the country shall be moved forward one hour, for five months, starting April, 1918, and the same period each year thereafter. Many in the trade have advocated the Daylight Saving plan, believing that it is a measure of economy that is urgent. It is expected that the enactment of the plan into law would result in many economies including a saving in electricity, and consequently coal, which in view of the existing coal shortage is looked upon as highly important. It would also give employes an extra hour a day to take care of their vegetable gardens, along the lines being encouraged by all of the large mills.

A charter has been granted to the Durham Paper & Pulp Co., of Phillipsburg, N.J., to engage in the manufacture of paper, paper materials, pulps, with a capital stock of $125,000.

Announcement has been made by the Flower City Tissue Mills Co., of Rochester, N.Y., that its new mill at Scottsville, N.Y. would be in operation by the first of August. It will run on tissues, bristols, course wrappings, card middles, boards and other such lines.

Quite a number of the local trade have gone away with the colors during the past few months. The work of recruiting for the trade is being earnestly carried on by Paul E. Vernon & Co., 22 Reade street, New York. Mr. Vernon was prominent in the big Preparedness Parade last year and is known in local circles as an enthusiast for anything that is patriotic. Leonard Hicks, who recently became associated with his father in the paper stock concern of D. M. Hicks, Inc., at 140 Nassau street, was given a commission as ensign and he is now stationed at Naval Base No. 6, on a submarine chaser. Mr. Hicks graduated from Cornell University last year. Karl Elish, son of M. M. Elish, at 29 Beekman street, wholesaler, is at the Plattsburgh camp, training for an officer's commission. He has just graduated from Harvard University. L. O. Clement, of the local office of the Champion Coated Paper Co., is now in the Quartermaster's Reserve Corps. Donald A. Walker and Thomas Dudley, both of Atterbury and McKelvey, paper stock dealers, are also in the service. Walker has sailed for France to join an ambulance unit, while Dudley is with the Seventh regiment. James Carney, Herman Hashazen and E. P. Wylie, all of George W. Millar, wholesale paper dealer, are in the regular army.

The mill of the Marinette & Menominee Paper Co., at Menominee, Mich., was damaged by fire, early last week, to an extent said to be somewhat near $50,000. As only part of the finishing department has suffered, it is not believed that the conduct of the plant will be interfered with to any serious degree. Work will be commenced at once to repair whatever damage has been done.

Members of local pulp trade were pleased to learn that A. J. Pagel & Co., Inc., has been made the United States' agents for the Korsnaes Co., of Sweden. This connection is regarded as a good one for the foreign concern, for Mr. Pagel is well known among the mills, having been for some time prior to his organization of this concern, associated with Price & Pierce, Limited, dealers in pulps. Mr. Pagel is hopeful that he will be able to get considerable supplies from his new source which produces annually 30,000 tons of sulphite and 20,000 tons of kraft pulp.

It is planned to spend considerable money in improvements for the mills of the Monarch Paper Co., at Kalamazoo, Mich. This is part of a plan that has evolved from an increase in the capital stock of the corporation which was raised from $600,000 to $750,000.

Interest is centered in the report that a large paper mill is to be built at Ogdensburg, N. Y. No information is available, as yet, except that such a project is being considered and that negotiations are at present under way. Those who are familiar with this section, know that it is desirable for a paper mill location, especially an enterprise that is to be carried out on a large scale, because of the easy accessibility to everything required.

M. W. Waldorf, I. M. Waldorf, Hyman W. Segal and Harry Segal have incorporated the Duluth Paper Stock Co., at Duluth, Minn., with a capital stock of $50,000. The concern will specialize in paper stock.

An interesting announcement is that the Quaker Oats Co. at Pekin, Ill., which operates its own board mill, is preparing to increase its capacity and to make other improvements about its plant.—R. W. Jolly.

The capacity of the Winona Pulp & Paper Co., is to be increased through the installation of considerable machinery, in the near future. The improvement plan has been brought about through a change in the personnel of the organization which is now headed by M. B. Johnson, of St. Peter, Minn. Karl Wessel and W. Knapp, of St. Paul, who were formerly the leading stockholders, have sold out their interests.

PULP AND PAPER NEWS

J. F. Ellis, President of Barber-Ellis, Limited, Toronto, has gone on an extended trip to the West, being accompanied by Mrs. Ellis. He will visit the branches of the company in Winnipeg, Calgary and Vancouver and will spend a month at Banff.

The digester building of the Port Arthur Pulp and Paper Co., at Port Arthur, Ont., is now completed to the chip bin floor while the digesters will be shipped next week. The barking drum has also arrived from the American Barking Drum Co. and will be erceted at once. Construction work is moving along rapidly on the buildings of the company.

T. Wheeler, representing the Franklin Paper Co., of Holyoke, Mass., wa sin Toronto and Montreal calling upon the trade recently.

F. L. Ratcliff, President of the Ratcliff Paper Co., Toronto, is able to be around again after an illness of several weeks.

In Toronto recently, Mr. Justice Latchford rendered judgment in favor of R. J. Lapointe, a fisherman of Lorraine, Que., who secured $850 damages in his action for $2,000 against the Abitibi Power and Paper Co., Limited. The action had something of an interprovincial aspect. Lapointe is possessed of licenses authorizing him to fish in the Quebec waters of Lake Timiskaming and in the Quebec tributaries of the lake. He alleged that the Abitibi Power and Paper Co. allowed a lot of logs to block the mouth of the Okikodosik river, in which he had a number of nets. He claimed that, for about a month, he was thus prevented from attending to his nets and that in consequence he lost large catches of fish and his nets were seriously damaged. He also sought damages for his motor boat, which was caught in the jam of logs. Mr. Justice Latchford found that the defendant company was negligent in allowing nets to block the river and estimated the damages to Lapointe's motor boat at $250. This sum, he enlarged to $850 to cover the other losses suffered by the plaintiff.

Considerable renovations and improvements have been carried out recently at the Don Valley Paper Co's. Mills, Toronto. A new roof has been put on the building and a new floor laid. The plant is now very busy after resuming operations.

All the construction work in connection with the new sulphite mill of the Lincoln Paper Co's plant at Merritton has been completed and the installation of the equipment is being proceedd with. It is expected that the sulphite department will be in operation early this fall. The capacity will be about fifty tons per day of unbleached sulphite.

Barber-Ellis, Limited, of Toronto, who will soon start a new envelope factory in Winnipeg, are now installing the equipment and expect that the industry, which will be in operation in a few weeks, will have a capacity of half a million envelopes a day.

The will of the late John R. Barber, of Georgetown, who for over fifty years was one of the leading figures in the paper and pulp industry of the Dominion, has been entered for probate. It will be remembered that about five years ago Mr. Barber disposed of all his interests and retired from active business life, owing to failing health. The will disposes of an estate valued at $438,133. The gross value of the estate is $566,658 but in this is included an interest of his three sons, F. J., C. H. and R. R. Barber, in William Barber Bros.

The steamer Wiatotara, which left Vancouver on May 19th with a big cargo for Australia, was burned at sea recently. The crew escaped but the cargo consisting of 1,600 tons of news print paper from the Power River Pulp and Paper Co. of Powell River, B.C., for Australia, was completely consumed.

A new transformer building has been erected at Cornwall by the Toronto Paper Mfg. Co., which will result in the conveyance of more power from the Cedar Rapids Co., who supply the current for the operation of the mill.

Judgment was recently given by Judge Coatsworth, Toronto, who awarded the Dominion Paper Box Co., of Toronto, $105 and costs in their action against the Crown Tailoring Co. The plaintiffs claimed that the amount was due them for cardboard boxes which they had supplied the tailoring company, who maintained that the boxes failed to fulfil the purposes for which they were ordered.

There has been issued by the Ontario Pulp and Paper Makers' Safety Association, and printed in red and black ink, a bulletin headed "Pause-Read-Digest," showing the record of accidents that took place during 1916 in the thirty two operating pulp and paper mills of Ontario. The bulletin is intended to bring forcefully to the attention of all employees the large number of mishaps, which, with a little care, could be avoided. The bulletin says "Study the accidents in your own class and make a resolution not to be one of the 1917 victims." "Under the Safety Flag All Men are Allies." The number of deaths in the pulp and paper mills during 1916 was ten. The accidents resulting from machinery and its parts numbered 244; hoisting appartus 8; nails 9; steam, water and liquor 14; electricity 7; handling material 94; handling tools 33; construction 14; slipping stumbling and falling 51; piling and stacking 37; ladder 8; miscellaneous 101—total accidents 620. The statistics and classification were prepared by A. P. Costigane, Safety Engineer of the Association, and involved much work and study.

The will of the late Alex Barnet, the widely known lumberman and woods operator of Renfrew, Ont., disposes of an estate valued at $1,084,693. Two sons and four daughters are the beneficiaries under the will. The sum of five hundred dollars was given to a number of old employees of the deceased.

The Ontario Paper Co. at Thorold being situated on the Welland Canal have the advantage of water transportation, and are this week busy unloading their first boat of Pulpwood for this season.

Judge Denton of Toronto, has allowed the Mail Printing Company's motion for judgment in their action to recover the amount of an advertising bill from J. A. Bleakley, liquor merchant. The defendant counterclaimed that the newspaper was guilty of a breach of contract in refusing to insert any more liquor advertisements. He will be allowed to proceed with his claim, but his application that the Mail should be stayed in the execution of its judgment was refused.

A charter has been granted to the Mono Lino Typesetting Company, Limited, of Toronto, with a capital stock of $40,000 to carry on the business of printers, engravers and lithographers W. F. Addison, H. C. Mainprice and W. R. Adamson, printers of Toronto, are at the back of the new enterprise.

The many friends of Mr. T. A. Weldon, vice-president of the Provincial Paper Mills Co., Limited, will be glad to hear that he has recovered sufficiently to enable him to attend to business for a few hours each day.

DEATH OF THOMAS GAIN, VETERAN PAPER SALESMAN.

Many friends in the trade throughout the Dominion will learn with regret of the death of Mr. Thomas Gain of Toronto, who passed away on June 28 at his home after an illness of some months. He was in his sixth-eighth year and had spent partically all his life in the paper business. Last winter Mr. Gain was for several weeks in Bermuda and returned little improved, but with a resolution and devotion to business, which always characterized his career, he stuck to his desk, until about five weeks ago when he was removed to the Toronto General Hospital and later to his home. It was thought that, with rest and quiet, he would recuperate and he never gave up until the last.

Mr. Gain was born in Christobel, Que., and his first connection with the trade was in Hamilton where he was in business for some time in the wrapping paper line. He was next engaged with the Lincoln Paper Mills, of Merritton, for over a score of years. He first represented the firm in Hamilton travelling all over the province and frequently visiting the west. When the company opened a branch office and warehouse in Toronto about 1897, Mr. Gain came to the city to take full charge of it and remained with the Lincoln people until thirteen years ago. He then joined the staff of the Douglass and Ratcliff, now the Ratcliff Ratcliff Paper Co., Toronto, and opened their Winnipeg branch, residing in the prairie capital for a few years. Mr. Gain had made many trips to that city and was well connected when he went west in the interest of the firm. The last nine years he was sales manager of the Don Valley Paper Co., Limited, Toronto, for which organization he had built up a large business. A prominent member of the Methodist church and a member of the Masonic craft, Mr. Gain leaves a widow and three sons, T. Edmund Gain, vice-president of the Ratcliff Paper Co., Toronto; Joseph H. Gain, paper goods dealer, 124 Richmond street west, Toronto and C. Nelson Gain, superintendent of the Don Valley Paper Mill.

The funeral on Saturday last to Mount Pleasant cemetery was largely attended, many members of the paper trade being present while the floral offerings were numerous. The late Mr. Gain was a man of sterling integrity, generous, kind hearted and upright in all relations, and his death is widely mourned.

OTTAWA NOTES.

According to what can be learned in official and semi-official circles in Ottawa there appears to be little likelihood of the newsprint probe concluding before August 15th or possibly September 1st. Manufacturers and the paper trade generally look to the Commissioner to grant an increased price for newsprint.

Information given by Mr. Geoffrey Clarkson, the auditor appointed by Commissioner Pringle to the representative of the Pulp and Paper Magazine is to the effect that an attempt is being made to audit the books and search the records of the newsprint manufacturer, as quickly as possible, and that around a score of men will be sent out from Mr. Clarkson's head office at Toronto, working in teams to make the audit.

Some of these men are already at work. Mr. Clarkson, when closely questioned as to how long it was expected the audit of the books would take said, "I am sorry to be so inexplicit, but you are asking me the very kind of questions that I do not want to answer."

From the best information available it appears that the audit of the books and records of the newsprint manufacturers will take a month at least, and after it Mr. Clarkson will have to prepare his report which in turn will have to be submitted to Mr. Pringle, who will pass it on to government officials or will announce the sum and summary of what Mr. Clarkson's staff finds in the books of the paper mills, at some future sitting of the Canadian Newsprint Probe.

According to one source of information it is stated that Mr. Pringle said, "there was no need to look for Mr. Clarkson's report for a month yet." During the week-end and the holiday, July 1st, a period of quiet prevailed in local paper trade circles. The mill staffs did not work all day, but the night shifts were at their posts. With the retail paper dealers it appeared that the holiday was of chief concern and while attention was given to business no extra exertions on the part of the sales staffs were in evidence.

One of the noteable features under this procedure will be the entrance of the Riordon mills into the inquiry.

All the newsprint manufacturers in the Ottawa district feel confident the Commissioner when he presents his report will give them three cents per pound for their product.

The curtailing of racing in Canada will slightly effect the paper trade inasmuch as the paper used in entrance tickets, programmes, etc., will not be consumed in this channel in the future.

Pulp Men Next.

Next week (July 8th-14th) the sulphite probe opens at the Court House, and the largest manufacturers of sulphite and ground wood will be called upon to show production costs, stocks, sources of supply, etc. Subponeas have been issued by the Commissioner to bring the sulphite manufacturers to Ottawa. Every sulphite manufacturer in the Country will not be called. Only those who manufacture sulphite and sell it will be brought before the Commissioner.

Work on the $80,000 addition to the plant of the Philadelphia Paper Manufacturing Co., at Manayunk, Pa., is going ahead and is hoped to be completed sometime in the near future.

Technical Section Committees on Important Work

The various committees of the Technical Section of the Canadian Pulp and Paper Association as now organized for work during 1917, are announced by the secretary, as follows:

Committee on Literature:

J. N. Stephenson, Editor of the Pulp & Paper Magazine, 600 Read Building, Montreal, Chairman.
Roy L. Campbell, Riordon Pulp & Paper Company, Limited, Montreal.
Sigmund Wang, Riordon Pulp & Paper Company, Limited, Merritton, Ontario.

This committee is devoting special attention to working out the proper basis for the regular abstracting of technical literature on pulp and paper. It is hoped that co-operation with the American Technical Association will ensure a comprehensive method of furnishing abstracts of important literature to the members.

Committee on Technical Education:

T. Linsey Crossley, 318 Lagauchetiere St. West, Montreal, Chairman.
George Carruthers, Interlake Tissue Mills, Limited, Bell Telephone Building, Toronto, Ontario.
A. P. Costigane, Dominion Bank Building, Toronto, Ont.
Dan Daverin, Provincial Paper Mills Company, Limited, Thorold, Ontario.
J. N. Stephenson, 600 Read Building, Montreal.

The committee is completing an educational survey of the industry to determine the present status of the persons employed, and the special needs for technical education. With the experience at the Thorold school during the past year as a basis, it is hoped to establish night schools during the winter 1917-1918, at several other pulp and paper centres.

Committee on Samples:

C. B. Thorne, Riordon Pulp & Paper Company, Limited, Hawkesbury, Ontario. Chairman.
A. L. Dawe, Secretary, Canadian Pulp & Paper Association, 801 Shaughnessy Building, Montreal.
Sigmund Wang, Riordon Pulp & Paper Company, Limited, Merritton, Ontario.

This committee will continue the collection of samples of pulp and paper made in Canada, for exhibit at the annual meeting; these being placed in the care of the Forst Products Laboratory of Canada, for reference of anyone interested at any time.

Committee on Standards:

J. A. DeCew, President, Process Engineers, Limited, 211 McGill Street, Montreal. Chairman.
R. E. Cooper, Spanish River Pulp & Paper Mills, Limited, Sault Ste. Marie, Ontario.
R. W. Hovey, Forest Products Laboratory of Canada, Montreal.
J. O. Mason, Laurentide Company, Limited, Grand' Mere, Quebec.

This committee intends to co-operate with the corresponding committees of the American Technical Association, and draw up standard specifications for materials and standard methods of analysis for the consideration and final approval of the two organizations.

Committee on Testing Moisture in Pulp:

O. F. Bryant, Forest Products Laboratory of Canada, 700 University Street, Montreal. Chairman.
Fred Barnes, Belgo-Canadian Pulp & Paper Company, Limited, Shawinigan Falls, Quebec.
B. Johnsen, Forest Products Laboratory of Canada, Montreal.
E. B. Slack, Riordon Pulp & Paper Company, Limited, Hawkesbury, Ontario.

A survey is being made of the methods of testing pulp now used in other countries. It is then intended to present a plan for testing the methods now used in Canadian mills; and after thorough experimental work and trial in the mills to develop methods which can be submitted for adoption.

Advisory Committee to the Forest Products Laboratories:

C. B. Thorne, Riordon Pulp & Paper Co., Limited, Hawkesbury, Ontario. Chairman.
S. F. Duncan, Provincial Paper Mills, Limited, Bell Telephone, Bldg., Toronto, Ontario.
H. Helin, Wayagamack Pulp & Paper Co., Limited, Three Rivers, Quebec.
F. A. Sabbaton, Laurentide Company, Limited, Grand'Mere, Quebec.

This committee has been holding regular meetings at the laboratories and is giving valuable assistance to the Division of pulp and paper in designing apparatus and outlining investigations for the benefit of the industry.

DE-INKED PAPER STANDS TEST.

Runs Through High Speed Press Without a Hitch — Soon on Market.

An event of great importance to users of news print paper occurred in New York City this week, when the final experiment proved practical the paper made by the de-inking process of Dr. Thomas Jesperson of Neenah, Wis.

The significance of the Jerperson invention is the conservative estimate from authoritative sources that of the 6,000 tons of news paper consumed in the United States every day, at least 1,500 tons could be retrieved in the larger cities alone without organized effort. The tonnage that proper organized work would bring about is beyond estimation.

If the process works out as promised, the invention will provide the country with from 1,500 to 2,000 tons a day of additional news print.

The paper ran through at standard high speed (24,000 revolutions an hour) without a single hitch. The pressmen who handled it said they were entirely satisfied with the result.

In fact, the paper was of a tint that at least 50 per cent. of the American newspaper publishers prefer. It absorbed very little more ink than new paper and half tone cuts showed up perfectly.

With this final successful experiment, Dr. Jesperson is going immediately into the manufacture of his paper and perhaps the next three or four weeks will see his product on the market.

Dr. Jesperson is not ready at this time to give any details of his product.

NATURAL RESOURCES.

We recognize as natural resources all materials available for the use of man as means of life and welfare, including those on the surface of the earth, like the soil and the waters; those below the surface, like the minerals; and those above the surface, like the guard against monopoly.—Declaration of Principles of North American Conservation Conference.

Safety Men Hold Most Successful Meeting

The first of what is intended to be a series of meeting's under the Ontario Pulp and Paper Makers' Safety Association, in the interest of safety work and practical education along that line, was held on June 28 and 29. The attendance was gratifying, there being about forty present.

On the morning of Thursday, June 28, the visitors assembled at the Grand Central hotel in St. Catharines, and elected a Chairman and Secretary. A. P. Costigane, Safety Engineer and Secretary of the Ontario Pulp and Paper Makers' Safety Association, was unanimously appointed as presiding officer of the proceedings and F. M. H. Cushing, who is in charge of the power house of the Provincial Paper Mills Co. at Thorold and is also electrician for that company, filled the office of secretary.

The first visit was to the plant of the Kinleith Paper Co. where the party were received by H. F. E. Kent, managing director, and W. A. Anderson, superintendent. Fine progress has been made in safety work and appliances at the mill, and a tour through the various departments revealed that a number of improvements and extensions have been recently carried out. Returning to the hotel for dinner the delegates next proceeded to the sulphite plant of the Riordon Pulp and Paper Co. at Merritton, where they were greeted by Sup't. P. Byrne and inspected every portion of the industry. Here it was found that safety work has received not only considerable academic attention but practical results were witnessed on all sides. The new equipment for bleaching sulphite electrolytically was a source of much interest and instruction.

The next jaunt was to the plant of the Interlake Tissue Mills where George Carruthers, President of the Company, and Superintendent Herb welcomed the delegates. Here a pleasant hour was spent and the party initiated in to the mysteries of making toilet and tissue papers, paper napkins, towels and many other specialties, in both plain and crepe. One feature, which drew attention, was the very clever arrangement for operating the elevator gates, automatically, in the basement. This device has done away with the necessity of pushing up the gates and eliminated the attendant risk of the their falling on any one in passing under.

A reception followed in the Public Library at Thorold Mayor Battle being introduced to the members of the party by Mr. Carruthers. His Worship then made a neat address of welcome, in which he spoke of the importance of Thorold as a pulp and paper center and referred to the growth and development of the town. A. P. Costigane suitably replied on behalf of the gathering and others who made happy remarks, were A. W. Wright of Toronto, vice-chairman of the Workmen's Compensation Board, George E. Challes, sales manager for the Riordon Pulp and Paper Co., and George Carruthers of the Interlake Tissue Mills. The guests then went to the Ontario Paper Co's. plant where Warren Curtis, Jr., president of the company and John F. Ryan, superintendent, escorted them through all departments of the big industry. The ground wood, sulphite and news print branches were found to be admirably equipped and safety work has made good progress in all lines.

The last plant, that was given attention, was the Beaver Board Companies, where T. H. Nevill, the superintendent, acted as host and explained the process of making wood pulp board. Many matters of interest were noted and discussed with the genial superintendent. This completed a program which kept all on the move the first day. The visitors were taken to the Clifton Inn at Niagara Falls, in automobiles where every accommodation had been provided and a delightful evening was spent in viewing the attraction of the Falls and the beauties of Queen Victoria Park.

The second day was devoted to the reading of helpful and timely papers and the discussions on the various points raised was earnest and enthusiastic. A. W. Wright, vice-chairman of the Ontario Workmen's Compensation Board, gave a splendid outline of the Workmen's Compensation Act and Amendments, while "Safeguarding Block Pile Hazard" was the subject which was ably treated by G. M. Beale, Safety Engineer of the Hawkesbury plant of the Riordon Pulp and Paper Co. In the afternoon T. Linsey Crossley, of Montreal, read an inspiring paper on "The Benefits of Education in the Pulp and Paper Industry" and C. A. Gilkerson, Safety Engineer of the Spanish River Pulp and Paper Co., Sault Ste. Marie, contributed a thoughtful paper on "Reaching the Human Factor."

The full text of the paper read and the profitable discussion on them will appear in a later edition of the Pulp and Paper Magazine.

All safety engineers and others, concerned in safety work in pulp and paper mills were invited to the gathering, the first of its kind ever convened in Canada. A. G. Richardon, Safety Engineer of the Laurentide Co., Grand'Mere, Que., was among those present outside of the province of Ontario. A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, desires to extend his thanks and express his great appreciation for the whole hearted way in which the manufacturers of the Niagara Peninsula gave the gathering their sympathy and support, and placed automobiles at the convenience of the party, thus assuring the outstanding success of the convention which is a good omen for future gatherings of the kind. It was the unanimous opinion that meetings such as the one just held were of incalculable value and benefit and should become an institution in connection with safety work in the mills. It is but fitting to say in conclusion that too much praise cannot be bestowed upon Mr. Costigane for his energetic and devoted afforts in organizing the assembly. He was amply repaid by the representative character of the attendance, the support of the pulp and paper companies and the harmony and spontaneity evidenced on the visits to the plants and in the deliberative sessions at the Clifton Inn, where the management made every one feel thoroughly at home.

SPRUCE CUT IN THE MAINE WOODS.

It is estimated that of the total cut of spruce in the Maine woods during the season just ended, 700,000 000 feet, more than half, perhaps about 450,000,000 feet, will go to the pulp mills, beside some poplar.

Maine's log cut was formerly estimated at about 800.000.000 ft., but with the coming of the pulp industry and its countless small operations for pulp wood, the state has entered the thousand million class.

The Markets

CANADIAN MARKETS.

TORONTO, July 3.

There is not expected to be much of interest or excitement in the paper trade for the next two months as July and August are invariably rather quiet and not remarkable for much new business or sharp price changes.

This observation, of course, does not apply to newsprint at the present time. One cannot tell what is likely to happen in this commodity just now, with government control in the air, prosecutions under way across the border, conscription, and reckless charges made against the manufacturers on all sides. No wonder, with the way that they are being harrassed, the President of one of the leading companies in Canada, which has been making paper for over a quarter of a century, stated that if he had his way he would give up turning out newsprint altogether. Probably others are of the same opinion although they have not cared to confess it. In the meantime, the audit of the books of the various concerns is going on.

While nothing definite will be known in Canada regarding an increase in the price of newsprint until August; still it is hoped that a figure will be named by Commissioner Pringle of three cents a pound which, according to the evidence submitted, would be a fair one.

It is stated that the newsprint committee of the Canadian Press Association, who have withdrawn from the inquiry, are quietly considering the adoption of other means than presenting their case before the Commission, to make the manufacturers come to time. What action they will take can only be conjectured. The question is asked will it be a prosecution under the combines act or something of that character? In the meantime the producers are not worrying about the outcome. The manufacturers have so far put up a strong case to the Commission and shown that they have not taken an undue advantage of circumstances and, although some of the paper makers, wittingly or otherwise, cast reflections on allied branches of the trade, these other branches have not been heard yet, and when their story is told, it may result in a different complexion being placed upon matters.

All mills are fairly well employed and business is somewhat spotty, but each week portends higher prices for every line of paper in the fall.

There is very little change in the sulphite or ground wood market. One significant fact regarding the future is that prices for pulpwood are going to go higher than ever. That this is the case is shown by the fact that, at the recent investigation in Ottawa, representatives of leading companies, which have their own limits, are finding it cheaper to buy wood in the open market than to cut it, on their own property. The reason is that labor is so scarce and high and supplies so dear, that wood can be acquired for less by direct purchase. This means that more companies than ever are bidding for the limited supply from jobbers and settlers and creating a state of affairs and keenness of competition, which will boost quotations still more. Labor has advanced from forty to fifty per cent, according to the best authorities, and in the matter of supplies for the woods, beans are showing an advance of nearly four hundred per cent while pork relatively reveals the same increase.

In the matter of sulphite, prices are still easy and there is little buying going on, while stocks are accumulating owing to those who had contracted for certain quantities not calling for their full allotment. It is expected that business with the book paper mills on the other side will soon improve materially. The transition period occasioned by the United States entering the war is getting down to a more settled basis and the slate is being cleared for action. Buyers are, in the meantime, holding off and very little cellulose is coming in from Europe.

In regard to the statement of one paper manufacturer at the newsprint investigation, that sulphite would probably be sold cheaper this fall due to the increased production coming on the market, and that the output in Canada would be eleven hundred tons per day owing to the installation of so many new digesters, sulphite manufacturers are not inclined to this view. They state that, by reason of the elimination of the foreign supply, local demand will absorb all the extra tonnage. Regarding the allegation of one paper maker that sulphite costs too much and that twenty-five to thirty per cent would be a fair profit, the chemical pulp makers reply by asking if the years that they made no profit but ran at a loss should not be taken into consideration before making such a sweeping assertion.

"There never was a time," said one paper manufacturer this week, "when I could not look into the future of the paper business and foretell, with fairly accurate results, what was likely to happen within the next few months," and he is a careful student of markets and conditions. "I confess that I am beaten on the present occasion. There are so many uncertain elements, and yet in spite of the advice which I am giving my customers, they are holding back in the hope of getting cheaper paper, which, I think, is a serious mistake on their part. In my opinion, paper is bound to aviate this fall. I cannot see any other eventuality. Instead of a question of price, some patrons may be glad if they are able to get deliveries at all. There are four big elements in the present situation, which are coal, pulpwood, sulphur and labor, and no one knows how high they will go or what supplies we will be able to obtain. Mills now are rather quiet, but running on past business rather than on the orders which are being placed at present. I am speaking of all kinds of paper, outside of newsprint. Large consumers refuse to take the situation seriously and seem clinging to the will o' the wisp that something favorable to them is going to result from the government investigation at Ottawa. They may rue the day that they put so much faith in their blind judgment, and I want to go on record as saying before the inevitable happens 'that I told you so,' when prices take a raise that may be staggering."

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.25 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.50 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Easy bleaching sulphite	$90.00 to $95.00
Sulphite, news grade	$75.00 to $80.00
Sulphite (bleached)	$125.00 to $130.00
Sulphate	$110.00 to $115.00

There is very little change in the waste paper market. The prospects seem brighter for an improvement in business than for the past few weeks. The market is waking on scrap and news although dropping on white shavings. There is no change in the rag market. Cotton rags are still quiet, with a fair demand for roofing stock. Red Cross Waste Savings Department, of Toronto, announces that up to June 1st of this year, the department had collected over nineteen thousand dollars worth of waste. This is the first year and with the help of the people they hope for a bigger return during the next twelve months.

Rag and Paper Stock.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.70
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.10
No. 1 book stock	$1.00
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.25
Folded news	60c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	45c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.00
Unbleached shoe clip	$5.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.60 to $1.70
Tailor rags	$1.40 to $1.50

NEW YORK MARKETS.

NEW YORK, N.Y., June 30th.

The trade was somewhat seriously concerned over the action of Senator Reed who this week censured the Federal Trade Commission for not enforcing the "paper trust" to maintain a fair price on all of its transactions. As Mr. Reed's resolution was adopted by the Senate without dissent, the matter was regarded as somewhat serious and, naturally, there was some anticipation as to what the outcome would be. On the face of it, it appeared as if the government was actually getting down to brass tacks and was going to enforce a price of 2½ cents on news print, on the basis of the Federal Trade Commission's findings. Trade in general, is somewhat quiet, at the present time, and a situation such as that created by Senator Reed has the effect of bringing activities to a further halt. Jobbers who have been bearing the market for a number of months are quick to interpret conditions in their own light and feel that the certainty of government control of newsprint would mean reductions in the prices of other grades, especially those made from ground wood. It is true that the lull has resulted in prices receding a little., but the jobbers are in hopes that the level will be lowered still further in the near future.

A matter that has been noted with much interest is the statement in the current report from the News-Print Manufacturers' Association, that "five members had retired from the organization because they had ceased to manufacture news print." This is regarded in various lights. First that it bears out the contention often made in this column that any undue pressure on the manufactures would hurt production to the extent of encouraging mill owners to turn their

"Clean as a Whistle"

That's What One User of the

American Barking Drum

says about the kind of work it does. At the left we show a few typical examples which speak for themselves.

We have proved over and over again that our process of barking

Saves Wood

to the extent of thousands of dollars' worth per installation per year.

For example, if you are now using knife Barkers you will save 15 to 20 per cent. of the wood by installing an American Barking Drum. So, figure the money saving yourself, basing your figures on your own conditions.



Saves Men

Again, the American Barking Drum reduces the labor requirements to the absolute minimum. In one instance we reduced the labor force at the mill from 27 men, who were required in the barking operation with knife barkers, to three men handling the work complete after the American Barking Drum was installed.

Saves Money

For example, after paying for the installation of an American Barking Drum one mill had $8,000 left at the end of the year as a NET SAVING.

Another mill made a net saving of $20,000 at the end of the first year.

And so on.

Write for further facts, literature, etc. We will be glad to have you "Put your barking problems up to us."

American Barking Drum Co.

CONTINUOUS PROCESS

103 drums sold last two years, barking 2,600,000 cords per year.

440 So. Dearborn St., Chicago



Imperial Genuine

THE HIGHEST GRADE BABBITT METAL MADE

For all Bearings Carrying Extremely Heavy Loads

When melted, flows freely.

WILL NOT SHRINK.

Is very tough and durable, tin being the basis, antimony and nickel for hardening, and toughened with pure copper.

CONTAINS NO LEAD.

Manufactured and Guaranteed to give excellent Service by

The Canada Metal Company LIMITED

TORONTO

HAMILTON
MONTREAL

WINNIPEG
VANCOUVER

Interlake Tissue Mills

Limited

MANUFACTURERS OF A FULL LINE OF WHITE AND COLORED M. G. TISSUES, BROWN AND COLORED LIGHT WEIGHT M. G. KRAFT, WHITE AND COLORED DRUG WRAP, ALL GRADES OF FRUIT WRAPS, DRY PROOF PAPER. A FULL LINE OF TOILET PAPER, PAPER TOWELS, PAPER NAPKINS, DECORATIVE CREPE ROLLS, LUNCH AND OUTING SETS.

Head Office, 331 Telephone Bldg., Toronto. Mills at Merritton

machines over on to other and more profitable products. On the other hand, the greater profits in such lines as wrappings has been the means of luring some manufacturers away from working on news.

There has been no material change in ground wood. The operation of news mills at capacity would indicate that there was an active demand for ground wood, but this has not been so reflected during the past week. It may be—and most likely is the case—as we have stated once before, that consumers are awaiting the action of the government. For, if the government is to enforce a 2½ cent price, it is calculated, it must also provide the means for doing so—in other words, make it possible to obtain pulp at prices allowing a profit to the manufacturer when he sells news at 2½ cents. Otherwise, the outlook of the market is for a continuation of the present high prices, with tendency that they will go higher. There can be no question of this. As a matter of fact, it is being urged on the producers not to bind themselves up with orders too far in advance, for in so doing, it might prove to be suicide. For example, if a mill sells its output ahead for six months or so, at a specified price—say the present market, what will it do when, at the time of delivery it discovers that the cost of manufacture has advanced considerably—more than it had reason to expect. Just now, it appears that the railroads may appeal to get their 15 per cent advance in rates, which was not granted on their first representations. An order taken now and delivered say after the higher rates are in effect (if they are granted) would make a big difference in the paper maker's pocket book. Also, it is urged—and all this looks toward the future with regard to prices—labor will go higher. There seems to be no question of this. There will be keen competition for whatever labor is left after the draft is over. And a ground wood mill, or working for a lumber concern will not be the best paying of occupations. However, in order to get enough help, it will have to be better paying than it is today. The pulp producer, as well as others, must also calculate ahead on his income and other war taxes—all of which will go down as expense. So, it can be seen that, regardless of any influence the present quieting attitude, the future, holds nothing but a firm market, with still higher prices. At the present market, with prices ranging up to over $45 a ton, f.o.b. at the pulp mill, there is not any surplus of stock available.

No life of particular note is witnessed in the local pulp market. The dealers report a lack of interest on the part of the paper manufacturers. It is said that, because of the lull in the sale of paper, pulp consumers have been and still are enabled to keep out of the market considerably—hence the reason for the hand-to-mouth buying. There are also hopes that the market will find a lower level soon which often accounts for hesitancy and procrastination in buying on the part of a number of mill owners. However, the dealers hold out no hopes that the market can recede to any material extent. True, domestic stock is much easier than it has been in some time, but the surplus stocks are being kept pretty low, for it is understood that no attempt is being made to "work up for stock." On the other hand, supplies from abroad that are coming into this country are in such quantities that they are considered negligible. The suggestion has been offered that it is likely the subject of government control of sulphite mills will postpone "until a propitious date" the opening of any of the pulp mills that are nearing completition, thus eliminating considerable tonnage that many sagacious ones have been reckoning on. However, there is difference of opinion on this particular point. Advices from Sweden, show that the pulp mills there are in what might be called a "bad" condition. These countries have been practically isolated, so far as getting supplies of many kinds are concerned. With regard to sulphur, absolutely essential to the manufacture of sulphite, the Scandinavians have ben endeavoring to get supplies from Sicily, with but little success. It is understood that several ships containing different materials for the pulp mills have been sunk and that there is not much inclination to take many risks in getting more. The same sort of conditions is true in many of the other materials. Bleaching powder has been sent sparingly from this country. Rosins are difficult to get. The wood shortage is said to be more acute on the other side than it is here, and is likely to be worse, as there is talk of using pulpwood for fuel. And the labor problem keeps on in such a way as to promise more serious conditions in the near future. As one large dealer summed the matter up. "We may as well count Europe out of our sources of supply for wood pulp as long as the war lasts. It's up to this country to get together with Canada and fight it out together." It is understood that some concessions have been made here and there in domestic pulps, in order to keep stock moving and not allow it to accumulate to too great an extent. Despite the fact that the mills are not showing much interest, there seems to be no question that the market will strengthen in the fall, when business is expected to pick up.

Some added life was reported in the rag market during the past week. The inquiry does not seem to have reached all around, as yet, but it is reported that several of the larger concerns transacted some fairly large sales. According to one large factor, the demand for roofing stock, which has been active for some time, has reached the point where it can be seen that a shortage of these grades will be felt before a very long period has past. As has happened before when such a thing was true, the roofing men found it necessary to buy of the next higher grades, such as thirds and blues and street soiled whites in order to take care of their wants. The dealer in question sees the same thing ahead. He urges that paper mills take care of their requirements for some time to come, otherwise they will have to compete with the roofing plants for their stock. This is considered most likely, inasmuch as there has been no usual spring collection of rags and supplies are not considered normal.

A report from Boston comes to this effect: "There is evidence that roofing rags are becoming scarce and that the manufacturer who stocks up will be in line for congratulations very soon. The fact that dealers can get $45 a ton or better for the better grades of roofing rags is regarded as bearing out this statement." The high price for No. 1 white shirt cuttings is said to be a little over 8½ cents; the better old white rags are going at over 4½ cents; house soiled whites, at about 3¼ cents; street soiled whites at about 2½ cents; thirds and blues at about 2¼ cents; black stockings at about 2¼ cents.

In waste papers, the market is taking on a little activity. Dealers report added inquiry and say that

HOYT METAL COMPANY

HOYT SHEET ALLOY

This Sheet Alloy is meant to take the place of what is usually called Chemical Sheet Lead. It is 5% lighter in weight, has greater acid resisting properties, and has greater tensile strength and rigidity. It does not creep or buckle, but stays exactly in the position in which it is placed.

We would be glad to give your full particulars of this Sheet Alloy which is very rapidly displacing Sheet Lead.

Write for our Babbitt catalogue.

FACTORIES: London, England. Toronto, Canada. St. Louis, Mo. New York, N. Y.

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stock is moving a little better than has been true for some time. There is every confidence in the trade that things will maintain a more favorable condition throughout the summer. The dealers look for the paper market to pick up in rather good shape in the fall, when general business conditions are expected to become very lively. At this time, with pulps and rags expected to be high, it is felt that many of the mills will resort to waste papers of different kinds. Strictly overissues are quoted at about 1¼ cents; strictly folded at about ¾ cents; mixed papers are going at about ½ cent a pound. Old manilas have been in fair demand at about ¾ cents to 1¼ cents. A fair demand is reported for hard white shavings at 4¼ cents to 4¾ cents; soft white shavings at 3 cents to 3¼ cents; magazine stock up to 1½ cents; ledger stock at 2 cents to 2¼ cents.

Bagging is strong and active. The mills are said to be buying in good quantities. Gunny is quoted at 3 cents; bright bagging, at as high as 3¼ cents; sound bagging, at 2¾ cents; mixed at 2½ cents. Old rope is doing well. Some dealers expressed the belief that this market would go to 7 cents if it kept up much longer It seems that stocks are far from plentiful and that the mills are aware of the fact and are covering up well. Quotations now range as high as 6½ cents.

In the paper market, activities are still far from being what the mills expected for this time. Now, however, they do not look for anything normal until the fall. They argue that jobbers would do well to put in stock because by the fall, not only would prices be higher, but freight traffic would be such that it would be a precarious thing to rely on shipments. Tissues have been inactive. All of the wrappings have been showing up in fairly good shape. Books are well sold in supers. Boards continue inactive, with the mills offering concessions to keep stock moving.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b., mill	$42.50*
Foreign bleached sulphite, ex-dock, N.Y.	9c*
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Domestic bleached sulphite, f.o.b. pulp mill	6¾c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b. pulp mill	4½c*
Kraft, pulp, f.o.b., pulp mill	6½c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c*
Bleached soda pulp, f.o.b., pulp mill	5¾c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6½c*
Bond papers, sulphite	11c*
Best grade writings	21c*
Regular superfine	18c*
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News, contracts, f.o.b. mill	3¼c to 4c
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Tissues, good sulphite, bleached, per ream	$1.15*
Tissues, ground wood, manila, per ream	$1.25*
Kraft	8½c*
Wood manilas	7c*
News board, per ton, f.o.b. New York	$50.00*
Strawboard, per ton, f.o.b. New York	$55.00*
Chip board, per ton, f.o.b. New York	$45.00*

(*)—And higher. Rowland W. Jolly.

MORE NEWS.

H. B. Shepard, forester of the Lincoln Pulp Co., Bangor, Me., has a commission as second lieutenant in the "Forest Regiment," which is now recruiting in the United States.

The Chemical Engineering Practice Station of M. I. T. will be continued at the Eastern Mfg. Co., Bangor Me. until war conditions forbid. It was at first thought that the work would have to be entirely suspended, but later developments prove this needless.

The third group of students left for the next station Thursday, June 7th.

University of Maine graduates continue to fill technical positions in paper mills. Of this year's class E. I. Clapp goes with the Eastern Mfg. Co., S. S. Berger with the Canada Paper Co., Windsor Mills, Que. and W. T. Brawn with Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont.

American Dyes are getting ahead. By August the government expects to get from American sources all the dyes it uses in printing stamps, paper currency and the like. For the interim the government has a sufficient stock, from its two special importations from Germany.

The French press in heavily hit owing to paper shortage, and further restrictions in the size of the daily and weekly newspapers, have been insisted on by the French Government.

It appears that an epidemic of strikes has broken out all over Sweden, while paper and pulp mills are suffering from the want of coal. Some of the chemical pulp mills like Nyhamns Cellulosafabrik have had to shut down for the want of sulphur or coal, or both commodities.

CHANGE IN PULP MILL MACHINERY CONCERN.

The business of the Canadian Boomer & Boschert Press Co., Limited, will now be conducted by the Hydraulic Machinery Co., Ltd. Mr. A. E. G. Madley, who was managing director of the former is president of the new organization. The same lines of machinery will be handled.

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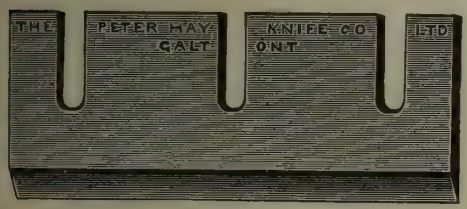
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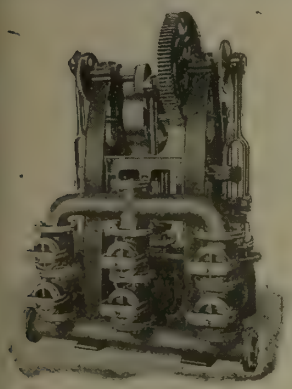
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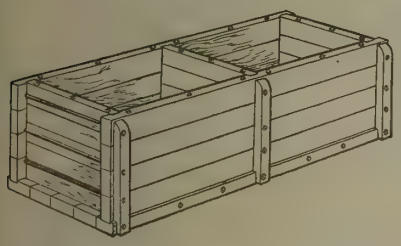
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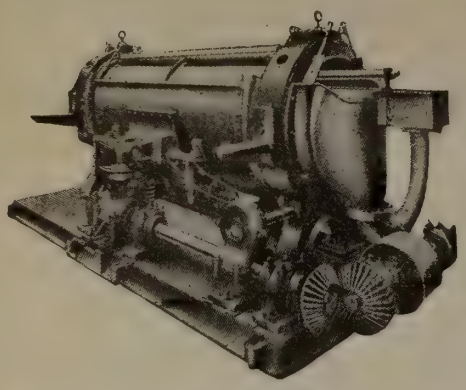
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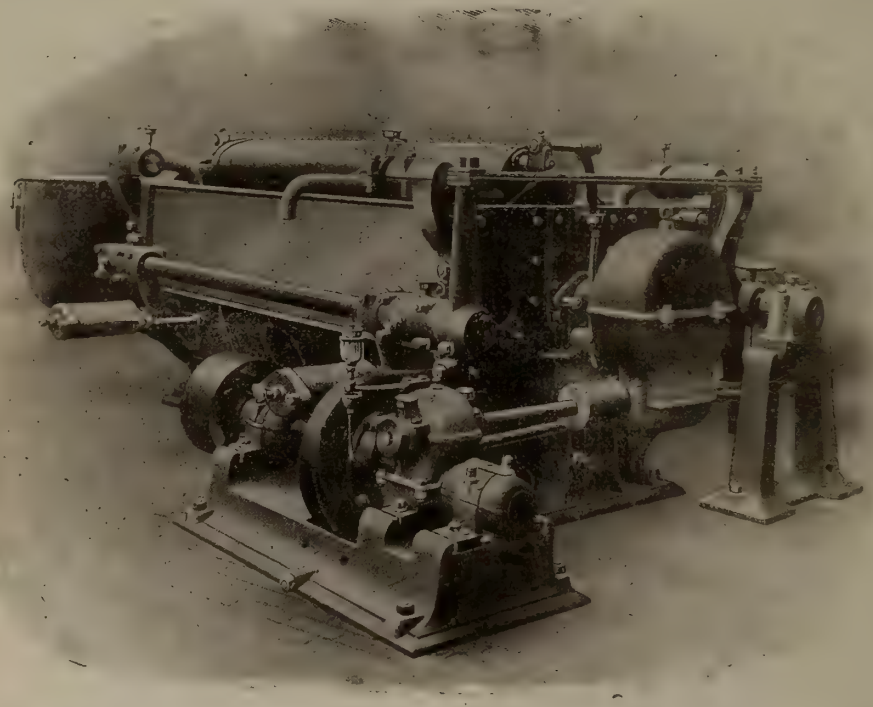
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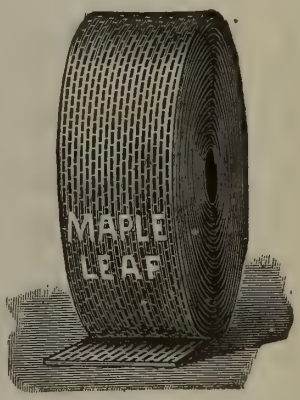
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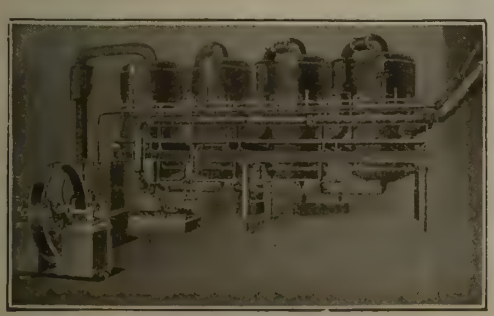


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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

OWED TO THE FREIGHT CAR.

The paper industry owes a considerable part of its trouble to the freight car and the locomotive. There is trouble in getting coal, pulpwood and other raw materials to the mills and trouble getting pulp and paper to the consumer. The trouble is partly because there are not cars enough for the amount of business to be handled, partly because the engines cannot move the trains fast enough and partly because the empty cars are in the wrong place.

Remedies are being applied to all three of these phases of the situation. In the United States the Commission on Car Service has reported to the Railroads' War Board that one railroad in the month of April hauled 2.92 tons more per car than in April of last year, thus saving on this one road the use of 58,473 cars. In the month of May the same railroad hauled 1,414 pounds more of less-than-carload freight per car than in May, 1916. This saved 6,319 cars. The Commission has ordered those railroads on which cars accumulate in congested territories to turn over to roads on which shortage exists cars to the number of 34,245. These cars are being sent in trainload lots direct to the points where they are most needed. Reports show that more than 19,000 of these cars have already been delivered.

The locomotive requirements for freight service are being temporarily relieved by reducing passenger service. A considerable amount of this can often be done with but little inconvenience to the public, as where several parallel lines run through trains on almost duplicate schedules. Taking passenger locomotives for freight service can not permanently solve the difficulty. Such action shows a serious deficiency in motive power. Passenger engines are not built for regular freight service. It is like ploughing with a trotter. If such a measure is necessary now, when weather conditions are most favorable to railroading, what will happen next winter when trains must be shorter and consequently more numerous and frequently hauled by double-headers?

A prompt distribution of empty cars to points where they are immediately needed is evidently succeeding to a considerable degree. An oversight of this situation by a Commission or joint Board is imperative where, as in many cases, there is a large discrepancy between the amounts of inbound and outbound freight, or a difference in the kind of material carried. In a pulp mill, for instance, there are coal cars, wood cars and box cars. The coal and wood cars must usually go one trip empty and the weight of the car is often almost as much as the load it carries, thus using much motive power on empties. This situation appears to be without a remedy. The character of the cargo cannot be changed. But cars can be sent where they are needed. This is a matter for the railroads to handle and presents a good field for co-operative action.

There are two points at which the public can greatly aid in easing the situation. One is in the matter of prompt unloading. Special emphasis was laid on this point at the annual meeting of the Pulp and Paper Association. Demurrage charges are of no consequence to the railroad in comparison to the earnings of a car in use. And with more cars in use it also means less storage expense and handling, as much stuff could be loaded into an empty car that, without having one, must be stored. We have no doubt but that the paper makers have taken to heart the urgent recommendation of their committee on transportation.

The other point where the public comes in is with regard to loading. Order only cars actually needed. Have goods ready to ship and load promptly.

The Railroad's War Board calculates that loading freight cars 10 per cent in excess of their marked capacity would be equivalent to adding immediately to the supply of available equipment approximately 200,000 cars. This calculation seems to have been confirmed by the experience of the one road referred to above. There are some materials, however, that are of such a character as to make it impossible to load a car even to capacity. In fact, it is sometimes difficult to load the minimum weight. A prominent lumber firm say they cannot get the minimum weight of dry spruce into a car since the railroads have increased the minimum from 34,000 to 40,000 pounds. Increasing the minimum will, of course, tend to increase the average load; but there is a limit.

The matter of safety in shipping has to be considered in loading a car. The character of the goods must also be considered. Flat goods in cases can be loaded to the capacity of a car or beyond, while paper with little or no finish, in rolls, might fill the car, but weigh considerably less than the rated capacity of the car. Short rolls can be piled in two tiers, but it is not prac-

ticable to pile anything on top of a 60-inch or 72-inch roll. If a carload of 75-inch rolls weigh 25 tons, it is obvious that the same car filled with 60-inch rolls would contain only 20 tons. The rated capacity of the car might be 30 tons, so that in neither case would it be feasible, or perhaps even possible, to load the car to its capacity. Air-dry pulp in rolls and pulpwood likewise present difficulties in the way of releasing cars by overloading those used. The pulp and paper mills are obliged to load cars as heavily as possible to move the goods they have to ship.

Word comes from one of the railways that there is no serious shortage of cars in the eastern territory, yet one company during the past month had only 62.3 per cent of the number of cars needed. They had already been shipping 25 tons in 20 ton cars. This not only means extra handling in storing, but puts a decided inconvenience on the consumer. Reports have come to us that there are many empty cars lying about in yards. Lack of motive power or poor management prevents putting them at the shipper's disposal. Shipments are very slow in moving, and this ties up a lot of rolling stock.

Winter is but little more than four months off and judging from the measures taken by the railroads now, when there is no abnormal amount of freight movement, there is every indication of serious trouble in moving freight next winter, when navigation stops and operation becomes more difficult. The shipper can and should lend every assistance, by loading to the limit and handling goods with maximum despatch, but it is up to the railroads to put the cars where they are needed and above all to furnish sufficient efficient motive power. If that is not done now, we shall be stuck next winter, sure.

SWEDEN IN A TIGHT PLACE.

Two interesting reports have recently reached us. Last week it was stated that some 200,000 tons of wood pulp is lying at Swedish ports, awaiting sale or shipment. A Washington despatch, dated July 8, says that 600,000 tons of merchant shipping is lying idle in Sweden. Importers on this side say that the reported amount of pulp is exaggerated. There is, no doubt, a very considerable surplus and more is piling up, despite a rumored cut of one-third in production.

American buyers have lately been trying to get hold of some of this pulp, but two factors are against them. One is the submarine risk and the other is the Swedish embargo against England. The Swedes fear that cargoes will be resold to British firms and to guard against this require a deposit of $60 a ton to guarantee that none of the pulp will go to England. The Americans declined to do business on that basis.

This situation is not likely to be relieved by the result of recent inquiries which indicate that supplies are leaking into Germany through Sweden. Commerce is an enterprise that works both ways, so that the embargo powers over exports which President Wilson will almost certainly employ, will not be likely to favor the importation of pulp from Sweden. Norway manages to get a little pulp over to England, but the difficulties are great, in spite of having their ports on the Atlantic. Sweden is practically bottled up in the Baltic Sea and must take orders from Germany to a large extent.

ENGLISH PAPER MAKERS PREPARE FOR READJUSTMENT.

Mr. William Dyson touches upon several important subjects in his report of the ninety-second quarterly meeting of the Amalgamated Society of (British) Papermakers, of which he is the general secretary.

The appointment of a Paper Trade Advisory Committee, consisting of an equal number of employers and workpeople, is fully explained. A function of this committee will be to advise as to all questions that affect the re-instatement into employment of all disabled men formerly employed in the trade, also to advise upon any general questions with regard to the rates of wages. These trade advisory committees will be of great value to local advisory wages boards which have been set up in twenty large towns by the Ministry of Labor. It is explained that it is the intention to set up Wages Advisory Boards in the principal centres of industry, and the advice of the Board may be obtained as to the rate of wages which an individual disabled soldier should be paid for performing specified work.

This is certainly a commendable move. There are more than 1,400 names on the list of Canadians in khaki who were connected with the paper industry. Some of them will not come back. Many of those who return will not be able to perform the work they used to do. Readjustments will be necessary. Education and re-education will play a prominent part in the process. A little time spent in training will mean time saved in gaining proficiency.

Now is the time to get organized.

TO ATTACK PAPER MAKERS.

Pulp and Paper Magazine understands that a concerted attack is to be made by the press of the country upon the pulp and paper industry. The proceedings of the probe now taking place at Ottawa are being sent broadcast over the Canadian Press wires. This is quite legitimate, but if there are unfair attacks made upon the industry by the press of the country, it will be most detrimental to all concerned, as well as being a very short-sighted policy on the part of the press. The paper industry is one of the country's great basic industries.

The Manufacture of Press Felts

Something of the Processes of Manufacture of Press Felts from the Raw Wool to the Finished Product

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(Written specially for the Pulp and Paper Magazine).

Reading through the back files of leading technical publications devoted to the manufacture of pulp and paper I have found very little on the subject of press felts. This is strange. Press felts constitute one of the principal items of pulp and paper mill-supplies. There are numerous points about their construction and the processes of their manufacture that must be understood by users before the utmost efficiency can be obtained. There are also numerous difficulties on which all mills meet on common grounds, and concerning which much might be written that would prove valuable to machine-room superintendents and machine tenders.

I do not propose to write a technical description of the processes in the manufacture of press felts. Such material would be of little interest to paper-makers, but to lead off with a casual description of these processes, and then recording a few suggestions and remarks concerning the use of press felts on pulp and paper machines merely from the woolen manufacturers' standpoint and in the light of observation and experience obtained from daily contact with machine-tenders and others, it may be that I shall be able to write something that will be found of some interest, and value too perhaps, to pulp and paper makers. It is not my purpose or desire to appear dogmatic, nor is it possible for me to discuss press felts from the technical paper-making standpoint. If my recorded impressions are at variance with paper-making principles, then I shall confess misguidance and shall look to kind friends to discuss my observations in these columns and thereby serve the industry. If I transgress on the sacred ground of technical papermaking, such transgression will be wholly unintentional.

There are many different kinds of press felts. Not only do the felts differ as to structure and finish, but different grades of wool are used in their manufacture. Felt wools, however, come under one general class, viz: Medium Combing or Down Wools

The world's wool production is tremendous, but the quantity of Down wools produced is comparatively small. The home of the Down breeds of sheep is the British Isles, and there the best felt wools are obtained. Canada produces a small quantity of Down wools quite equal in quality to the English fleeces but the quantity is comparatively insignificant. A small quantity is produced in New England, but the great producer, next to the British Isles, is New Zealand. New Zealand Crossbred Wool of the Down grades is improving in quality steadily. Australia produces very little Down wools. Some South American wools can be used in mixture, but dependence must be placed almost entirely on the British, New Zealand and Canadian wools of the Down grades.

Without discussing the present situation in the wool markets at length, some few remarks might be interesting.

The wools used in the manufacture of press felts are also the best for khaki cloth. The great demand for these wools during the past two and a half years is obvious. So great has been the demand that an acute shortage in the supply of Crossbred wools is now being faced. Merino and other wools have been pressed into use for the manufacture of military clothing, but still the situation is serious. During the last month or so the British Army Council has taken drastic steps to conserve the supply. The British and New Zealand wool supply is under absolute control, as to sale and distribution. The exportation of these wools from the United Kingdom is absolutely prohibited for the time being, and can only be obtained from New Zealand against contracts for military goods. The British woolen mills are also under absolute control. The manufacture of woolen cloth for civilian purposes has been prohibited, and wool can only be obtained through the Army Council against government contracts for military clothing, or orders for export which have been authorized by the Army Council. It is needless further to emphasize the seriousness of the present situation in the wool market.

Felt wools are purchased in the fleece in the greasy or natural state. That is, the only washing they have undergone has been while the wool was still on the sheep's back. The shrinkage in the weight of wools between the greasy condition as first purchased and the scoured condition, which is the first important operation in their manufacture into yarn, differs in wools from different farms and different localities. British wools shrink on an average of 30 per cent. They are well filled with yolk or suint or grease, but are otherwise clean and free from vegetable fibre, dunglocks, sand, dirt, or other extraneous matter. New Zealand wools shrink from 30 to 50 per cent. according to condition, and Canadian wools from 45 to 65 per cent. The felt manufacturer figures his wool costs on the scoured basis, and must exercise great judgment in buying wool to estimate the shrinkage. There is no mechanical means of determining the shrinkage except by actually scouring the wool, which can only be done after the wool is bought. Experience is the only method. Of course, some scoured wools can be purchased, but the quantity is comparatively insignificant.

As stated above, I shall only attempt to give a very casual description of the processes of manufacture.

The wool is first sorted. There are fourteen different grades of wool in each fleece. For the purpose of felt manufacture it is not necessary to sort each fleece to this extent, only four or five different sorts being required. In fact, in many instances the wool is sorted by the wool-brokers, and as only portions of the fleece are used for felt wools, the required sorts can be purchased, especially in the case of British and New Zealand wools. Wool is warehoused when purchased, in the grease or scoured condition as the case may be.

The wool is then scoured, if purchased in the grease. The next operation is the picking. The wool is fed through a cylindrical machine which disentangles the fibres and removes burrs, dirt or other extraneous matter. It is then oiled with pure lard or other good

oils to facilitate its movement through the cards. After passing through a mixing picker, where the oil is well mixed with the fibres, it is ready for the really foundation process, carding.

Although close attention must be given in the wool preparation processes, the carding process constitutes the first step towards the construction of the fabric, and is the fundamental process of construction. A description of the machine would entail considerable detail, so will not be given. The wool is fed into the machine, which consists of a series of three or four cylinders, covered with wire brush clothing over which the fibres are combed, and emerges from the finisher card in two or four sets of strands or slivers, the fibres straightened and paralleled. The slivers are of a determined diameter according to the weight or "run" of yarns being made, and are wound on to a spool in continuous strands. The manufacture of strong yarns depends, where good stock is used, on the efficiency of the carding. Uniform yarn can only be made from uniform sliver. Care must be taken not to break the tender wool fibres. This is the "first press" of the woolen mill.

The next operation is the spinning of the slivers into yarn. In the case of felt yarns this operation is performed on the mule. The operation consists of stretching the sliver, or drafting, to the required amount and twisting it a certain number of twists to the inch according to the quality required. The operation, as in the case of carding, is practically automatic once the accurate adjustments of gears and mechanisms are made. The spinning determines the strength of the yarn, and on this account is an important, as well as a necessary process.

We can now pass over a number of necessary complimentary processes such as conditioning and twisting the yarn. The next important process is weaving. Here the size of felt required is given attention. Once the weight and size of felt are given, the superintendent determines the weight of yarn to be used, the quantity, the number of picks per inch of filling and the warp threads per inch, as well as the loom size. It may interest readers to know that press felts are woven much wider than the finished width.

Weaving demands a good deal of skill. Here the felt construction is completed to suit the requirements of the paper machine. There are different weaves, as plain weave, basket weave and twill weave, used according to the quality of felt being made. Where an order of a dozen or more felts of the same quality and size is required, as many as twelve felts may be woven without changing the loom. Where smaller orders, of one, two or three felts are required, the looms have to be changed often which means additional labor and delay. A further item of importance is that where, say a dozen felts are woven off one warp, a greater degree of uniformity can be obtained than where individual felts or small orders ar woven. It is therefore of value to paper mills to specify delivery where possible of six or a dozen felts of each size at one time.

The joining operation follows: The felts are woven slightly longer than the specified finished size, and after inspection are turned over the joining bench where nimble-fingered girls unravel the ends for six or eight inches and interweave the yarn in such a manner that the place where the felt is joined is qui equal in strength to any other part, and the join ca scarcely be detected when the felt is finished. In fac the joining operation is simply weaving the ends tog ther by hand after same method as is employed b mechanical means in the loom.

The felt is then ready for the finishing operation After washing to remove the oil and dirt retained i the wool or gathered during the preceding operation the felt is placed in the fulling mill to receive the nece sary felting and shrinking required to knit the fibr closely together and put body in the felt. The fullin operation is one of the most important in felt manu facture. It requires the closest watching and care. Th fulling operation is perhaps the crudest and mo mechanical of all processes in the manufacture of th felt, and yet it is one of the most important. As pr viously stated, the fulling shrinks the felt from th loom size to the required width, and to a much smalle extent in length. The actual paper-machine size of th felt is determined and obtained in the fulling mill.

The felts are again washed to remove the soap an fulling materials. In the case of pulp felts they ar then ready for the pulp mill, that is after extraction o water, drying and any necessary stretching.

In the case of paper machine felts, the surface re quires to be napped or the fibres raised to give the fe a smooth surface to prevent the paper from markin and other purposes with which readers are more fam liar.

Napping the felt is done by passing the tightl stretched surface of the felt in contact with finely hooked teasels or brushes attached to a revolvin cylinder parallel to the surface of the felt. Her again, the napping is performed according to the re quirements of the paper machine, and is determine by the felt manufacturer according to records, an experience. The felts are then ready for the pape machine.

This account is purely elementary as a preliminar to further articles discussing points that are sure t be of more interest to readers. I trust that it will b possible for me to give readers actual service throug these articles.

TO RAISE THE LAKE OF THE WOODS.

The International Joint Commission of the Unite States and Canada has finished its survey of the Lak of the Woods which is on the bounday about half wa between the oceans. Their report recommended level of 1,061.25 feet above sea level as most advantag ous to all concerned on both sides of the boundary.

They recognized water power as the dominan interest of the region, and their report provides fo the upper lakes as immense storage reservoirs for th benefit of this interest.

The report provides that wherever agricultural land are flooded the owners are to receive full compensa tion for all damages to land or other property.

The outlets at Kenora will cost about $175.00 Compensation is provided for interests at the outlet and on Winnipeg River, which will be injuriously affected.

APER AND ALLIED MATERIALS IMPORTED INTO CANADA, AND EXPORTS OF PULP, PAPER, ETC., OF CANADIAN ORIGIN.

OTE.—These figures are given from the unrevised Monthly Statements of the Canadian Customs.

Articles and Countries Whence Imported.	February, 1917. General Tariff. Quantity. Lbs.	Value. $	Preferential Tariff. Quantity. Lbs.	Value. $	Ten Months Ending January, 1917. General Tariff. Quantity. Lbs.	Value. $	Preferential Tariff. Quantity. Lbs.	Value. $
Paper and manufactures of:—								
Albumenized and other papers and films chemically prepared for photographers' use:—								
From G. Britain	.....	.....	.....	118	.....	5	.....	19,765
U. States	.....	16,635	.....	.....	.....	140,152	.....	.....
Other countries	.....	.....	.....	.....	.....	170	.....	.....
	.....	16,635	.....	118	.....	140,327	.....	19,765
Bags or sacks, printed or not:—								
From G. Britain	.....	14	.....	1,464	.....	351	.....	28,035
U. States	.....	3,469	.....	.....	.....	34,310	.....	.....
Other countries	.....	.....	.....	.....	.....	122	.....	.....
	.....	3,483	.....	1,464	.....	34,783	.....	28,035
Cards for playing:—	Packs.	$	Packs.	$	Packs.	$	Packs.	$
From G. Britain	.....	.....	5,052	689	602	89	276,205	30,050
U. States	15,408	2,133	.....	.....	150,715	24,340	.....	.....
Other countries	1,600	110	.....	.....	9,148	638	.....	.....
	17,008	2,243	5,052	689	160,465	25,067	276,205	30,050
Cardboard, not pasted or coated:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	440
U. States	.....	20,203	.....	.....	.....	124,742	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	20,203	.....	.....	.....	124,742	.....	440
Envelopes:	M.		M.		M		M.	
From G. Britain	5	16	411	589	38	121	4,396	8,368
U. States	6,630	7,132	.....	....	54,625	80,155	.....	.....
Other countries	5	5	.....	.....	512	409	.....	.....
	6,640	7,153	411	589	55,175	80,685	4,396	8,368
Felt board:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U States	....	60	.....	.....	.....	2,984	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	2,984	.....	.....
Hangings of wall paper, including borders:	Rolls of 8 yds.		Rolls of 8 yds		Rolls of 8 yds.		Rolls of 8 yds.	
From G. Britain	.....	.....	437	188	2,600	1,100	68,733	11,993
U. States	258,870	31,670	.....	.....	1,530,108	137,334	.....	.....
Other countries	256	481	.....	.....	3,569	2,998	.....	.....
	259,126	32,151	437	188	1,536,277	141,432	68,733	11,993
Leatherboard, leatheroid and manufactures of, N.O.P.:—								
From G. Britain	.....	.....	.....	.....	.....	6	.....	104
U. States	.....	5,346	.....	.....	.....	30,508	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	5,346	.....	.....	.....	30,514	.....	104
Millboard not coated or pasted:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	466
U. States	.....	3,974	.....	.....	.....	50,182	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	3,974	.....	.....	.....	50,182	.....	466
Union collar cloth paper, in rolls or sheets, not glossed or finished:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	1,073	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	1,073	.....	.....
Union collar cloth paper in rolls or sheets, glossed or finished:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	11,607	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....

Articles and Countries Whence Imported.	February, 1917. General Tariff. Quantity. Lbs.	February, 1917. General Tariff. Value. $	February, 1917. Preferential Tariff. Quantity. Lbs.	February, 1917. Preferential Tariff. Value. $	Ten Months Ending January, 1917. General Tariff. Quantity. Lbs.	Ten Months Ending January, 1917. General Tariff. Value. $	Ten Months Ending January, 1917. Preferential Tariff. Quantity. Lbs.	Ten Months Ending January, 1917. Preferential Tariff. Value. $
Pads, not printed, papier mache ware, N. O. P.:—								
From G. Britain	.....	45	.....	.....	.....	.....	.....	1,019
U. States	.....	75	.....	.....	.....	5,847	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	120	.....	.....	.....	5,847	.....	1,019
Paper, manufactures of, N. O. P.:—								
From G. Britain	.....	5	.....	14,389	.....	15,774	.....	244,985
U. States	.....	159,624	.....	.....	.....	1,659,245	.....	.....
Honk Kong	.....	1,014	.....	.....	.....	5,882	.....	.....
Belgium	.....	.....	.....	.....	.....	215	.....	.....
France	.....	2,150	.....	.....	.....	109,334	.....	.....
Japan	.....	467	.....	.....	.....	8,523	.....	.....
Other countries	.....	132	.....	.....	.....	2,662	.....	27
	.....	163,392	.....	14,389	.....	1,801,635	.....	245,012
Paper matting when for use in Candian manufactures:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	642	.....	.....	.....	1,088	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	642	.....	.....	.....	1,088	.....	.....
Patterns, boot and shoe, manufactures of paper:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	843	.....	.....	.....	10,890	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	10,890	.....	.....
Printing paper (for newspapers) in sheets or rolls, valued at not more than 2¼c. per pound: —	Lbs.		Lbs.		Lbs.		Lbs.	
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	10,340	189	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	10,340	189	.....	.....
Printing paper, N. O. P.:—								
From G. Britain	.....	.....	101,600	10,398	9,447	742	384,656	48,972
U. States	351,740	37,574	.....	.....	3,702,532	265,578	.....	.....
Other countries	.....	.....	.....	.....	33,799	2,815	.....	.....
	351,740	37,574	101,600	10,398	3,745,778	269,135	384,656	48,972
Ruled and border and coated papers; boxed papers and papeteries:—								
From G. Britain	.....	.....	.....	2,846	.....	1,447	.....	31,133
U. States	.....	23,651	.....	.....	.....	214,472	.....	.....
Belgium	.....	.....	.....	.....	.....	1,114	.....	.....
Other countries	.....	184	.....	.....	.....	771	.....	.....
	.....	23,835	.....	2,846	.....	217,804	.....	31,133
Straw-board not pasted or coated:—								
From G. Britain	.....	.....	.....	.....	40,000	787	147,374	3,208
U. States	392,449	9,334	.....	.....	7,334,877	140,375	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	392,449	9,334	.....	.....	7,374,877	141,162	147,374	3,208
Tarred, and other building paper, N. O. P.:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	43
U. States	.....	12,304	.....	.....	.....	156,027	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	12,304	.....	.....	.....	156,027	.....	43
Window blinds of paper of all kinds:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	130	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
Wrapping paper:—								
From G. Britain	340	34	56	7	561	30	15,390	1,910
U. States	407,112	20,682	.....	.....	6,083,619	229,553	.....	.....
Norway	.....	.....	.....	.....	.....	.....	.....	.....
Sweden	.....	.....	.....	.....	.....	.....	.....	.....
Other countries	.....	.....	.....	.....	4,138	199	.....	.....
	407,452	20,716	56	7	6,088,318	229,782	15,390	1,910

All kinds, N. O. P.:—								
From G. Britain	231		17,641		14,009		216,908	
U. States	90,049				1,179,369			
Belgium								
France	576				7,816			
Norway					1,425			
Sweden					697			
Other countries	1,179				11,817			
	92,035		17,641		1,215,133		216,908	
Wood pulp:—								
From G. Britain								
U. States	88,710				518,158			
Sweden								
Other countries								
	88,710				518,158			

FREE GOODS—MANUFACTURED AND PARTIALLY MANUFACTURED ARTICLES.

Articles and Countries Whence Imported.	February, 1917. Quantity.	Value.	Ten months ending January, 1917. Quantity.	Value.
Paper, Matrix, not being tissue paper, for use in printing:—				
From Great Britain		393		1,671
United States		1,438		17,955
Other countries				520
		1,831		20,146
Paper tubes and cones of all sizes adapted for winding yarn thereon:—				
From Great Britain		247		725
United States		4,450		27,865
Other countries				
		4,697		28,590
Paper and materials of paper, gutta percha and rubber for the manufacture of music rolls for piano players:—				
From Great Britain				
United States				6,942
Other countries				
Paper, photographic, plain basic, baryta coated, adapted for use exclusively in the manufacture of albumenized or sensitized paper:—				
From Great Britain		1,710		4,957
United States		14,533		74,042
Other countries				662
		16,243		79,661
Paper, decalcomania, not printed, when imported by manufacturers of decalcomania transfers to be used in their own factories in the manufacture of such transfers:—				
From Great Britain		561		609
United States				
Other countries				
Rags of cotton, jute, hemp and wool; paper waste clippings, and waste of all kinds, N.O.P., except metallic broken glass or glass cullet:—	Cwt.	$	Cwt.	$
From Great Britain	3,025	20,725	38,055	103,701
United States	49,762	174,276	610,064	1,396,948
Portugal	2,281	7,454	5,591	12,788
Spain			2,233	3,939
Other countries	400	2,194	746	4,221
	55,468	204,649	656,689	1,521,597
Resin or rosin in packages of not less than 100 lbs.:—				
From Great Britain			3	16
United States	24,378	59,189	243,856	520,726
Other countries				
	24,378	59,189	243,859	520,742
Twine or yarn of paper imported by manufacturers for the purpose of being woven into fabrics:—				
From Great Britain				
United States		611		1,986
Other countries				
Twine or yarn of paper for use in the manufacture of furniture:—				
From Great Britain				
United States		9		2,925
Other countries				

EXPORTS OF PULP, PAPER, ETC., MADE IN CANADA.

Articles and Countries to Which Exported	February, 1917. Quantity. Cords.	February, 1917. Value. $	Ten months including January, 1917. Quantity. Cords.	Ten months including January, 1917. Value. $
Wood blocks and other, for pulp:—				
To G. Britain	.....	.....	.....	.....
U. States	41,853	251,783	861,874	5,774,103
Newfoundland	.....	.....	.....	.....
Other countries	.....	.....	.....	.....
	.....	.....	.....	.....
Paper, viz.:—				
Paper board:—				
To G. Britain	.....	26,302	.....	307,466
U. States	.....	53,861	.....	668,843
Newfoundland	.....	.....	....	1,518
Other countries	.....	4,076	.....	30,094
	.....	84,239	.....	1,007,921
Paper, wall:—	Rolls.		Rolls.	
To G. Britain	.....	.....	3,730	1,367
U. States	.....	.....	22,562	2,041
Newfoundland	.....	.....	287,114	17,438
Australia	.....	.....	126,426	12,137
Other countries	61,147	5,573	510,650	43,323
	61,147	5,573	950,482	76,306
Felt and roofing:—				
To G. Britain	.....	1,845	.....	53,151
U. States	.....	14,858	.....	95,690
Newfoundland	.....	403	.....	33,790
Other countries	.....	60	.....	8,300
	.....	17,166	.....	190,931
Wrapping:—	Cwt.		Cwt.	
To G. Britain	7,822	30,483	91,979	346,987
U. States	430	3,588	12,093	60,838
Newfoundland	1	5	731	4,815
Australia	1,189	5,764	22,245	71,313
Other countries	3,585	18,879	43,542	175,722
	13,027	58,719	170,590	659,675
Printing:—				
To G. Britain.	2,879	5,759	50,373	125,976
U. States	703,191	1,846,005	7,767,060	16,039,137
Newfoundland	.....	.....	215	551
Australia	77,074	177,496	389,367	739,892
New Zealand	16,112	38,100	236,699	553,266
Other countries	36,404	91,038	243,181	542,734
	835,660	2,158,398	8,686,895	18,001,556
Paper, N.O.P.:—				
To G. Britain	.....	183	.....	17,110
U. States	.....	1,363	.....	34,847
Newfoundland	.....	328	.....	16,639
Other countries	.....	2,913	.....	28,122
	.....	4,787	.....	96,718
Rags and waste:—				
To G. Britain.	.....	.....	12,887	117,333
U. States	22,580	31,181	304,005	418,328
Newfoundland	.....	.....	5	40
Other countries	25	100	6,260	18,045
	22,605	31,281	323,157	553,746
Wood pulp, chemically prepared:—				
To G. Britain	16,359	62,954	642,269	2,555,883
U. States	252,884	913,732	3,263,797	8,538,096
Newfoundland	.....	.....	.....	.....
Japan	10,976	26,955	79,017	151,561
Other countries	.....	.....	6,181	17,266
	280,219	1,003,641	3,991,264	11,262,806
Wood pulp, mechanically ground:—				
To G. Britain.	.....	.....	494,474	379,488
U. States	263,522	353,384	4,759,952	4,557,233
Newfoundland	.....	.....	.....	.....
Other countries	.....	.....	662,219	504,221
	263,522	353,384	5,916,645	5,440,942

NOTES ON NEWFOUNDLAND'S FORESTS.

Replying to a request of the Canadian Forestry Journal, Mr. J. D. Gilmour, General Logging Superintendent of the Anglo-Newfoundland Development Company, and formerly of the British Columbia Forest Service has briefly touched upon some of the forest conditions of the island as follows:

The Anglo-Newfoundland Development Company owns a continuous block of timber lands, amounting to 2,316,000 acres, and comprising all the drainage area of the Exploits River from Grand Falls where the mills are situated, to the head. Twenty-five thousand horse power are developed at Grand Falls. The plant has a daily capacity of 184 tons sulphite and 192 tons newsprint. The product is shipped over a Company railway 22 miles long from the plant to Botwood Harbor. The usual difficulties in shipping to England have been met during the war, and part of the product has accordingly gone to the United States.

The timber is spruce and fir, the former being mostly black spruce. The white and red species also occur. The limits are well served by water, so that everything is driven to the mills and comparatively short hauls are necessary in the woods.

Logging is all done in winter from October 1—May 1. More men are available then, and in summer the fire danger is great if camps are operated.

The company maintains a fire patrol, and uses lookout points with telephones. One feature where Canadian limit holders have a little advantage is that Canadian railways in timbered country must patrol their tracks at their own expense. Here an informal association of limit-holders, with Government assistance, performs the patrol on the Reid-Newfoundland Railway. However for five years they have succeeded in keeping down the fires from this cause, and that is the main thing.

This country as a whole is timbered best along the valleys and around the lakes of which there are an immense number. Wherever the land is flat, or away from a drainage system, there are bogs, some very large. At elevations of 1,000 feet above sea level barrens and bogs, the habitat of thousands of caribou, are the rule.

The greater portion of the island bears no timber, partly on account of these natural bogs and high barrens and partly on account of many disastrous fires in the past This is the oldest British colony, and has suffered from fires longer than any other. As in other places, it is only in the last generation that any thought has been given to the matter of preventing them. The population for 400 years has always got its living mainly from the sea, so that there was, and is more indifference here than in the U.S.A. and Canada. However, in this respect an improvement is noted in recent years.

Clean cutting of all spruce and fir down to 5 inches D.B.H. is the method followed here, and careful inspection of logging operations leads to conservative cutting, low stumps, tops utilized to 4 inches, etc. The result is a very fine natural growth of fir and spruce, partly from volunteer growth, and partly from seed in the ground. If fires can be kept out (and there have been none in ten years logging since this company started operations) there is no question about a second crop.

The St. Maurice Paper Co., Ltd

Visited by the Technical Section, Summer Meeting, June 15.

Limits to the extent of 2,000 sq. miles supply the lumber and cutting up mills at Charlemagne, Three-Rivers and St. Gabriel. The cutting up mills are all equipped with Ryther and Pringle Slashers, the American Barking Drum, the Wm. Hamilton Co. drum, barkers and other modern machinery for preparing and distributing pulp wood. The St. Gabriel mill is also equipped with apparatus for barking slabs. All three mills have railroad connections with the pulp and paper mills at Cap Madeleine. Most of the wood from Charlemagne and some from Three Rivers however is transported by means of a tug, and a fleet of scows of 400 cords capacity each. Shipments by boat are unloaded at the company wharf onto a suspended cable conveyer and carried directly to chipper or storage pile. Rail shipments are unloaded in a similar manner.

The wood room is equipped with two Carthage Chippers with conveyer feed arrangement, Lombard crushers, horizontal shaking screens, and long belt conveyers leading to chip bins in sulfate and sulfite mills.

Sulfate Mill.

The sulfate mill proper is 48 x 87 feet and contains two Continental (from Brooklyn) welded steel digesters 9 x 42 feet, six steel diffusers 28' 6'' x 12' — O''., stock traps Kelley Filter Press and several large water and liquor tanks. This gives a capacity of 60 tons per day. By means of a common blow line with swivel joint connection either digester may be blown into any one of the six diffusers, which are situated three in a line, above and beside a capacious concrete stock chest. Gravity pressure is used on the diffusers.

The Recovery Building, 120 x 160 feet, is of the most modern construction; — spacious, well lighted and ventilated. In one section is a complete Swenson quadruple effect evaporator with large storage tanks for weak and strong liquor respectively underneath. The second and main section is very well arranged and contains three soapstone melting furnaces, revolving incinerators, dish evaporators, Buffalo Forge Co. induced draft fan and Sturtevant blowers. The drive is entirely from the basement. The Alkali Room is in an annex and contains seven causticizing tanks of 1,500 cu. ft. capacity. Underneath these are iron and concrete tanks for strong and weak liquor respectively. A liquor line with overflow return connects this room with the digester building. The lime and salt cake storage room, adjoining, is equipped with electric hoists that run to alkali room and melting furnace.

Sulfite Mill.

The sulfite mill which also has a capacity of 60 tons has two 15 x 50 feet Manitowoc digesters with Jolbert linings, the usual elevator, chip bin and other accessories. Acid is made in a separate building 100 x 55 feet which contains lime and sulphur storage, rotary sulfur burners, combustion chamber, coolers and a complete Barker and making and reclaiming system. Lime storage and mixing tanks are in the upper part of the building. Acid is stored in wooden tanks between the digester building and acid plant and pumped from there by an electrically driven pump into the bottom of digester. Directly connected with this digester house are large concrete blow-pits with white water washing tanks above.

A Screen Room for sulfite and sulfate pulp, 60 x 152 feet adjoins the digester building and contains water filters, horizontal Quiller screens for tailings, a Howard refiner and sulfite thickeners, flat screens for tailings, a Howard refiner and sulfite thickeners and chests. Two conical bottomed concrete mixers for news stock are also in this room. Pulp is supplied in slush form and after mixing is pumped through Jordans near the paper machines.

Around Wood Mill.

The ground wood mill is entirely electrically driven and well equipped along modern lines. Double tracks of from cars capacity each run into the mill between two rows of wet machines, one row taking of excess sulfite and sulfate, the other ground wood entirely. This facilitates the shipment of pulp, and the supplying of wood to grinders which are near by. A 240 cord storage rom is also handy to the track and grinders.

15 grinders are arranged in lines of three, each line being driven at 266 RPM by a 1200 H.P. Allis Chalmers Constant Speed Induction Moter with flexible couplings. (6 Jenckes Grinders; 9 Waterous). All but one take a 27'' x 54'' stone; the exception is a grinder with a stone 33'' x 54'' and is used for long wood. A Witham Sliver pocket is used on one grinder.

Stock from the grinders flows through a bull screen (inclined screen) and is then pumped to ground wood screen room which contains a vertical Baker and Shevlin and 7 Vertical Quiller Screens on first stock, and 6 12-plate flat screens on tailings. Tailings from flat screens pass through a refiner of German make and from second stock. One 200 H.P. motor drives all screens.

The screened stock is taken care of by a battery of 10 Sherbrooke deckers 86'' x 40'', supplying slush for paper mill. Excess over that required in paper mill is taken off on 8 wet machines (Sherbrooke) hydraulically pressed, and shipped mostly to the United States. Second stock is also pressed and shipped. 4-600 ton hydraulic presses and 2 Boomer & Boschert accumulators are used. The production is 100 tons daily.

Power Plant.

The Boiler House has six 500 H.P. B & W. water tube boilers with superheaters, chain grate stokers, Greene fuel economizers induced draft fans, and overhead storage bunkers of 700 tons capacity. In connection with a large heater and receiving tank Terry boiler feed pumps are used for feed water supply. Coal is conveyed from storage near tracks just at one end of boiler house, through a coal crusher, inclined and horizontal conveyer to the bunkers.

Paper Mill.

The paper mill is two stories high, 89 x 289 ft. It is lined with gray brick. The roof is built of special hollow concrete beams to avoid condensation, and has a specially designed monitor for light.

There are two Pusey and Jones high speed 166'' paper machines ,with 60'' dryers and all the latest improvements now running at 635 feet. The drive is

from the basement, of the English cotton rope type. Herrington gears are used all together. Each machine is driven with a Terry steam turbine connected to the driving shaft by reducing gears. The exhaust steam is used for drying.

Stock and white water chests of concrete are located under the wet end of the machine. Constant speed line shafts driven from motors drive all pumps, agitators, and the like. The machine room is equipped with a warm air supply and exhaust fans for removing the vapor then specially constructed fireproof hoods. Broke, and pulp in laps at times, is handled by two large beaters in the basement near the dry end of the machines.

At the end of the machine room is the finishing room 128 by 157 feet, two stories high. Railroad tracks run directly through the building on one side, and close to the building on the other side.

The organization of the mill is as follows:—

Pres., M. B. Wallace; Vice-Pres. and General Manager, Alex. McLaurin; General Superintendent, Thomas A. Wark; Office Manager, Howard F. Smith; Sulfate Superintendent, John McIverson; Sulfite Superintendent, Carl Jonz; Ground Wood Superintendent, John T. O'Reilly; Steam and Electricity, S. W. Slater.



Boiler House Alkali Recovery Chemical Pulp Mill Paper Mill
(Courtesy Pusey & Jones Co.) The Ground Wood Mill is Beyond Paper Mill.

ON HIGH-PRICED BRITISH NEWSPAPERS.

That there is no real need of the extra price charged for most papers is evident. There are still some halfpenny papers in London, and the weight of a copy is under 1½ oz. Even at 4 d. per pound this would only cost three-eights of a penny per copy of the paper, and it is not the first time in the history of journalism that such papers have been worked on as low a margin, and worked successfully.

These remarks refer entirely to the daily papers. We do not understand that the proprietors of weekly and monthly journals are involved in this move. It would be a pity if these journals had to be reduced if it could be avoided. They may reasonably advance their prices. Many have done this, and the reduced circullation, which really follows, in this case will effect the desired economy of paper. A great many of these are normally supplied by home mills, and they certanly should not be placed at a disadvantage by any preference being given in favour of the daily papers.

THE SULPHUR QUESTION IN GERMANY.

Before the war the Germains obtained annually 900,000 tons of iron pyrites from Spain for the manufacture of sulphuric acid, and they themselves produced about 300,000 tons every year at Megen in Silesia. In 1912 and 1913, however, they increased their purchases from Spain to 1,200,00 tons per annum. Owing to the stoppage of the Spanish supplies by the war, they had to look about for other sources, and have, no doubt, found some in occupied Poland, and small quantities also in Greece and Turkey. Besides this Germany has received about 400 000 tons of pyrites annually from Norway. The eminent French chemist, M. Cazeneuve, states that the Germans have succeeded in producing anhydride from plaster of Paris with the help of the electric furnace. The Germans are also reported to be carrying on a process consisting in treating plaster of Paris with sand, and producing silicate of lime and cement at the same time as sulphurous acid. The Norwegian supply of pyrites is not now available to Germany.—Iron and Coal Tr. Review.

Accidents in Paper Mills

Since Mr. A. P. Costigane assumed the duties of Secretary and Safety Engineer for the Ontario Pulp and Paper Makers' Safety Association, he has done a lot of good work in helping to improve safety conditions in the mills. The following excerpts from his recent reports indicate the lines along which further improvements are possible.

"The partial survey of conditions existing in the Pulp and Paper industries of Ontario which I have been able to make up to the present time, leads me to the following conclusions:

(1) That Safety Committees already formed will require constant stimulation to keep them up to concert pitch in Accident Prevention.

(2) That the introduction of Elementary education, especially in the districts where a large percentage of the employees are non-English speaking, is desirable.

(3) That a greater interest and co-operation on the part of Superintendents and those in authority would give Safety work a great impetus.

The consummation of the first conclusion is largely in the hands of the Safety Engineer, when such an Official exists, or the Chairman of the Safety Committee. Every accident, trivial or serious, should be thoroughly discussed, strict records of all accidents should be kept and monthly comparisons made and progress noted. If it were possible to occasionally introduce a little social gaiety to enliven proceedings, such as an evening gathering of the Committee, graced by the presence of wives or female relatives, such gatherings would enlist the sympathies of the women and gain an outside influence which would be invaluable. Such opportunities could be seized by an Official of the Company to give an informal talk on the benefits of carefulness. I am sure that any firm putting up the money to cover the cost of light refreshments would be more than repaid by the good feeling thus engendered.

The second conclusion dealing with education is of immense importance and strikes right down at the root cause of many accidents. In districts where language is a difficulty, there is constantly in evidence one of the greatest of all hazards, than can only be guarded against by the removal ofthe cause. No matter how painstaking a foreman may be, it is almost impossible for him to explain the hazards of an operation to a green man who does not fully comprehend the language and is different about letting the foreman know he doesn't understand. Were it known in the mills that employees attending night school in an endeavor to make themselves more efficient, would be first in line for promotion, the difficulty of getting attendance might be eliminated. Progress along the line was made during the past winter at Thorold, Mr. Carruthers being the Chairman of the Committee, and I am sure he will agree that a great field of endavor lies at the door of every Pulp and Paper Mill in Ontario.

The third conclusion is of fundamental importance, embracing as it does all the others. If conscientious warm-harted and sincere co-operation is not forthcoming from the management of any Company, then progress in any branch of Safety work must be spasmodic and ineffective. There is no doubt that our industries during the last year have been working under extremely onerous conditions, but these conditions applied equally to all plants, yet some plants have made substantial progress, while others lament the conditions and use them as an excuse for non-progressiveness. It is my intention during the current year to do all in my power to persuade all Superintendents to view Safety work from a more progressive angle.

A list of accidents during 1916 has been compiled, showing the number and causes of accidents, but I regret, owing to the incomplete records kept by some of the firms, I am not able to give as full information as is desirable. In this list all accidents causing loss of time, compensatable or non-compensatable, are included and in this respect varies from the Workmen's Compensation Board list, which only deals with compensatable accidents. A careful analysis of accident reports shows that out of a total of 620 accidents, 48 were due to extreme carelessness, 10 to carelessness of fellow employees, 295 to ordinary carelessness and 267 due to trade risks. Included in these figures are 10 accidents which terminated fatally.

The Workmen's Compensation Board's report for 1916 reveals some interesting facts, chief of which is the increase of compensatable accidents from 324 in 1915 to 506 in 1916 equal to 56%. This increase is more impressive when compared with the increase in all accidents in all industries under Schedule 1 for 1915 was 9,239 which increased in 1916 to 13,731 equal to 48.6%, showing that the increase in the Pulp and Paper industry under Class 2 was 7.4% in excess of the increase in all industries taken as a whole. The following table shows the seriousness of accidents in Class 2 compared with the accidents in all industries taken as a whole.

Comparison Table.

All Classes in Schedule I Combined.

Temporary Disability	87.6%
Permanent Disability	10.9%
Deaths	1.5%
Total Accidents	12,273

Class 2.

Temporary Disability	90.54%
Permanent Disability	7.31%
Deaths	2.15%
Total Accidents	465

The above table shows that while an excess increase in accidents took place in Class 2 the increase was mostly in accidents causing temporary disability. The increase in fatal accidents is of greater significance and much to be deplored. In future every effort must be made to reduce this drain on the industry. As no information is given in the Board's Report as to the number of employees for the years 1915 and 1916 the value of the above figures is greatly impaired. Unless there is a basis for annual comparison between the number of accidents and the number of people employed it is impossible to show as to whether progress has been made or not. I would suggest that representation be made to the Workmen's Compensation Board to have inserted on their payroll form a question so framed as to secure this information from the mills.

The difference between the total number of accidents 506 and the total given in Comparison table 465 =41 accidents which occurred towards end of the year and had not been dealt with finally in report.

Review of Recent Articles of Interest to the Pulp and Paper Industry

British Columbia Woods.—Can. Woodworker, Vol. 17, (1917), No. 6, pp. 22-29. — The uses, properties, and handling of B.C. woods. An illustrated series of articles by several authors.—H.N.L.

Scientific Investigation and the Forest.—Can. For. J., Vol. 18, (1917), No. 5, pp. 1089-92.—A comparison of the forestry research work of Canada and other countries, showing how little is being done in the Dominion.—H.N.L.

New Brunswick Probes its Forest Contents.—Can. For. J., Vol. 13, (1917), No. 5, pp. 1095-6.—On the basis of surveys made it is estimated that the total stand of timber in N.B. is about 16,220 million feet, which when marketed will be worth $300,000,000. More attention should be paid to fires and to reproduction.—H.N.L.

Four Fire Associations Now Blanket Quebec.—Can. For. J., Vol. 13, (1917), No. 5, p. 1098.—The Ottawa River; St. Maurice; Laurentian; and Southern St. Laurence protective associations now cover 75,000 square miles of the best timber lands of the province. —H.N.L.

Strange Ways of Using Pulp. — Can. For J., Vol. 13, (1917), No. 5, pp. 1103-5. — Lamps, lamp wicks, chimneys, string and twine, boats, barrels, gas pipes, cloth and umbrellas are a few of the uses listed.—H.N.L.

The Sugar Pine.—S. B. Detwiler, Am. For., Vol. 23, (1917), No. 281, pp. 280-4.—Identification, characteristics and commercial uses.—H.N.L.

South American Forest Resources.—Am. For., Vol. 28, (1917), No. 281, pp. 295-8.—Illus.—H.N.L.

Nature's Warfare in Field and Forest. — E. R. C. Webber, Van. For. J., Vol 13 (1917), No. 6, pp. 1151-6. —Points out the value of certain animals and especially of birds in destroying destructive insects.—H.N.L.

State Forestry in Ireland.—H. R. MacMillan, Can. For. J., Vol. 13, (1917), No. 6, pp. 1168-72. — H.N.L.

New Woods for Paper Pulp.—Dr. Otto Kress, Sci. Am., June 16, p. 593. The Forest Products Laboratory of Madison, Wis., has demonstrated the suitability of ten new or little used woods including Engelman spruce, lodgepole pine, and white fir. Newsprint was made from experimental pulps and actually used by the New York Herald and the St. Louis Republic. Since paper from different woods showed a variation in color the Department of Psychology of the University of Wisconsin undertook to study the effect of color on eye fatigue. Slight variation in color is probably of no real importance. The laboratory has developed a new method of cooking wood by the sulfate process. A good kraft was made both from western and southern yellow pine. Overcooking of soda pulp was found to be the cause of fuzziness in the finished sheet and the introduction of moisture during the cooking period was found to increase the yield of pulp 9%. It is possible to substitute spent hemlock bark for as much as thirty per cent of the rag stock used in roofing felts. —A.D.C.

How the Austrians Make Paper Twine, Yarn, and Belting. — Anon. Sci. Am., June 23, 1917. p. 629. It seems doubtful that, unless certain improvements are made, that these materials could replace hemp, jute and flax, under ordinary and normal conditions. Paper cordage and belting when wet, loses practically all its tensile strength.—A.D.C.

Paper of Mercerized Cotton. — Anon. Scie. Amer., June 23, 1917, page 629. Experiments indicated that rags of mercerized cotton were peculiarly suitable for the manufacture of blotting paper.—A.D.C.

Proper Rotation for the Addtiion of Rosin Size, Alum and Coloring Matter. By A. E. Sunderland. Paper, Vol. 20, (1917), No. 4, pp. 13-16. The question of the proper rotation governing the addition of rosin soap, aluminium sulphate and dyestuff are complicated by such factors as the following: (1) Pulp varying from one with high lignocellulose content to almost pure cellulose; (2) Water either soft, and contaminated by iron, or very hard, with lime and magnesia impurities; (3) Rosin size, varying in alkalinity and composition; (4) Dyestuffs, some of which react as acids and others as bases, some being absorbed by pulps and others indifferent. The following are the possible methods of addition: (1) Color, size, alum: (2) Color, alum, size. (3) Size, alum, color, (4) Size, color, alum. (5) Alum, color, size. (6) Alum, size, color. Methods were tested using the following proportions: Pulp 10 g. sulphite bleached pulp board; 500 g. water; color 1 g. = 1%; Rosin size, 5 c.c. = .5 g. or 5% solid rosin on weight of pulp; alum, 5 c.c. (10% alum sol.) = 5% solid alum. Twenty minutes were allowed to elapse between each addition. The experiments proved that the following is the best method: (1) Color. (2) Add alum, in the case of basic colors the alum not to be in excess, in case of acid and substantive colors the alum to be in excess. (3) Add the size, and if necessary assist by the addition of a little common salt.—E.K.M.

Determining the Dryness of Pulp.—Paper Making, Vol. 36, (1917) No. 5, pp. 158-160. (From Wochenblatt). The samples to be dried are weighed in a permanently tared, high wide mouthed glass bottle or in tin boxes with good closing lids, weighed (with lids) and then placed open in the drying closet. The drying being completed, the receptacles are closed, while still in th drying closet, as tightly as possible (bottle with ground glass stoppers are unsuitable) and can then be transported any distance. They can also be left for a quarter to a half an hour until weighed, or at least until the receptacle has cooled off to the temperature of the surrounding atmosphere. If cork stoppers are employed, these should be removed immediately before weighing. If tin boxes are used the dried sample should be allowed to stand at the most only fifteen minutes before weighing unless boxes that can be hermetically closed are used.—E.K.M.

(From Chemical Abstracts).

Studies in the sulfite process. Sidney E. Lunak. Paper **19**, No. 24, 13-4 (1916).—In a series of experimental sulfite cooks on spruce, several were made using forced circulation of the cooking acid, and the pulp and paper compared to similar cooks with natural circulation, all conditions being under control. A decrease in the cooking time of from 5.1 to 15.3% using forced circulation, was the principal result. There was very little difference in the amount of screenings and the yields were slightly greater with forced circulation. The duration of the cook was controlled by matching the color of the cooking liquor against a standard color made from a clarified coffee solution.—R. B. R.

The purchase of pulp wood. A. P. Winslow and R. Thelen. Paper **19,** No. 4 31-3 (1916).—Owing to the great variation in the solid content of a cord caused by variation in length, diam., and regularity of the wood measured, the cord is an unsatisfactory unit of measurement for pulp wood. Use of the log scale also permits of great variation in measurement. Cord measurement is further not reliable for saw-mill waste. Purchase of wood by weight in the form of dry chips has certain points of advantage. The need of study on these points is urged and also on specifications as to knots, rot, char, etc.—V. Nunez.

Wood waste and other pulp woods used in 1914 by U. S. mills. H. E. Surface. Met. Chem. Eng. **14,** 701-3 (1916).—A statistical study showing little progress in the American pulpwood industry for 1914. Indications point to a growing necessity for use of western and Alaska resources in pulp woods.—R. B. Roe.

Fine-pore filter paper. J. Grossfeld. Z. angew. Chem. **29,** I, 364, (1916).—G. outlines briefly how the fine-pore paper in general use is produced and describes a new paper. In the new paper the pores are not contracted but are filled with a material possessing high natural filtering capacity, e. g., kieselguhr. Cold precipitated $BaSO_4$, CaC_2O_4, carbon, clay slimes, S precipitated, from $Na_2S_2O_3$ by acids, etc., are filtered clear, the rate being practically unaffected. The paper is strong, white, high in ash which is almost pure SiO_2 (the filler being purified before use). The paper is superior to other papers for clarifying sugar solutions, filtering fruit juices, fats, oils, wine, soil and fertilizer extracts, physiological liquids, sera, dyes. Kieselguhr is of such fineness that bacteria may be held back.—F. W. Smither.

Paper and cellulose masses. Halle. Kunstoffe **6.** 269-73, 289-92 (1916).—A tabular review of patents covering the manufacture of papiermaché and other materials.—F. W. Smither.

Cellulose fibres—their reaction to dyes.--Otto Schutz. Paper **19,** No. 4, 34 (1916).—Notes on theories pertaining to combination of dye stuffs with cellulose.—V. Nunez.

PATENTS.

(From Chemical Abstracts).

Dissolving cellulose. Z. Ostenberg. U. S., 1,218,954, Mar. 13. Cellulose is dissolved in a mixture of H_3PO_4 and HCl containing not over 20% H_2O and at least 25% HCl. The resulting solution may be used for forming glucose by hydrolysis or for other purposes.

Oxalic acid. H. C. Reed. U. S., 1,217,218, Feb. 27. Waste liquor from the manufacture of paper pulp by the sulfite or other process is used for making oxalic acid. The liquor, after evaporating to dryness, is heated to 95 degrees with about 3 times its weight of strong HNO_3 until oxidation is complete and the excess HNO_3 and H_2O are then evaporated until the point of crystalization of oxalic is reached.

Treating waste sulfite liquor to make alcohol and recover sulfurous gases. A. D. Fest. U. S., 1,218,638, Mar. 13. Waste sulfite liquor is concentrated, nearly neutralized with CaO, subjected to alcoholic fermentation with yeast and more alcohol is added after the fermentation to precipitate lignin-bisulfite compounds. The precipitate is separated and calcined and the sulfurous gases evolved are absorbed by $CaCO_3$ or $CaSO_4$ and H_2O. The alcohol is covered by distillation.

Dry felting for paper manufacture. K. Ferster. Ger., 291,464, July 10, 1914.

Recovery of the sulfurous acid from the sulfite cellulose boilers. C. B. Thorne. Ger., 291,854, Nov. 7, 1913. The recovered SO_2 is utilized for a strong sulphite lye. After a portion of the SO_2 has been removed, by reduction of pressure, in the gaseous form in admixture with vapor, the discharged lye is employed after cooling in the trickling tower, while the separated acid and vapor is cooled in a trickling tower filled with solid material, and taken up by the lye conducted into this tower. Details of construction are specified.

Apparatus for drying wood pulp, cellulose, paper or pulp in bands. L. A. Lychf. Ger., 292,322, Apr. 16, 1915. The material is carried, on conveying belts, through a drying chamber in a zig-zag manner.

Paper Pulp. W. Raitt, Brit., 16,488, Nov. 23, 1915. In an improvement on the invention of 15,779, **1912** (C. A. **8,** 247), the starch and pectose are dissolved out simultaneously by means of a weak solution of NaOH, and the lignin is subsequently extracted by means of a stronger solution of soda, the soda used in the second operation being of such a strength that the spent liquor obtained therefrom may be used for extracting starch and pectose from a fresh mass of material. The process is carried out in an apparatus which is specified, and described as applied to the treatment of esparto, but the invention may be applied to the treatment of bamboo, wood, grass, straw, reeds, jute, etc.

Neutralizing the injurious action of resin in wood fibre used for paper manufacture. S. F. Lagermarck and W. Sverdrup. Ger., 291,379, May 15, 1914. Talcum kaolin, heavy spar, or the like, is used as a filling material, being added to the cellulose when it is removed from the boiler, drained and washed, but before the dilg. H_2O has been added. The achieveness of the resin is not lost when covered by the talcum, or the like. The amount added is about 8% of the weight of the cellulose.

Material for backing paper. A. Scheurig. Ger., 291,978, Dec. 4, 1914. The material consists of two or more layers of crepe paper with intermediately placed coarse mesh fabric, firmly stitched together, to increase the stiffness of the product.

Sizing Paper.—R. W. Sindall and W. Bacon, Abst. in World's Paper Trade Rev., June 8, p. 6. English patent (No. 105,444, 1916) recently granted to Messrs. R. W. Sindall and W. Bacon, consulting chemists. The process is divided into two operations: (a) the immersion of the paper in a solution of gelatine, either alone or mixed with soap, starch, gum or rosins, if so desired, but without alum or sulphate of alumina; (b) immersion or passage of this partially sized paper through a solution of gelatine containing alum or sulphate of alumina in the proportions usually employed in the process of sizing paper. A higher temperature can be employed in the first instance and consequently a greater penetrating effect is obtained and very little breakdown occurs in the gelatine solution, as is the case when alum or sulphate of alumina forms part of the solution, so that the tenacity of the size is maintained. The second part of the process is to introduce in an efficient manner alum or the like for the purpose of preserving and producing the hardness required in the manufacture of paper. In the method described less handling of the paper is required in the case of heavy-weight papers or boards and the sizing effect on the paper so treated results in a thorough penetration or impregnation, whereby what is known as a better "handle" is secured in the product.

UNITED STATES NOTES

Special to Pulp and Paper Magazine, by R. W. Jolly.

An interesting and instructive scientific article concerning the reports of the experiments conducted at the Forest Products Laboratory, Madison, Wisconsin, was published this week.

These experiments, which are of special interest to Canadian pulp and paper manufacturers, show the effect of various conditions of beating sulphite pulp and the behavior of the sedimentation with sulphite stock, beaten under different conditions.

The Hinde and Dauch Paper Company of Sandusky, Ohio, has arranged to make a big electrical display at Times Square, New York City, to advertise the service and paper quality that the company offers. The advertising will be done in connection with the Rice Leaders of the World, of which the Hinde and Dauch firm is a member.

The publishers of New York City are strongly lined up against the government control of news print paper. The Hearst newspapers are especially bitter in their denunciation of the proposal of the Federal Trade Commission to have the government take over the control of news print manufacture in the United States. What is needed, these men say, is to encourage capital to build new mills rather than discourage the industry.

The Hammermill Paper Company of Erie, Pa., donated five per cent. of the gross receipts of the company on June 25 to the Red Cross Fund. The company notified its customers of this fact by sending telegrams outlining the idea.

George Henry Parks, president of the Tidewater Paper Company, Brooklyn, New York, died at his home in New York city on July 1. It is the Tidewater Paper Company that William R. Hearst, the publisher, is said to be about to purchase. The rumor of the ensuing purchase of the mill has not been affirmed nor denied by either the prospective seller or buyer.

The new mill which will make coarse wrappings, folder stock, and lightweight boards, being erected by the Flower City Tissue Mills Company near Rochester, New York, will be completed by August 1. The mill equipment consists of a two-mould cylinder paper machine trimming 80 inches, two beater and one Jordan machine. The capacity of the plant will be 50,000 pounds in 24 hours.

The Diamond State Fibre Company of Bridgeport, Pa., has sent out a circular to the trade poining out the possibilities of the use of glassine and parchment paper as substitutes for tin containers.

Newspaper publishers in the Great Lake States held two conferences last week to take the first steps in organizing the News Print Pulp and Paper Company with a capital of $1,500.000.

Plans call for the erection of a two machine mill with a capacity of 120 tons per day, or 36,000 tons annually. This will will be located on some Lake Michigan port site in southwestern Michigan, probably at South Haven, thus providing water transportation from the source of ground wood supply. The mill will cost $700,000. By a most fortunate turn in affairs one of the biggest paper mill machine concerns in the country will be able to deliver two 164 inch machines during September of this year, making it possible to have the mill in operation by the opening of 1918.

The New England Power Company, according to an announcement made in Boston, Mass., will build a monster dam to secure 36,000 horse power at the cost of seven million dollars at Readsboro, Vt. This electrical power will be used by the manufacturers of the state of Vermont, and paper makers will be able to utilize the power.

The Tennessee Paper Mills has been organized wtih a capital of $200,000 to build a plant for the manufacture of wood products, fibre, roofings and paper novelties. This plant will be erected at Chattanooga, Tenn.

The indications from Wisconsin show that there is likely to be a shortage of water in that part of the country. The rainfall has been light, and it is feared that the water conditions will be bad this summer.

It is said that John Welsh, general manager of the Green Bay Paper and Fibre Company, at Green Bay, Wisconsin, has a new process of de-inking news print paper. This process has been tested at the plant of the Green Bay Paper Company, and used by the Press-Gazette Printing Company of Green Bay with success.

The new mill of the Frank Gilbert Paper Company at Cohoes, New York, is almost completed. It will be in operation in about a month. A general line of paper for special purposes will be made at the mill.

U. S. ON "VOLUNTARY RATIONS."

Washington, July 5.

With the sanction of Herbert C. Hoover, Government employees yesterday began a campaign of conservation of foodstuffs. It is expected that the steps that have been taken will develop into a nation-wide movement, which will, in effect, place the people of the United States on "voluntary rations."

The employees have a pledge card which has been given the approval of the food conservation section of the Food Administration, and already thousands of promises of co-operation have been received. The pledge reads:

"Wishing to aid my country during the war, I promise:

1—To eat one wheatless meal a day.

2—To eat beef, mutton or pork not more than once a day.

3.—To economize in the use of butter.

4—To cut my daily allowance of sugar in tea or coffee and in other ways.

5—To eat more vegetables, fruit and fish.

6—To urge in my own home or the restaurants I frequent the necesstiy of economy."

Similar action by all Americans and Canadians will go far in releasing for Overseas service, much food that can be replaced by perishable articles or eliminated from overloaded menus. It is not a question of whether a person can afford to pay for wasted food, it is a question of cutting out excesses so as to leave enough to go around.

PULP AND PAPER NEWS

Mr. Robson Black, Secretary of the Canadian Forestry Association, has returned from New Brunswick, where nine large public meetings were held in an effort to arouse interest in the conservation policies of the Provincial Government. Mr. Black also addressed the Canadian Club of Moncton on the same subject.

Charles Hiltz, who had had many years' experience in the largest gummed paper plants in the United States, and is an expert in this line, has been appointed superintendent of Gummed Papers, Limited, Brampton, Ont., and has entered upon his new duties. The company are now turning out an excellent product, and expect in the near future to be manufacturing flat papers, gummed papers for label work.

George Wilson, of Clarke Bros., Limited, paper jobbers, Winnipeg, spent a few days in Toronto, and other Ontario cities recently on business.

A charter has been granted to Fraser Companies, Limited, with a capital stock of ten million dollars, and headquarters at Plaster Rock, N.B. Wide powers are given the new company, which is authorized to take over a going concern, the businesses now carried on by the Fraser Lumber Co., Limited, in the province of New Brunswick, by the F. and M. Lumber Co., Limited, in the province of Quebec, by Donald Fraser and Sons, Limited, in the province of Quebec, and by Fraser, Limited, in the province of New Brunswick, and also to construct and operate pulp and paper mills, as well as to conduct general lumbering and wood working undertakings. The incorporators are Donald Fraser, of Plaster Rock, N.B., Archibald Fraser, of Fredericton, N.B.; William Matheson, of Andover, N.B.; Andrew W. Brebner, and James F. Boyd, of Cabano, Que., and Thomas Matheson, of Whitworth, Que.

The new industry of Dextrine Products, Limited, Brampton, Ont., which was organized some time ago, has started manufacturing dextrines, gums and pastes, and its prospects are very promising.

Mrs. Brigden, wife of William H. Brigden, superintendent of the printing department of Brigden's, Limited, Toronto, passed away last week. The sympathy of many friends in the paper trade will be extended to Mr. Brigden.

The capital of the Quebec Forest Product Company, Ltd., is $40,000. The object is to manufacture pulp and paper and to act as dealers in lumber, pulp and paper. The following are interested: Messrs. F. C. Charlot, lumber agent, Cambridge, New York State, U.S.A.; J. P. Galibois, bookkeeper; T. G. McLaughlin, real estate agent; A. G. Nosworthy, architect, and Ant. Paradis, office clerk, of Quebec.

The Wayagamack Pulp and Paper Company, Three Rivers, P.Q., are preparing plans for the erection of an extension to their mill. Mr. R. C. Whitehead is manager of the company.

Garden City Paper Mills Company, Ltd., St. Catharines, Ont., contemplate installing an up-to-date waxing plant, treating their own manufacture, and also other lines connected with it. The company have been making toilet and tissue papers for some years, which line, of course, will be continued. The plant is very busy at the present time.

On August 21 next the Department of Lands and Forests of the Provincial Government of Quebec will offer for sale by auction timber limits in the districts of Upper Quebec, St. Maurice, Lower Ottawa, Lake St. John West, Lake St. John East, Saguenay, Bonaventure West, and Rimouski West. The largest area is 1,200 square miles, situated in the Upper Ottawa and upper basins of the Rivers Kapitajiwa and Sho-Shoqua.n A condition of the sale is that the purchasers must within three years manufacture within the province from timber cut on the territory either pulp or paper in the proportion of 10 tons per day to the 100 square miles, or 10,000 feet board measure of lumber per day per 100 square miles.

Letters patent have been issued by the Lieutenant-Governor of the Province of Quebec incorporating the Laurentian Forest Protective Association, Limited. The Hon. R. Turner, and Messrs B. A. Scott, lumbermen, A. J. Price, manufacturer, C. A. Sewell, manager, and Robert P. Kernan, lumberman, of the city Quebec, are interested. The powers granted include the installation and operation of a system of fire protection in the following district: bounded on the west by the eastern boundary of the timber lands under the control of the St. Maurice Forest Protective Association, Limited, on the north by the height of land for waters running into Lake St. John and Saguenay River; on the east by the height of land for waters running into the River Laval; and on the south by the River St. Lawrence. The Association also has power to establish and maintain a telephone system, build and maintain roads and trails and observation towers, and to co-operate with others in the protection of forests from fire. The capital is $20,000 in $2 shares.

Six Toronto newspapers will pay $86,918 more in wages next year to their 455 employes. In addition to this there are increased costs for ink, metal, paper, etc.

It is understood that it has been decided in eleven of the army cantonments to use wall board for the inside of the houses. It is estimated by army experts that in eah case of these eleven cantonments there will be needed 1,750,000 pounds, making a total of 19,250,000 pounds for these eleven camps. Various kinds of wall board on the market are being asked for and submitted to tests, it is understood.

It is announced that the United States annual consumption of corn by distillers equals 32,000,000 bushels, and by brewers 13,300,000; barley by all interests 56,500,000.

Mr. K. C. Clark, of Oldtown, Me., in a recent interview with the St. John, N.B., "Telegraph," stated that United States lumber firms in the east are reaching out more and more into Canada for material, and that within another five or ten years almost all the large lumber mills in Maine will have been converted into pulpwood and pulp mills.

Russia is now producing pig-iron at the rate of over 3,500,000 tons annually.

Mr. Con. Redmond, superintendent of the Kalamazoo Paper Mills Co., Ltd., Kalamazoo, was a welcome visitor at the Montrose Division of the Provincial Paper Mills Co., Ltd., at Thorold, where he was at one time superintendent for a number of years.

Mr. G. Carruthers, President of the Interlake Tissue Mills at Merritton, made a visit there on business during the week.

Mr. Thomas Pickett, boss machine tender at the Montrose Division, Thorold, has just returned from a two weeks' vacation in Michigan.

A feeling of patriotism was aroused in the Americans employed at the Ontario Paper Mills, Thorold, when recently an American training ship was tied up close to the plant on the Welland Canal, it was being brought from the lakes on its way to do service as a coast defence vessel.

Mr. S. F. Duncan paid a visit to the Montrose Division of the Provincial Paper Mills at Thorold during the week.

OTTAWA NOTES.

Mr. C. A. McGrath, the Fuel Controller, said that he was in a position to deal with deliveries and complaints, and urged the importers of coal who desired to make use of his organization to furnish him with immediate information regarding the amount of coal contracted for, the quantity received, to what extent deliveries are behind, and what amount of coal still remains to be contracted for.

Canada's recruiting, according to official figures, announced at Ottawa last week, totals 423,858, of which number more than seven thousand are woodsmen.

Australia, according to authentic reports reaching Ottawa, seems to be in pretty bad shape for paper supplies, inclusive and even exclusive of newsprint. The following are some of the inquiries that have reached Ottawa in connection with the paper situation in the sister colony:

The bringing together of the sulphite manufacturers who sell their product, at Ottawa, this week, for the sulphite probe was the chief topic of interest to the local paper trade. Practically ever since the sulphite probe was announced a series of articles has been appearing in the press regarding the inflated price of sulphite put in by some of the manufacturers at the newsprint probe. From the tone of the articles that have appeared in the local press it appears that an attempt of some kind is being made to cause the public to get the impression that the sulphite manufacturers are reaping golden harvests of profits. The articles are published from a publishers' standpoint, and among the things lost sight of by the author of them, is the increased cost of supplies, increased cost of labor and fuel, lack of facilities for transportation, and several other important details, not the least of which is to inform the public that the newsprint, paper and sulphite manufacturer is entitled to some return (which even Commissioner Pringle admits is their due) on the captial invested. Since Mr. George H. Millen went back on the witness stand and plainly showed what quality the $107 sulphite was, there has been a strange quietness of harping on the E. B. Eddy string.

It is indeed an ill wind that blows nobody good, for as the newsprint inquiry proceeds ream upon ream of paper is being consumed in the official report of the proceedings, and somebody some day will have the delightful opportunity of selling the government paper to replace it, and the price will probably be considerably higher. The official report of the three days' proceedings a short time ago consumed around 400 sheets of typewriting paper.

WHYTE WITH CANADIAN FAIRBANKS-MORSE.

Mr. William Whyte, who has been intimately connected with the pulp and paper industry for twenty years, has made a change of business connections. He was until recently the sales-manager for the Boomer & Boschert Press Co., Ltd., and the Canadian Pulp Mill Machinery Co., Ltd. Before that, Mr. Whyte operated mills in this country and Scandinavia. One of his big jobs was the construction of the Abitibi Mill at Iroquois Falls, Ont. He knows every machine in the mill, and probably every paper maker in Canada, all of which admirably fits him to take charge of the Pulp and Paper Mill Department of Canadian Fairbanks-Morse Co. of Montreal and Toronto.

Mr. Whyte was too bashful to let us have his picture, but we assure his friends that he looks just the same, in spite of his added responsibilities.

PERIBONKA MILL REVIVED.

The Peribonka Co., Ltd., with a capitalization of $1,000,000, and head office in Montreal, is among the new incorporations listed in the latest Canada Gazette. The Peribonka Company takes over the Delmas Pulp & Paper Company, in the Lake St. John District. That company went into liquidation some three or four years ago, since which time the ground wood mill has been standing idle, although the lumber mill in connection with the plant has continued to operate. Canadian and American interests purchased the old company from La Banque Nationale, formed a new company, and will commence the manufacture of ground wood inside the next two or three weeks. The taking over of this plant and operating the mill is a further indication of the prosperity which has come to the pulp and paper industry in Canada during the last year or two. The present high prices for ground wood are likely to continue for a considerable time, and as the European supply of fibre is cut off through embargoes and the activities of the U-boats, the American markets will look more and more to Canada for their supply of ground wood and other material for paper making.

INTERNATIONAL PAPER.

International Paper has declared its regular quarterly dividends of 1½ per cent. on preferred, payable July 16 to stock of record July 5th.

WHAT HAPPENED TO CANADA'S WHITE PINE?

By R. O. SWEEZY.

Where are the millions upon millions of white pine trees that recently grew so profusely on the slopes of the St. Lawrence, the Great Lakes and their many tributaries? Gone! Sacrificed at a price so low that in the words of Mr. Wm. Little — a venerable old gentleman and pioneer lumberman of the St. Maurice — "it were better for Canada had the pine cut between 1835 and 1880 never grown". For not infrequently in those days, the struggling lumberman, after paying freight on shipments to United States markets, found perhaps a balance of one dollar and fifty cents a carload as payment for his lumber. Such conditions had their dire consequences — bankruptcy for lumbermen and untold hardships for workmen who emigrated in thousands to United States points whenever they could crawl away.

But with that strange gambler's instinct that lumbermen possess, — else they would not buy forest areas with all their attendant risk — they rallied and re-rallied, slashed the forest, selecting only the cream to fulfill the severe specifications of a wasteful public consumer, so that finally Canada's white pine timber has practically disappeared by ruthless cutting, destroying and burning.

Look at the slopes of Lake Huron and Superior, the Trent Valley, the famed old Madawaska — is there anything more dismal than those thousands of square miles of barren lands? Do you blame the lumbermen that he did not cut more scientifically or protect his holdings from fire? If you do, you know little of the heavy cost of initiating and maintaining a scientific and efficient forest protection system. I don't mean a hit-and-miss system full of political rot, but a masterful and comprehensive policy good for all time. How could the pine lumberman find money for such protection when he was usually in the hands of receivership — a position that some of our shortsighted politicians and so-called statesmen (among whom, by the way, have we ever seen scientific men or engineers?) would fain put the present day manufacturer of forest products.

Yea, indeed, just when the efforts of conservationists have begun to bear fruit and pulp and paper mill owners are able to appropriate money for a beginning of scientific practice in forestry, and to realize what vast appropriations future conservation policies must call for, the industry is met by blundering bludgeoning on the part of the said politicians in order that such appropriations shall be diverted from the urgent need of saving the country's heritage to maintain a waste of print paper that is as inconceivable in magnitude as it must be calamitous in its results.

For years the pulp and paper industry in the United States and Canada has been either operating at a loss or forced to content itself with a bare insufficient profit of conversion cost alone, giving the wood for absolutely nothing, notwithstanding the inevitable consequences so well exemplified in the destruction of the white pine forests. And do not be deceived, for an alarming situation already exists in regard to the spruce forests of Canada. The Saguenay, St. Maurice and Lower Ottawa regions will hardly last more than forty years longer at the present rate of destruction—large parts are already totally denuded and the fallacy that spruce grows up in thirty or forty years had better be "knocked on the head" because it takes over one hundred years to grow a twelve inch spruce.

Men in the pulp and paper industry know this. The operations of recent years have revealed to them alarming facts concerning their forests and in all righteousness they demand the privilege to work out their own salvation and the solution of a grave problem without the interference of blundering political amateurs whose conception of forest conservation and the value of standing timber does not penetrate beyond the lines of a one cent political newspaper.

NEW CANADIAN PLANT FOR THE PITTSBURGH-DES MOINES STEEL CO.

Canadian purchasers of steel products will be interested to learn that the Pittsburgh-Des Moines Steel Company, formerly known as the Des Moines Bridge & Iron Company, with works at Pittsburgh, Pa., and Des Moines, Iowa, has recently establisehd a new plant at Chatham, Ontario.

This Canadian branch of the company, known as the Canadian Des Moines Steel Co., Ltd., has purchased the property of the Chatham Bridge Company, Ltd., and has enlarged and completely equipped this plant to handle the manufacture of all standard types of steel structures, including mill buildings, office buildings, fire escapes and bridges. In addition to this they will also make a specialty here, as in the States, of the manufacture and erection of elevated steel tanks, and other special structures such as standpipes, storage tanks, smoke stacks, barges and coaling stations.



A 50,000 Gallon Tank for Fire Protection.

The requirement of manufacturing and industrial plants for a permanent and reliable source for water under pressure to supply sprinkler systems for fire protection has been fully met by the elevated steel tank. These structures are usually erected at a distance away from the building protected. However, in cases where restricted area does not permit this, they are often placed on the roof of the building.

In latitudes where severe weather is experienced, to insure continuous and unfailing supply, these tanks are fitted with special heating arrangements to prevent freezing. The riser or supply pipe is enclosed in a wooden frost case, and the water is kept above freezing by means of either a steam coil in the tank itself or by a special heater which takes water from the base of the riser, heats it and delivers it through a separate pipe into the tank, which method of heating may utilize exhaust steam from the power plant and thus reduce heating expense to a minimum.

The Markets

CANADIAN MARKETS.

TORONTO, July 9.

The newsprint investigation goes merrily along. G. T. Clarkson, who was appointed official auditor of the books of the companies, has several men at work already in the mill offices, and matters are being rushed. It is expected their tasks will be completed within a month, or six weeks at the most, and then the price of news will be determined by the Commissioner. In the meantime, there are many conjectures. The News Print Committee of the Canadian Press Association are keeping their plans quiet at the present time and some of them, it is understood, profess to believe that the Commissioner will order a reduction to two and a quarter cents a pound. They are apparently resting their case on what they hope the result of the auditor's probe will show.

On the other hand, mill owners are equally confident that the quotation will be fixed by Mr. Pringle at three cents, but they do not think that this figure will be retroactive further back than July 1st. Many editorials are appearing in the Toronto press endeavoring to present a strong case on behalf of the publishers and raking the print paper producers fore and aft. They are apparently not having all their own way for a leading business man, in no way connected with the publishing line, wrote a letter to the Toronto press the other day, over his own name, asking if the newspapers would be good enough to explain why they (the newspapers) are a privileged class and want the government to limit the price of any article produced by private concerns from their own invested capital.

The writer then says, "A short time ago you, in several editorials, justified or tried to justify, an excess profit tax. You want to tax the paper mills to the limit, and then you desire to limit and state your price for their product. The press is certainly some organization, who will carry their case to the government and get justice—special privileges you mean. Is the press any different to any other business organization? I notice, as a business man, that advertising rates are going up in a beautiful manner. It will be up to the merchants to get their feet in too with the government and secure some class legislation. Kindly explain your attitude."

So far no explanation is forthcoming. In the meantime, the dailies in Toronto and other cities are publishing column after column of matter in regard to the evidence brought out at the recent sittings of the Commission. What is the object? This is how one newsprint manufacturer sizes up the situation, and, in conversation with several others, his opinion is supported generally.

"The press cannot think the public regard these long articles as news, for the matter already covered was printed in despatches from Ottawa at the time of the sittings. Then, when print paper is so scarce why are we treated to such voluminous contributions? Either the dailies are educating the public to the increased outlay in getting out their issues and preparing the way for a charge of two cents per copy, which should have been the selling price long ago; or they hope to arouse a little political feeling against the government. I am inclined to the belief that they realize theirs is a lost cause and, knowing they will have to pay more for their white paper, are getting ready to raise their subscription rates. It is time they took such action and not think so much of the number of copies. It should be the quality and not the quantity of circulation that counts. It is rumored that all the Toronto dailies would long ago have elevated their selling price to two cents a copy, if one, which has been holding back, would only come in. Needless to add this sheet has not as large a circulation as its contemporaries, and think that by keeping down to one cent, it will gain many new readers, providing the others advance their figure. Other periodicals I am lead to understand, will shortly come out and take the side of the paper manufacturers, maintaining that an increase in the price of newsprint is justifiable and reasonable, in view of the law of supply and demand, rising costs of labor, materials, etc."

There the matter rests at present and the outcome may not be known for some time yet. The price for all kinds of pulp remains the same and buying is very limited. Owing to the fact that two hundred thousand tons of wood pulp are being held up in Sweden, due to an embargo on this commodity, and that Swedish wood pulp manufacturers have agreed to restrict their production to one third, which means the closing of the mills for four months, there is no hope for relief from Europe. Canadian mills will have to take care of American business, which may result in keeping prices up to a high level.

Coating paper mills are fairly well employed, but are not running to capacity. Envelope factories and paper box plants are rather slack, and it is not expected that business will pick up materially until later on. Wrapping paper mills might also be busier and jobbers are doing a fair trade. July and August are rather uneventful months with them and many travellers and members of their staffs are now taking holidays, after one of the busiest and most strenuous years in their history.

Conditions have changed somewhat in the rag and paper stock market, after being dull for a long period. Magazine and book stock has moved up a few cents and there is a freshening demand for scrap and news, with quotations a little firmer. Owing to the better prices that are being paid by large dealers, not so much waste has gone to the Red Cross Society, whose methods of collection have been dilatory and irregular. The result has been that many householders have called in men in the regular line of business to carry off the accumulation. A large number of Hebraic gatherers, who in the past made a business going up and down the streets shouting out their wants, have gone in other lines, such as making munitions, etc. They found trade rather dull and no demand in the last few months. Mills are now beginning to make inquiries regarding different kinds of rag stocks, and dealers are holding back, knowing that a raise in prices is imminent. It is a strange commentary that when the dealers were looking for buyers there were none and

now that the mills are getting busy, the waste stock merchants are not particularly anxious to unload.

In a recent notice to the trade a leading tissue and toilet paper firm say that it is only wisdom on the part of large buyers to order freely within the next sixty or ninety days, as it is very safe to say that traffic congestion on the railways will reach an acute stage in the early fall. It is their belief that prices cannot decline until after the war is over, and they announce, in order to protect their customers, that should costs fall so as to enable them to reduce prices, they will rebate to customers the full amount of such reduction. There have recently been some changes in the cost of pulp and, while this is true compared with the abnormally high values of a few months ago, it is equally true that prices were never based on the extremely high quotations. Against all this, there have appeared many items of increase in cost such as the outlay for coal, labor and metals and the figure for these does not seem to be inclined to recede.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.25 to $10.00
xBook papers (carload), No. 1	$9.25
xBook papers (ton lots), No. 1	$9.50 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Easy bleaching sulphite	$90.00 to $95.00
Sulphite, news grade	$75.00 to $80.00
Sulphite (bleached)	$125.00 to $130.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$3.00
Mixed shavings	70c
White blanks	$1.80
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.10
No. 1 book stock	$1.00
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.20
Folded news	65c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	50c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiehy cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.25
Flock and satinettes	$1.70
Tailor rags	$1.70

CANADIAN CHEMICAL MARKET.

Montreal, July 11.

The only changes in prices are in potash alum, which is now 8c to 8½c., and starch, which a ¼ cent increase brings to 6¾c to 7¼c. We are advised that Canadian clays cannot be quoted, but are priced from day to day, so we give nominal figures:

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia, lb.	5½c@6½c
Alum, potash, lb.	8c@8½c
Blanc Fixe, paste, lb.	4c@4½c
Blanc Fixe, powder, lb.	5c@5½c
Bleaching Powder, lb.	4⅞c@5¼c
Brimstone, f.o.b. mines, long ton	$35.00
Casein, lb.	30c@40c
Caustic Soda, 76 p.c., lb.	5⅞c@6c
*China Clay, imported, ton	$30.00@$40.00
*China Clay, domestic, No. 1 white, ton	$20.00
*China Clay, domestic, No. 2 white, ton	$15.00
*China Clay, domestic, No. 3 white, ton	$12.00
Lime, ton	$7.25@$8.00
Sal Soda, bags, 100 lbs.	$1.25@$1.30
Sal Soda, barrels, 100 lbs.	$1.35@$1.40
Salt Cake, 100 lbs.	85c@$1.00

Soda Ash, lb.	3c@3½c
Starch, pearl in bags, lb.	6¾@7¼c
Sulphate Alumina, technical, lb.	3½c@4c
Sulphate Alumina, iron free, lb.	5c@5½c
Talc, American, ton	$13.00@$18.00

*Nominal prices, not quoted.

NEW YORK MARKETS.

(Special by ROWLAND W. JOLLY).

NEW YORK, N.Y., July 7.

In spite of the tumult, we mean legislative tumult, going on about it, the newsprint market is as firm as ever, if not more so. It is apparent that many of the publishers are beginning to question whether or not the gove nment will be able to handle the situation—and if it actually tries to do so, there seems to be doubt whether supplies created will be sufficient to take care of demands, regardless of the price. Naturally, there is much interest in the investigation going on in Canada—and in the likelihood that the price of 2½ cents may be raised to 3 cents.

The President is now at work under the Exports Embargo Act, framing the list of those articles that will be placed on the "ban" list—and it would not be surprising to see newsprint and pulp among them. The bill just introduced by Congressman Snook is similar, in many of its details, to the other control bills that have been mentioned repeatedly in these columns. This bill asks for a governmental control of newsprint, mechanical and chemical pulp, giving the President charge of distribution and, if need be, supervision of manufacturing and distributing processes. It also gives the President power to decide whether a price is fair and reasonable and, if it is not, he has the power to take away the license to manufacture from the concern in question, if it does not comply with a request to change its quotations. The bill would make a violation punishable by a fine of $5,000, or by imprisonment for not more than one year or both.

Hardly of less interest, was the announcement that the incorporation of the News Print Pulp and Paper Co., with a capital of $1,500,000, was being seriously considered by a number of the larger Western newspaper publishers. Aside from the instance in the East, where the New York World took over the St. Regis plant, this appears to be the first actual big move on the part of the newspaper publishers to do their own manufacturing. These publishers plan the erection of a mill somewhere on the shores of Lake Michigan, to contain two machines, with an annual production of 36,000 tons—the plant to cost in the neighborhood of $700,000. Thus far, it is understood that, if the publishers cannot arrange for a suitable supply of pulp, they contemplate the purchase of a pulp mill. According to reports, this enterprise has good backing, and it would not be surprising to see it started—to say the least. Though, to quote some of the local trade: "We don't see what chance they will have to keep going, if we are having our hands full with the w d question."

A pulp authority, talking with your correspondent, emphasized this point: "There has been so much written about the shortage of wood," he said, "that even paper makers are not fully alive to the truth of the situation. It is a matter of fact that several pulp mills have already had much trouble because of difficulty in getting the proper supplies of wood. And there is no doubt but that supplies will become more difficult to obtain, as time goes. Next week will be an interesting one, for there is not a concern in the industry that is not awaiting patiently the results of the conscription. And let me tell you, that this draft will not in any way aid in enhancing the supplies of pulp wood."

The same party was questioned with regard to government control of the pulp industry. "Well, it simply can't be done," was the reply. "The wood question comes in here again. With the mills doing their best, there is bound to be a material shortage of pulp—and the government would let the proposition go shortly after it began to learn a few of the facts regarding the business." To-day, the demand for ground wood is almost entirely from the news mills, for the others have "let up" due to the continued quiet that is reigning in the paper market. It is admitted that the general conditions are not as active as they were several months ago, and it is known that several sales were made at slight concessions, but it is contended the firmness of the market is unimpaired. Many Eastern grinders are said to be holding all their unsold stock at a low figure of $45 a ton, at the pulp mill and are also said to be definitely refusing to consider offers at lower values. It is reported that Canadian producers are asking from $44 to $45 per ton, while in the West quotations range from $44 to $48 per ton.

Interest in chemical pulp seems to be lagging somewhat. This is credited to the lull still current in the paper market. As it is not considered likely that the paper market will pick up to any material extent before the fall, it is predicted that chemical pulp will act accordingly. As a unit, however, the trade looks forward to very brisk business at that time, and it is thought that some record prices will then be paid for pulp by mills who are waiting. Regarding the foreign market, it seems agreed that conditions have but one tendency during the continuance of the war, and that is to grow worse. The supplies that are being received are negligible, for it is regarded as a big risk, and not a very compensating one at that, to ship pulp to the United States from Scandinavia.

Considering that the summer season is well under way, there is a fair demand for rags. Of course, dealers say it is unforunate that the period just pust was not productive of the best results and, what is more, they are not certain that anything out of the ordinary can be expected during the summer. However, all hope seems to be centered in roofing stock. If the present demand for these grades keeps up, as is not at all unlikely, it is said that a shortage is inevitable, and that it will be necessary to resort to the next higher grades, as was the case in April, 1916, when the rag market was forced to the highest levels that have ever yet been known. Even now, dealers are cautioning that the demand for roofing stock will soon commence to "eat its way" into such grades as thirds and blues, street soiled whites, etc. Just as soon as this is actually done, packers stop grading the classes just named and throw them in with the roofing stock. And the result is that those wishing thirds and blues and street soiled whites must offer a premium to make it "worth while" grading them. The firm c- dition of the market reflects the confidence that is being placed in this theory. Manufacturers still display interest in offerings, but apparently are not as much in need of stock as had been the case of late and the prices they offer to dealers prohibit the consum-

mation of deals. Sellers are bullish in their attitude and are thoroughly unwilling to dispose of stocks at other than top values. The feeling prevails that if full prices cannot be realized now, the simple matter of holding goods for a short time will eventually result in their securing better figures. The fact that felt manufacturers are very busy and are eagerly buying raw material accounts for the demand for roofing. Thirds and blues rule firm and a fair number of orders are being placed at about 2½ cents. Old white rags are moving fairly well with prices ranging up to 5 cents. Street soiled whites are bringing over 2½ cents. New cotton rags are reported in limited demand. Mills are buying in a moderate way and are finding it necessary to pay slightly higher values than has been their wont to offer lately in order to secure stock, yet the movement of rags towards consumption has not attained such levels as to materially affect prices. Actual trading is confined largely to several descriptions of stock, such as washables, shirt cuttings, flannellettes. Washables command over 5¼ cents, new shirt cuttings are going up to 8¾ cents. Interest is being expressed in a report from Chicago, to the effect that considerable speculation is going on among dealers, some of whom are paying even higher prices than mills are offering. They are looking confidently to a sharp rise in the near future, and are accumulating as much stock as possible.

Dealers say they find satisfactory conditions in baggings. Continued strengthening is reported. The fact that there is somewhat of a shortage in available supplies is shown in that in spite of the very attractive prices current, most of the dealers are having considerable difficulty in taking care of their obligations. Consumers are buying freely and are finding it necessary to pay top figures in every transaction, as dealers are very bullish in their attitude. Gunny is quoted at over 3½ cents; bright bagging at over 3 cents; sound bagging, up to 3 cents. Old rope is very strong and dealers themselves are said to be offering about 6¼ cents for domestic stock. Manufacturers appear to be in need of supplies, and are buying whatever is available at prices that go as high as 6½ cents. As a matter of fact, one sale has already been reported at 7 cents. That there is a shortage of this material and that the rope paper mills are aware of the fact, is evident from the activity in the market.

All things considered, the dealers say that the waste paper market is in fair shape. There is business of considerable volume, particularly in the cheaper grades and dealers report more inquiries from consumers of the better qualities of paper, which would seem to indicate that these grades were due to a stimulated movement and that they were to enjoy some of the activity of the lower grades. Up to this time, shavings, kraits, new manilas and flat stock are not as active as they might be. Consumers of these grades have been out of the market for an unusual length of time and dealers are of the opinion that they should begin to display interest in conditions. It is calculated that these mills will want to put up stock for the fall demand and that they will, therefore, have to buy up considerable stock. Mixed papers are in good movement and dealers seem to be anxious to get large quantities of this grade. They are bringing around 60 cents per hundred pounds; folded news is in good demand and is selling up to 80 cents per hundred pounds; over-issue news is bringing around 1¼ cents; book stock has taken on some strength and is selling at about



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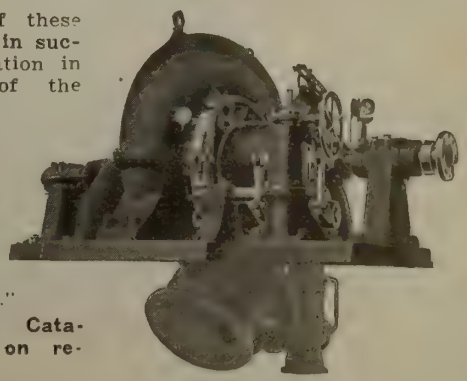
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1½ cents; hard white shavings are quoted at as high as 4¾ cents; soft white shavings are bringing up to 3½ cents; magazine stock is bringing around 1½ cents; ledgers are said to be about 2½ cents and over; krafts are at about 3½ cents.

The rigid pursuit of economy in the use of paper in the various industries is, in many instances, depressing the price of raw materials, but the general tendency is for the market to keep strong.

Boards, which reached the highest levels of any of the different kinds of papers, seem to be due for somewhat of a slump. There is said to be a marked absence of demand and, if this continues for any length of time, the mills will find themselves compelled to take steps to keep their stock moving. Many of them are already acting along such lines, as will be noted from the quotations below. Books are fairly well sold on super, and a good demand is now said to be current on coated stock. Wrappings are reported to have lost considerable of the activity that kept them going when the other markets found it hard to get along. However, it is said that there has been more economy practised in wrapping papers than in any other grades. Tissues are uninteresting, with numerous reports of sales below the market. The mills look for a strong "come back" in the fall, and are doing their best to keep "above water" until that time.

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Foreign kraft pulp, fo.b., ex-dock, N.Y.	6½c*
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Foreign easy bleaching soda pulp, ex-dock, N.Y.	6½c*
Bond papers, sulphite	11c*
Best grade writings	21c*
Regular superfine	19c*
Ledger paper	11½c†
News, contracts, f.o.b. mill	$3.00 to $4.00
News, spot lots	$3.50 to $5.00
News, side runs	4½c*
Book, super	8½c*
Book, coated	8½c*
Book, machine finish	8¼c*
Tissues, good sulphite, bleached, per ream	$1.20*
Tissues, ground wood, manila, per ream	$1.25*
Kraft, domestic	8½c*
Kraft, foreign	9c*
Wood Manilas, No. 1	7c*
Wood Manilas, No. 2	5¾c*
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Newsboard, per ton, f.o.b. New York	$55.00*
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THE PAPER PROBE.

(Written specially for the Pulp and Paper Magazine.)

By EVERETT ANDREW.

The initial sitting of the first Canadian sulphite probe, which held session at the Court House, Ottawa on Tuesday and Wednesday, was an event whereby much valuable information regarding the price and manufacture of sulphite was released, and that while on the whole evidence given, it was shown that some sulphite manufacturers were making considerable profits over production costs, there was nevertheless a considerable number of elements that had to be reckoned into the cost of the product. Some of the figures shown as cost, were "bone dry," actual cost, to which must be added a variety of operating charges which every paper mill in the country has got to make up and take care of.

Tuesday's session was characterised by the examination of representatives of no less than seven mills, John R. Booth, Abitibi Power and Paper Company, E. B. Eddy Company, St. Maurice Paper Company, Donnacona Paper Company, Belgo-Canadian Paper Company, and the Laurentide Company, a record number of examinations for one day since the commencement of the Canadian newsprint probe.

At the outset of the sulphite inquiry, Mr. George F. Henderson, K.C., vigorously assailed the accounts of the probe happenings which have emanated from a certain source, and are appearing in various Canadian newspapers. Mr. Henderson, before Commissioner Pringle, claimed that the account of the happenings at the probe which were appearing in the newspapers were not only biased but distorted. "On behalf of the paper manufacturers of Canada, I desire to protest against the accounts of the happenings at this investigation, that are appearing in Canadian newspapers, which purport to be reports of the proceedings. They are very distorted."

"We should not be too thin skinned," commented Commissioner Pringle, K.C., but nevertheless he made a note of the objection.

Perhaps the principal trade feature of the whole inquiry was the undeniable fact backed by figures submitted in the returns of the mills to the commissioner that the price of sulphite is on the down grade, and has fallen considerably this year.

Another very interesting piece of information that I learned from no less person than the Commissioner is that there is going to be an estimated increase of around 700 tons of newsprint per day in Canada very shortly, and judging by present conditions some of the paper making mills now will be lucky to get Canadian customers if the war suddenly stops.

One of the outstanding denials that figures submitted at the sulphite probe showed, to the claim of certain Canadian newspapers that "enormous profits" were being made by the sulphite manufacturers is contained in the figures of the J. R. Booth plant, which shows the production cost has jumped an even twenty dollars per ton since 1914, and groundwood has risen six dollars per ton during the same period. All indications throughout the sulphite probe sitting point strongly toward a very decided downward tendency in the sale price of sulphite.

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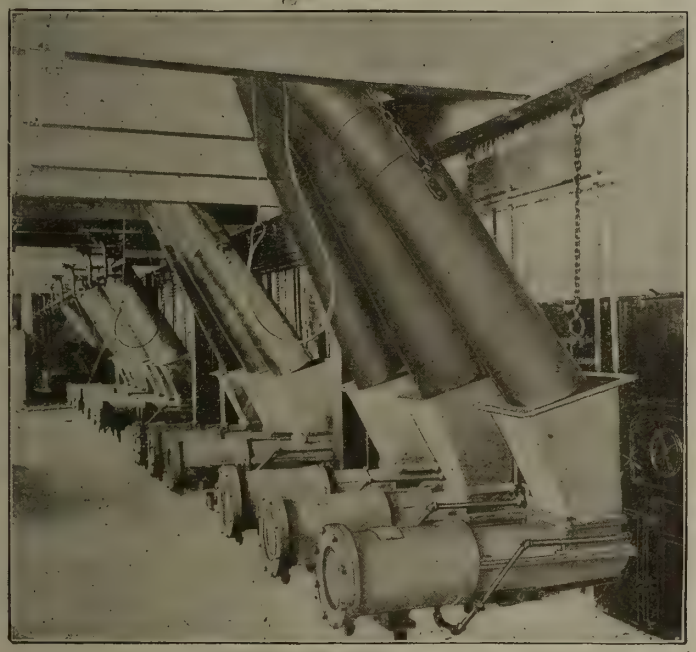
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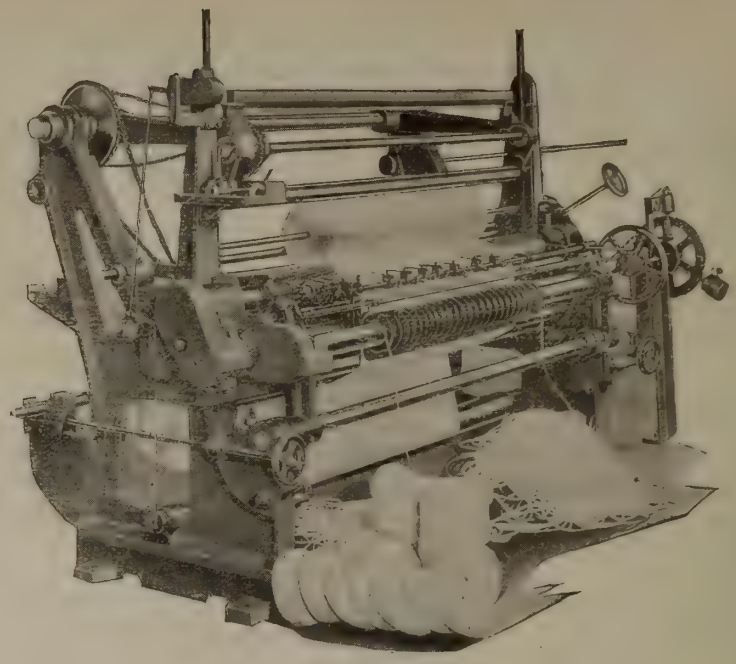
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EDITORIAL

THEY WANT TO RIDE ON THE BAND WAGON.

Perhaps the most important event of last week to the industries of the country was the open address issued by President Wilson with regard to the question of prices. While, of course, the matter was viewed in different lights, on the whole it was regarded as "just what business needed." For one thing, the President set at rest all fear of seizure, commandeering or requisitioning. He made it plain that private industry in no way would be interfered with so long as private industry contented itself with a "just price." A "just price" was interpreted as a "price which will sustain the industries concerned in high state of efficiency, provide a living posible for those who conduct them, enable them to pay good wages and make possible the expansion of their enterprises!" On the whole, this is regarded as encouraging—not that it was actually feared that the government would take any unfair measures, but that business men wanted some kind of assurance—and now they have received it. Thus far, in business given out at Washington, it has been frankly stated that a "just price" would be considered as ten per cent over all costs.

Inasmuch as the government is a large consumer of news print and other grades of paper, it is realized that something must happen to prices of this commodity before long for, if the mills do not make any concessions, they will be subject to reports that are to be made by special investigating committees. These committees are going to investigate for the government, various industries from which the Federal departments will purchase supplies—and they will submit figures showing what they find to be the actual cost of production—and, according to plans, the prices paid will be on the basis of these figures — assumedly the cost figure plus ten per cent. That this thing will happen in the news- print industry, will be inevitable, judging from the tone of the President's address—as well as the talk that has been current among the various officials of the Council of National Defense which is, in a way, supervising practically all of the buying. There are, indeed, some in the trade, who are beginning to feel that, even though they may not make such big earnings as have been made during the past year, they will be better off in other ways. It must be remembered that, according to the President's proclamation, if the government sets a price on news print, the same price must apply to the publishers. This was made clear as follows: "We must make the prices to the public the same as the prices to the government."

It must be understood that paper makers are quite willing to make considerable sacrifices for patriotic reasons and furnish the Government with material at little or no profit at such a time as this. It is quite another matter when it comes to making a sacrifice for the benefit of a comparatively small group of private individuals whose previous and only attitude (with the exception of a very few sensible business men) has been to squeeze and choke the newsprint industry that a greater profit might accrue to the publisher. Government machinery was not constructed for such a purpose and it is not "fair and just," that, because the Government can properly require supplies under certain conditions, a private business should squeeze in and get like advantages.

No doubt the newspapers are rendering a public service, but who isn't? The canner who puts up beef or beans for the army has no Federal restriction placed on the price he has to pay for his materials. There are countless agencies rendering public service that receive no assistance in the matter of price of materials. We cannot get away from the fact, in either of the great North American Democracies that we are involved in a great and serious undertaking. Sacrifices will have to be made and some industrial readjustments will be necessary. Extra taxes have been levied. They bear with almost equal weight on businesses that have "cleaned up" on war profits and those whose profits have come from the fact that buyers have competed for a limited supply of certain material and sent the price up in consequence. Only inasmuch as their profits have been much larger than those of other industries, have the "war babies" been differentiated from established enterprises, and even this slight discrimination applies just in Canada.

As we have remarked before, the paper industry must go on. It is a necessary business at all times. Artificially limiting prices will discourage expansion and limit production, and at a time when demand fully equals supply. While the Government's consumption of newsprint is large, it is not a very great proportion of the requirements of the country. If a price of cost of production plus ten per cent is established for Federal orders, the publishers, of course, want to get in on it. Such a price would doubtless be based on costs of materials on hand in mills or arriving on contracts

that in many cases will soon expire. New contracts for all paper materials are greatly in excess of former figures. Present paper prices to some extent take this into account, as well as the fact that foreign competition is sure to reassert itself. When that occurs our manufacturers will have to lower their prices, but on goods made with high priced material, so that there will very likely be a period of loss until a drop in raw materials takes place.

We maintain that Government regulation of prices is a delicate matter; it applies to those industries most immediately concerned in prosecuting the war and commodities that are vital to the whole people and that while the Government may properly place a price on paper for its own use, the newspaper publishers have no right to ride on the Band Wagon.

COMMISSION PREDICTS COAL TROUBLES.

In replying to an inquiry as to why it had not remedied newsprint conditions, the Federal Trade Commission stated it did not have sufficient power. The commission, again earnestly invited attention to the serious condition which is confronting the public and the newspapers of the country, if a situation continues where prices are to be paid for paper based, not upon cost of production and fair margin of profit, but upon conditions such as have obtained in the past and give promise of obtaining in the future, where price is based on panic demand.

Last week the Pulp and Paper Magazine called attention to the transportation problem. The statements then made are emphasized by the following report in the "Fourth Estate" of an interview with the Federal Trade Commission. It is not likely that it will be any easier to get coal in Canada than in Minnesota next winter. Other interesting statements were made.

"Even in this slack summer season there is a shortage of railroad cars and congested traffic conditions and what will happen in the autumn when the new national army begins to mobilize, when the crops are being moved and when a million men are suddenly withdrawn from productive industry and transportation activities, is deserving of more pondering than it has received at the hands of most newspaper executives.

An expert on the trade commission staff said that he did not see how the Minnesota paper mills and other plants in that section of the country were going to operate at all next winter. His worry was occasioned by the fact that no coal is accumulating at upper lake ports.

Ordinarily enough coal goes into storage at the head of the Lakes each summer to provide fuel for the paper-making plants during the interval when the lakes are closed to navigation. This year, however, such is the demand that it seems impossible to accumulate any fuel in storage.

This means, if the condition persist, that Northwestern paper plants may be mighty short of fuel next winter or else compelled to bring the coal the entire distance from the mines by rail, a method that will send soaring the cost of paper production.

Despite the outlook for a long, hard winter for news print consumers, there is surprisingly little disposition on the part of publishers to go to new lengths in storing paper. The present summer is witnessing the natural, normal falling off in news print demand which is usually characteristic of the vacation season but which, it will be recalled, was strangely absent last year, due to various causes, including bulk of newspaper advertising, etc.

As for storage against a "rainy" day, newspapers such as the Chicago Tribune and Daily News that have always carried certain paper reserves as against strikes and other contingencies, are keeping up their surplus, but there is no disposition in this quarter to increase the margin of safety, whereas the general run of publishers who have not stored in the past do not seem inclined to do so now.

The claim that news print deteriorates in storage is put forth as one of several objections to storage.

Oddly enough, perhaps, the only manifestation of a desire to insure the future by precautionary storage is coming from the smaller publishers. That same forehandedness was exhibited by some of the small publishers just before the situation became acute last autumn and there have been instances where publishers of smaller dailies have stored paper sufficient for intervals of from six months to a year.

The trade commission has very little roll news for allottment or distribution, so little, indeed that the expression of its price ideas, as conveyed via this distribution, makes almost no impression whatever on the general market.

In the case of sheet paper, however, the trade commission has about 500 tons per month to distribute. While this is not enough to satisfy demands—indeed, 1,500 tons per month would be necessary to meet the needs of all the publishers that apply to the trade body for paper—nevertheless it is sufficient to have an appreciable influence upon price conditions."

A report that should be good news to pulp men is that a large quantity of wall board is to be used for United States Cantonments. Surely no building material is cheaper, or more easily obtainable. It has many physical qualities which commend it for such use. And when its military use is done, it can be repulped and perhaps made into boxes for the rolled oats that maybe the returned soldiers will raise. At the present time it will mean some hustling to get the wood and pulp to fill such an order.

Doubtless a large amount of roofing paper will also be required.

The Sulphite Probe Goes Deep

By EVERETT ANDREW.

(Special to Pulp and Paper Magazine).

Last week on Tuesday and Wednesday, Commissioner Pringle investigated the cost of production and selling price of ground wood and sulphite. Practically all of the large producers of ground wood and sulphite pulp for news print manufacture appeared before the Commissioner to explain and substantiate their manufacturing and accounting records.

One of the noticeable features was the support given the claim that limits of standing timber should be capitalized and depreciation charged against them. A cloud of mystery still covered the auditing methods of the Federal Trade Commission. Mr. Pringle predicts lower prices and possibly hard times for Canadian mills when new machines are producing and European competition is renewed.

At the conclusion of the probe it was brought out that the 2½ cent rate on newsprint would be continued till September 1st, pending the report of Auditor Clarkson, which can hardly be completed before August.

Among those attending the sulphite probe were: H. I. Thomas and H. R. Erskine for John R. Booth; A. H. Bowness, E. B. Eddy; W. H. Smith, Abitibi Power and Paper Co.; R. W. Louthwood and Mr. MacLaren, St. Maurice Pulp & Paper Co. G. McKee, Donnacona; H. Biermans, Belgo-Canadian Pulp and Paper Co.; L. W. Campbell, Laurentide; J. F. Sharpe of Sharpe and Miller, of Montreal, accountants for the newsprint manufacturers; G. L. Apdaile and H. E. Price for Price Bros. and P. B. Wilson, vice-president of the Spanish River Pulp and Paper Co.

Counsel appearing before the Commissioner were: George F. Henderson, K. C. for R. Booth, E. B. Eddy and Fort Frances, Gordon MacDougall, K. C., Montreal, and George Montgomery, K. C., for the newsprint section of the Canadian Pulp and Paper Association, H. A. Stewart, K.C. for the Crown, and Victor E. Mitchell, K.C., for the Abitibi Power and Paper Co. and the St. Maurice Paper Co.

The account of proceedings at Ottawa in connection with the probe is as follows:—

J. R. Booth.

H. I. Thomas of the J. R. Booth firm was the first witness called. After going over various items in the report submitted to the Commissioner he said that the actual cost of the production of groundwood to J. R. Booth was $21.27 to which had to be added the cost of power and depreciation. Questioned as to the power end Mr. Thomas said it was the custom of the J. R. Booth plant to allow $15 per horse power per year which when divided into the total amount of newsprint produced figured about $1.08 per ton. Mr. Thomas said that the Booth plant produced its own power mostly, but at odd times had to buy some which cost them as much as twenty-five dollars per horse power. Mr. Thomas assured both the Crown counsel and the Commissioner that the production of power was a very expensive undertaking as a large amount of capital was involved in the power producing machinery. He explained how the cost of power is determined.

As to sulphite, a charge of $2.05 was allowed for depreciation which was reckoned at five per cent annually. The administration charges amounted to twenty-one cents per ton. The bare actual cost for the production of a ton of sulphite during the years from 1914 to May 1st, 1917, with the Booth plant was given as follows: 1914, $36.04; 1915, $38.06; 1916, $38.30; 1917 (to May 1st), $56.04.

Questioned as to why $2.05 should be charged into the cost of production for depreciation in 1917, Mr. Thomas said that a large expenditure was being made in rebuilding the mill, which is now being entirely renovated. "I think if we had not rebuilt the mill that we could not have carried on our work. The mill formerly in use was growing somewhat old and the new mill will be more modern, and will increase the output of sulphite about fifty-five tons daily."

Mr. Thomas gave the following figures on ground wood: 1914, $16.54 per ton; 1915, $17.13; 1916, $16.91; 1917, $22.54.

The foregoing figures were testified to by the J. R. Booth witness to be clear of stumpage charges and interest. "Occasionally we buy some ground wood," Mr. Thomas told the Commissioner, "and in 1916 we paid twenty-five, twenty-six and thirty dollars per ton for it." This price was at the sulphite mill and from five to eight dollars had to be added to these costs for freight charges. Cross-examined, Mr. Thomas said that the figures used in the statement for ground wood and sulphite had been taken from the actual records of the mill. Going back to the question of power Mr. Thomas told how sometimes the Booth mills could not operate the year round on account of low water.

Mr. Thomas replied to Mr. Pringle that he believed Germany did export some sulphite before the war, but that Scandinavia was the principal European exporter to American markets. The Commissioner then pointed out that when the European market closed that there had been an increased heavy demand for Canadian sulphite in the U.S.A.

Among materials utilized in production caused the price of groundwood to reach higher levels, lime, for instance, had increased from $4.00 per ton in 1916 to $5.50 at present and the tendency was upwards. Wood was another commodity that had advanced the price of sulphite. The advance in the price of pulpwood to the Booth plant from 1914 to May 1st, 1917, was shown to be as follows: 1914, $9.51 per cord; 1915, $10.35; 1916, $10.41; 1917 (to May 1st), $14.54.

These figures do not include stumpage. Mr. Thomas estimated that the increase in the price of wood from 1914 to 1917 meant an increase of about eight dollars per ton of sulphite as two and one third cords of rough wood or two cords of peeled wood was used in the manufacture of every ton of sulphite. It takes about a ton of coal to manufacture a ton of sulphite.

In 1915 the Booth firm had a contract for coal at $1.20 per ton at the mine. In 1916 the contract price was $1.60 per ton and this year it was $5 per ton. To all the charges must be added $2.63 cents per ton for freight charges, not taking into consideration the new fifteen per cent. freight rate increase that has been proposed by the Railway Commission. Then there was fifty-three cents per ton duty, and seven and one-half per cent per ton war tax. Making the coal worth about $8.69 per ton on the cars at Ottawa. In 1914 it cost but $4 26 per ton on the cars at Ottawa, and in 1916 with the war tax in operation it was $4.88 per ton. Labor and sulphur had also considerably increased in price. "The coal situation is getting very serious for the newsprint makers," remarked the Commissioner. "If you were making a contract for sulphite for 1917 what do you think the market advance would be, and how would you figure it," asked Mr. Pringle of Mr. Thomas.

"Double that of 1915," was the prompt reply.

E. B. Eddy Company.

A. H. Bowness, superintendent of the newsprint mill of the E. B. Eddy Company, was the second witness to be headr. He said the E. B. Eddy Company did not sell news sulphite, the actual cost of production of which he gave as follows: 1914, $41.56 per ton; 1915, $42.99; 1916, $43.22; 1917 (to May 1st), $52.57.

He estimated the value of the wood entering into the production of a ton of sulphite in 1914 as being worth about $8 per cord. The E. B. Eddy Company had purchased about 20,000 cords of pulpwood and had about another 17,000 cords along the Lower and Upper Ottawa river, the low estimated value of which was about $10 per cord. or next seasons, contracts had been made for delivery at the mill at $13.77 per cord at the present price of the pulpwood market, but in the event of the market going higher the E. B. Eddy Company would have to pay the proportionate difference.

Regarding the sales of sulphite—not used in the production of newsprint but for book papers—Mr. Bowness gave the following figures, or selling prices: 1914, $40.80 per ton; 1915, $42.40; 1916, $75.25; 1917 (to May 1st), $106.90.

This witness in response to questions asked in cross-examination by Mr. Stewart, K.C., said that he thought the cost of producing news sulphite had advanced about twenty-five per cent from the year 1914 to 1917. The strong sulphite or the higher grade used in book and higher grade papers witness thought had not proportionately advanced any more than the news sulphite.

An increased cost of only $4.04 from 1914 to 1917, was shown for the production of groundwood by the E. B. Eddy witness, who in very concise form gave figures showing the costs of production during the period referred to, as follows: 1914, $17.18 per ton; 1915, $17.94; 1916, $17.47; 1917, $21.22.

Interest on investment was figured at six per cent and the administration charges was figured on the percentage of sales. Last year it amounted to about seven per cent. This year it will amount to about ten per cent of the cost of production as there has been increases in salaries. Witness estimated in response to questions from Mr. Stewart that newsprint sulphite was worth $80 per ton today.

"Does the Eddy Company do much advertising?" asked the Commissioner, and Mr. Bowness answered that on what advertising was being done the company was being charged double because of increased rates by the newspaper publishers.

Abitibi Power and Paper Co.

W. H. Smith, treasurer of the Abitibi Power and Paper Company, who at the newsprint inquiry told Mr. Pringle that his mill was not prepared to supply Canadian customers at the Government's set price, said the statement he had submitted for the sulphite probe had been taken from the books and records of the company and did not include stumpage or bonded indebtedness, or interest charges on capital invested. They were the sulphite mill costs including wages, material, boiler room expenses, fuel and repair. Sulphur was put in at $3.92. "If I had to go into the market today to buy it I would have to pay double, but fortunately we have a contract that runs to the end of this year," said Mr. Smith.

The cost of production of a ton of sulphite with the Abitibi mills since 1915, based on actual cost, with not a single arbitrary figure being used, were testified to be as follows: 1915, $28.57; 1916, $33.65; 1917 (to May 31st), $41.69.

In 1916 the Abitibi Power and Paper Company sold nine hundred and seventy-six tons of sulphite at $101.26. All of the production went to the United States. To date in 1917 the company had sold five hundred and seventy-eight tons of sulphite at an average price of $70.95, with a production cost of $41.69. This also went to the United States. Mr. Smith accounted for the difference in the selling prices of 1916 as compared with that so far this year, by stating that they were governed by the law of supply and demand.

For groundwood the cost of production with the Abitibi mills for a period dating from 1914 was shown to be as follows: 1914, $10.20; 1915, $9.57; 1916, $14.23; 1917, $16.77.

Some of the groundwood was sold. The selling prices per ton during the period above referred to being as follows: 1914, $15.63; 1915, $14.69; 1916, $11.77; 1917, $31.24.

Questioned as to the figures shown in the report of the Federal Trade Commission, Mr. Smith said that he never saw the figures relating to his plant or how the auditors had arrived at them. He appeared very anxious to get the figures, and Mr. Pringle gave him the address where the report of the Commission might be procured.

St. Maurice Paper Company.

R. W. Louthwood, auditor of the St. Maurice Paper Co., followed and testified that the figures submitted to the Commissioner in the report for the sulphite probe had been taken from the actual books, figures and records of the St. Maurice Mills, which began manufacturing sulphite February 15th, 1917. The cost of production so far was shown to be $44.27 per ton. Very little was sold, only a few cars going to the United States, and some of which reached the Union Bag and Paper Co., selling at $90 per ton. The groundwood mill of the St. Maurice Paper Co. has been in operation for two years, and the costs of production per ton in it were sworn to be as follows: 1914, $16.58; 1915, $16.88; 1916, $15.73; 1917, $17.51.

The selling price per ton of groundwood in 1917 in the United States was $42.05.

The figures put in were actual cost with the exception of the item of stock having been added, allowing six per cent. on money invested in woodlands, which was estimated at $3,000,000, making a total interest

charge of $180,000, which in turn was charged against the number of cords cut in the woods. All other figures were based on actual cost. Questioned as to how the St. Maurice Co. arrived at their cost of administration, Mr. Louthwood said the total cost of operation was charged against the paper, sulphite, and groundwood mills and divided up, which amounted to about twenty cents per ton administration charges for groundwood. Depreciation was reckoned at about five per cent. annually of the value of the groundwood mill. Through the whole plant about two and one half per cent. was reckoned on the mill building, and from five to seven per cent. on the machinery. The depreciation on limits was about forty cents per thousand feet.

Should Capitalize Standing Timber.

"Is there no value to be placed on the pulpwood. Is this country to receive nothing for it?" asked Commissioner Pringle, and added, "I would like to have some evidence put in here as to the value of pulpwood standing apart from the cost of cutting. I am not going to make any guess at anything in this inquiry, I will make my finding on absolute evidence." Mr. Pringle went on to relate how about sixty per cent. of the combined area of the Provinces of Quebec and Ontario were suitable for growing timber. "Supposing a syndicate capitalized a venture and began operations in speculating in pulpwood and located along the transcontinental and secured large pulpwood limits, which they cut and sold the product thereof. Is this country to get nothing for its wealth of such forestry except the stumpage dues?"

Mr. MacLaren, of the St. Maurice Company, who is connected with a variety of other paper making establishments in the United States, told the Commissioner of how his mill at Three Rivers paid back the stumpage dues, and how they acquired their limits. When the St. Maurice mills first acquired their limits they paid about two dollars per mile. To-day they are paying a five dollar tax in addition to stumpage dues. The value of the timbered areas of this mill are carried in the books at their original cost. He told of how for every cord of pine and spruce cut that a different rate had to be paid according to the classification of the wood. "I think it is all wrong in the timber and pulpwood business for companies to keep on cutting and not find out the cost of the depletio nof their timbered areas," said Mr. MacLaren. "I think every company should establish a sinking fund of two dollars for every cord taht is cut on the limits, so they would have their capital investment back when the limits gave out or their lease expired. I do not know of one company in Canada that is carrying on such a system now."

When Mr. MacLaren made known that he was connected with the pulp and paper industry in the United States Mr. Pringle asked: "What I really want to know is whether there is an inflated shortage or an actual shortage of pulpwood in the United States, and whether the American supply is exhausted?"

"The supply is certainly gone," said Mr. MacLaren, and went on to tell how, when the Scandinavian market was closed owing to the shortage of bottoms, that American buyers came thick and fast into Canada to get the treasured pulpwood. "They (the United States) get about 2,000,000 cords a year," said he.

Donnacona Paper Company.

On resumption in the afternoon Mr. George McKee, general manager of the Donnacona Paper Co., Ltd., was called, and told how pulpwood had in the years 1914, 1915, and 1916 been figured into the cost of production at ten dollars per cord. This was not actual cost. During 1917 pulpwood had been figured in at an estimated value of twelve dollars per cord. "Would the actual figures not be less?" asked Mr. Stewart. Witness said he would not be sure off-hand, but he thought they might be, and so turned up a statement of actual cost, which, read to the Commissioner, showed the following actual costs: 1915, $7.33; 1916, $7.21; 1917, operations not known yet.

In this table of figures there is no allowance made for stumpage, but everything else that enters into the cost is included. The stumpage charges, the Donnacona mills reckon, is two dollars per cord. This mill has about 150,000 cords on the Jacques Cartier River, and they pay two dollars per cord stumpage when they cut it.

Cost of the production of sulphite per ton from 1914 to May 1st, 1917, was testified to by Mr. McKee. They were as follows: 1914, $34.19; 1915, $31.75; 1916, $33.54; 1917, $42.63. (Taking in wood at the mill at $10 per cord.)

Questioned as to what had caused the increase in price per ton from $33 to $42 from 1916 to 1917, Mr. McKee mentioned sulphur, and told of having a contract with a firm in Mexico for its supply. According to contract the sulphur was to be shipped by an all water route and landed at Three Rivers. When the war made the available bottoms scarce, the sulphite began arriving at New York, and had to be brought to the mill by rail after a war insurance tax of $2.50 per ton had been added to it.

"I notice quite an increase in your administration charges also," remarked the Commissioner. The administration charges per ton of sulphite manufactured which the Commissioner questioned upon were as follows: 1914, 41 cents; 1915, 56 cents; 1916, 72 cents; no figures for 1917.

Mr. McKee explained that the increase in the administration charges had been brought about by a general raise in salaries to the office staff of the Donnacona mills, his own salary being included. Mr. Stewart questioned as to whether the increases in salaries had been made for the purpose of the investigation, but Mr. McKee said they had not, and had gone into effect during the latter part of 1916.

Insufficient Profits.

"Why are you so far behind on your preferred dividends?" was the Commissioner's next query. Mr. McKee explained that the amount to be earned on the debentures was to be double the interest rate, and that up to the last six months the mill had not been operating with sufficient profit to warrant this, and consequently no payments were made. The company, though its earnings now are good, did not expect to pay off the whole twenty-one per cent. deferred dividend this year.

Regarding the sale of some of the productions of sulphite from the Donnacona plant, Mr. McKee said that the company was selling to two American firms at $44 and $48 per ton respectively. The mill was not making any profit at this price, but rather was losing money. This sulphite had to be supplied under contracts which should have expired at the end of 1916, but owing to all of the amount contracted for not be-

ing delivered, the remainder was now going forth to meet with the provisions of the contract.

Riordon Company Not Involved.

At this point Crown Counsel pressed for Mr. McKee to tell the names of the Canadian manufacturers who produced news sulphite. The following list was given by Mr. McKee; Price Brothers, Belgo-Canadian Mills, Laurentide, John R. Booth, Abitibi Power and Paper Company, and though Mr. McKee was not sure he thought the St. Lawrence mills might be making some. Regarding the Riordon Company, Mr. Pringle said: "They take the position that they are not manufacturing sulphite for newsprint, but that their product is used for the manufacture of book and writing papers." The Riordon Company have been written to, and a statement from them is to be received by the Commissioner. It is not thought likely that they will be called upon to submit figures or appear in the sulphite or newsprint inquiries, but will likely come before Mr. Pringle when he begins his investigation into book and other grades of paper.

The Commissioner at this junction took note of the prices that had been submitted by the manufacturers covering a period from 1914 to 1917, and remarked, "The price of sulphite now appears to be going down?" He asked Mr. McKee if he could account for the falling of the market prices for sulphite. The general manager of the St. Maurice mills said that prior to 1916 there was around 400,000 tons of sulphite manufactured in Europe that came to the American market every year. With the outbreak of hostilities resulting in a shortage of bottoms for transport, the American supply of sulphite from Europe began to decrease, and American firms using sulphite immediately began to look around for another source of supply, and came over to Canada, where in their anxiety to get the product of Canadian mills began to bid against one another, and as there was a newly created American demand, the supply for which was not normal, the price began to soar. Canadian sulphite and newsprint manufacturers, realizing the value of the new American demand, began erecting new mills, and installing new machinery, which during the coming summer and fall would tend to materially increase the manufacture of sulphite and newsprint, and consequently when the supplies of both products became more plentiful, the prices dropped. Asked as to what he thought was a fair and just price per ton ton for sulphite to the manufacturer, Mr. McKee said "between $65 and $70." A year ago it was around $90 or $100 per ton. Next Mr. Pringle queried as to the prospects of the Canadian sulphite manufacturer being able to compete with the Scandinavian producer after the war.

In the opinion of Mr. McKee, the Canadian sulphite manufacturer could never, so far as he could see at present, be able to compete with the Scandinavian sulphite market, because the Scandinavian labor was cheap, the wood was cheap, and pre-war ocean rates were low. In a nutshell, if conditions as they existed before the war reasserted themselves after the war, Canada, according to present outlook and expectations, could not hope successfully to compete with the Scandinavian market. Mr. McKee told of his mill having to buy some groundwood from the Laurentide Company, for which it paid $37.50 per ton, though it had been manufacturing its own sulphite. "Don't you think you were having to pay a pretty high price, nearly double what your own cost of manufacture was?" asked Mr. Stewart. Mr. McKee did not think the price of $37.50 exhorbitant at all under the circumstances, stating that the open market prices at the time of purchase ranged between $42 and $45.

"Fifteen dollars per ton," Mr. McKee said, "would be a fair profit on sulphite."

As to the new digesters, that are being installed in several of the new mills now in the course of construction increasing the annual output of sulphite. Mr. McKee said that the effect of all of them might not be felt on the market for some time, as all of the mills in which new machines were being installed had not been completed. Mr. Pringle took up the differences in the figures per ton of sulphite contained in the returns of the Canadian manufacturers to the inquiry, in comparison with the figures contained in the report of the Federal Trade Commission for a similar commodity. The figures read from the report of the Federal Trade Commission show the manufacturing cost of sulphite to have been as follows: 1914, $32.82; 1915, $30.99; 1916 (first half year), $30.63.

"I am of the opinion that the auditors of the Federal Trade Commission would be glad to come and have the opportunity of upholding their figures returned to the Federal Trade Commission and their work," said Mr. Stewart.

At this point Mr. Gordon MacDougall, K.C., who had sat back with a smile while the suggestion was being broached, tersely remarked, "I understand the chairman of the Federal Trade Commission resigned because of the statements of these very auditors."

Laurentide Company.

L. W. Campbell, accountant of the Laurentide Company, followed. He gave the cost of the manufacture per ton of sulphite for a period covering from 1914 to 1916 as follows: 1914, $35.13; 1915, $34.86; 1916, $35.84. Figures include war tax.

Some idea of how the war tax is eating into the former profits of paper manufacturers and paper makers, was shown when Mr. Campbell testified that on a basis of the Government taking 25 per cent. of profits beyond 7 per cent. on capital invested, that the following sums had been expended in this direction: 1914, $20,000; 1915, $48,000; 1916, $120,000; 1917, not even estimated.

In 1914 the Laurentide Company sold sulphite at $34.58, in 1915 at $32.97, in 1916 at $53.39 per ton. Groundwood in 1915 cost $15.01 to produce, and in 1916, $21.20 per ton. The highest price that the Laurentide Company has received for sulphite per ton is $97, and this was dry product and went to an English firm. Groundwood the Laurentide Company sold for $37.50 per ton. The price for which the Laurentide Company had sold its sulphite in 1916 and 1917 was not forthcoming, so Mr. Pringle decided that the Laurentide Company would furnish him with this information. Mr. Campbell, telling of the vist of the representatives of the Federal Trade Commission to the Laurentide plant, said, "When they came they had access to all the books, and took them away in another room, and they were removed from the office for two days. The Laurentide Company did not know what was going on."

Belgo-Canadian Pulp & Paper Co.

Mr. H. Biermans, of the Belgo-Canadian mills, was the last witness to be heard Tuesday afternoon, and before he began his testimony he received a little lecture from Mr. Pringle, because of his oversight to supply certain western Ontario publications with news-

print at the price the Government had fixed. The trouble seemed to be that the papers in question had been in the habit of buying their supply of newsprint through a jobber, and not having it shipped direct from the mill. Suddenly they decided they wanted direct shipment. In this way they avoided jobbers' commission. Their orders were small, and Mr. Biermans evidently paid no attention to them. However, after hearing Commissioner Pringle, Mr. Biermans has promised to do something to supply the publishers in question. Belgo-Canadian made sulphite in 1917 for $37.75 per ton, inclusive of taxes, insurance, general administration, interest on bonded indebtedness, and reserve for depreciation. In 1914 this mill bought some sulphite from the Laurentide Company, and paid $35.50 for it, and from Berlin, New Hampshire, at $45 per ton. Other sulphite the mill had bought cost up to $59 per ton. A table of sales per ton for sulphite was given by the Belgo-Canadian mills as follows: 1915, $31.28; 1916, $39.057; 1917, $45.37, price f.o.b. the mill.

Other sales under contract with United States firms brought $54 per ton. In a few odd instances $90 per per ton was received. Groundwood cost to the Belgo mills was set forth as follows 1916, $16.50; 1917, $17.93.

Some groundwood (most of it not suitable for the manufacture of newsprint), has been sold during the last two years by the Belgo mills, going into the United States and bringing around $45 per ton. "I do not think we sell five hundred tons of groundwood per year," Mr. Biermans told Mr. Pringle. Stumpage in the Belgo estimates was put in at $2 per cord. The Belgo-Canadian Company is principally of Belgian capital, and was incorporated in 1900. It has been paying no dividends on its preferred stock for nine years. In reply to the question of the Commissioner as to why the Belgo mills did not pay up its dividends and make money, Mr. Biermans told Mr. Pringle, "We do not make so much money as rumor says."

"You ought to make money," replied Mr. Pringle.

"We would if the Government would allow us," was the tentative reply. According to the information that came out the Belgo-Canadian mill carries interest on a heavy bonded indebtedness.

Spanish River Pulp and Paper Co.

Mr. F. B. Wilson, vice-president of the Spanish River Mills, was the opening witness on Wednesday morning. After his direct examination by Mr. George Montgomery, K.C., the Crown Counsel and the Commissioner questioned him in relation to the differences in the figures contained in the returns of the manufacturers to the Canadian Commission, and those contained in the report of the Federal Trade Commission for the manufacture of groundwood. The comparisons were based and drawn upon the following figures, which represent cost of manufacture per ton.

Year.	Federal Trade.	Spanish Mills.
1914	$11.05	$17.75
1915	10.89	16.71
1916	*10.24	15.81
1917	.....	18.40

*Federal Trade Commission report dealt with only first six months of last year.

"Is it the intention of this inquiry to compare the figures submitted by the manufacturers with those of the Federal Trade report?" asked Mr. Wilson of the Commissioner.

"There is such a great discrepancy that I would like to have some explanation," replied Mr. Pringle. Pulpwood was put in by the Spanish River mills at $10.79 per cord, while the Federal Trade report had it entered at $7.30. What on the face of the two reports appeared to be a considerable difference faded away considerably when Mr. Wilson began to analyze a variety of materials and ingredients that entered into the manufacture of a ton of groundwood. The Federal Trade report did not allow anything for stumpage, while the Spanish mills entered it as a just cost of production at $2.00. According to the analysis made by Mr. Wilson and Mr. Pringle, the cost of manufacture finally stood with a difference of only $3.21, from which 92 cents for depreciation had to be further deducted for the Spanish River mills, bringing the actual difference town to $2.29 with Mr. Wilson's figures including stumpage and leaving general expense, which in 1914 amounted to $1.01 per ton, 52 cents per ton in 1915, 42 cents in 1916, and 57 cents in 1917, to be further taken into consideration.

Mr. Wilson explained that when the auditors of the Federal Trade Commission visited the Spanish River plant, stumpage charges had not been shown on the books of the firm, though it was conceded to be a rightful manufacturing charge. The reason for stumpage being left off the books until recently, the vice-president said was because the company was not making sufficient profits to bear it. "We have always recognized it as a legitimate cost," said Mr. Wilson. The cost of sulphite was next touched upon, and the actual cost of production per ton to the Spanish River mills covering a period of from 1914 to 1917 was shown to be as follows: 1914, $35.28; 1915, $34.51; 1916, $32.08; 1917, $41.77.

Regarding the stumpage costs in question Mr. Pringle wanted to know why the Federal Trade Commission's accountant had not found out that they were not included in the manufacturing cost? Mr. Wilson could hardly be expected to reply for the Federal Trade accountant; but he was quite positive that the figures he had given to the Commissioner were correct. He said: "I don't care what the Federal Trade Commission says. These are actual costs in our mills, and I know they are right." The Spanish River mills sometimes buys power from the Great Lakes Power Company, and pays five dollars per horse power for water, and sixteen dollars per H.P. for electric current. The lowest of any miscellaneous cost put in by any of the mills during the probe was furnished by the Spanish River mills, which charges but one cent per ton for this item.

Regarding sales of groundwood, Mr. Wilson said that the Spanish River mills had sold 56,000 tons in the United States for $22.37 per ton. So far in 1917 sulphite had been sold in the United States for $66.28.

"Fifteen dollars per ton would be a fair profit on newsprint," Mr. Wilson told Mr. Pringle.

The Commissioner wanted Mr. Wilson to estimate a fair profit per ton on groundwood and sulphite, but he refrained from doing so, saying that he did not want to give an estimate of this kind unless he knew what the market was going to be. "You do not want to place me in the position of estimating what a fair profit is when we perhaps could get above it in the market," he said.

Some increases that have taken place in the cost of materials used in the manufacture of paper and the

production of pulpwood was given in a statement that Mr. Wilson handed to Commissioner Pringle, but of which only a few of the figures were read. Cabbage was claimed to have advanced one thousand, one hundred and sixty-six per cent. Soda ash has advanced 390 per cent. Metal has advanced 127 per cent.; nails 126 per cent.; electric wires 200 per cent.; cable 122 per cent., and other materials and supplies accordingly. Questioned by Mr. Stewart as to what figures the Spanish River mills had put in for sulphite and groundwood used in the manufacture of a ton of newsprint, Mr. Wilson gave the following figures:

Year.	Sulphite.	Groundwood.
1914	$38	$21
1915	39	22
1916	45	24
1917	50	25

The Spanish River mills estimate the cost of newsprint at $72.20 per ton for the remainder of 1917, the charge being based on the present market prices of sulphite and groundwood. "What would the newsprint manufacturer be selling newsprint for now if the Government had not fixed the price?" asked the Commissioner. Mr. Wilson could not say definitely, but he did say that up to the time the Government had interfered that the newsprint manufacturers were not charging exhorbitant or excessive prices for their product. The Spanish River mills is selling its newsprint in the United States for $65 per ton, and sometimes they sell some of it for $70 per ton. In 1916, prior to the advance in the cost of materials they had been selling it for around $45 per ton. The average receipts for April and March of this year was between $54 and $55 per ton. Questioned by Mr. Montgomery as to the profits made at the low price in 1916, and the present prices, Mr. Wilson said that the manufacturer was making no greater profits at the higher price than he had been making when the price was lower. The price of $54 and $55 is at the mill.

"It is not suggested that if we can get a good price for our newsprint that we should take something else?" asked Mr. Wilson of the Commissioner, and a general laugh went round. With regard to the newsprint outlook and drop in price, Mr. Wilson said: "We must not look for a decrease in the price of newsprint immediately the war ends." He went on to explain that many of the mills had during the past few months just begun to feel the advance in the market for certain materials, their old materials which they had stored up being almost exhausted, and forcing the manufacturer to make new contracts at higher prices. He pointed out that if the manufacturer purchased the the materials or contracted for them in a high priced market that he would have to pay for them whether the war went on or not, and thus he could not lower the price of his print because of the high cost of the materials he was using in it and paying for. Commissioner Pringle, on the other hand, did not take such a view, he pointing out that an increased production of about 750 tons daily was coming on the Canadian market this year, and that when the war ended the Scandinavian sulphite trade would reassert itself and also that there would not be the same amount of newsprint consumed as at present. He expressed the view that with the new plants in operation that the Canadian manufacturer of newsprint might find it difficult to secure customers after the war.

Price Brothers.

J. L. Apdaile, the auditor for Price Bros., followed Mr. Wilson, who had been on the witness stand for upwards of two hours. He said that Price Bros. charged pulpwood going into the manufacture of groundwood at $9.79, and the total cost of producing a ton of groundwood was $20.01. Sulphite cost $35.79 to produce. Price Bros. figured six per cent. on invested capital into the cost of production. A schedule of costs of foreign material entering into the manufacture of groundwood and sulphite were gone into. Screens were shown to have advanced 127 per cent. in price, and felts 118 per cent. Five per cent. depreciation was allowed. Stumpage was again put in at two dollars per cord by this firm, and Mr. Stewart questioned it, claiming that it was an arbitrary figure all through, and was not an actual cost.

At this point the old question that ran throughout the newsprint probe as well, whether or not limits should be capitalized, bobbed up again. The auditor explained to the satisfaction of almost everyone present that the matter of depreciation of forests which years ago was a debatable question as to whether or not should enter into the charged cost of production had now became known to be an actual forest loss. The actual cost of getting pulpwood to Price Bros. Mill, (and it is extremely well situated) was given to be $9.54 cents per cord.

Crown Counsel, however, could not see eye to eye with Mr. Apdaile's explanation and maintained that the actual value of such pulpwood limits rested solely with their first cost, plus perhaps a small nominal charge per thousand feet for the "ACTUAL SHOWN and PROVEN EXPENSE OF CARRYING THEM, REGARDLESS OF WHAT THEIR MARKET VALUE TODAY MIGHT BE." Mr. Pringle, though he did not actually say so, expressed himself as being inclined to think that the newsprint manufacturer who acquired his woodlands years ago, and who took a risk of investing his capital in them was entitled today to the market value thereof.

The head office expense charge entering into the cost of the production of groundwood was $1.24 cents per ton, or about one-sixteenth of the total cost of production. Sulphite sales in 1917 for Price Bros. was shown to be $86 per ton against manufacturing cost of $35.79. Since the statements had been prepared for the commissioner, sulphite had been sold for about $65 per ton, most of it going to the United States. Mr. H. E. Price succeeded Mr. Apdaile on the witness stand and told of the sales prices.

Mr. Sharp, the auditor for the manufacturers of the newsprint section of the Canadian Pulp and Paper Association was the last witness to be heard and he gave various sets of figures contained in the report of the Federal Trade Commission by which he oriticized the grouping system employed by the Commission. He said that by the grouping system used that a misleading impression was given as to the producing cost and to the percentage of paper mills that were operated at a profit.

The Commissioner adjourned sine die.

The fact that the United States Government will allow the use of tin for canning perishable goods does not lessen the opportunity for using paper cans more extensively.

A PASS-PORT LIBEL.

The rigid regulations enforced by the American authorities in connection with pass-port requirements on leaving this country have been instrumental in our receiving what is called a fair likeness of the newly appointed manager of the Abitibi Power and Paper Company, Mr. R. A. McInnis. Those who know Mr. McInnis will receive some semblance of shock on glancing at the accompanying reproduction of the photograph secured by him to accompany his pass-port on a recent visit to the States. This might be termed an original work of art, and although Mr. McInnis's consent was not received for the reproduction of the photograph in these columns we feel that the punishment inflicted thereby will be sufficient as a warning to all good papermakers to have photographs taken by accredited photographers for their pass-ports, so that when such photos fall into the hands of journalists, their reproduction will do credit to all concerned.

Mr. McInnis is now located at Iroquois Falls, and will be joined by his family next month. The paper



Original Photo of Newly appointed Manager of Abitibi Power and Paper Co., Mr. R. A. McInnis Now at Iroquois Falls.

trade generally is congratulating Mac on his appointment. Mac's advancement is acknowledged to be the result of hard work, and intense application through which he has mastered the details of the business. While we shall not attempt to write his biography here, it might be mentioned that Mac started work in the paper business as an office boy at the Sturgeon Falls mill. He later joined Edward Lloyd and Company at their New York office, and subsequently was placed in charge of the Montreal business. After leaving the Lloyd Company, he was with the Belgo-Canadian Pulp and Paper Company at Shawinigan Falls for some time. On the formation of the Abitibi Power and Paper Company, Mac's services were secured, and for the past four years he has taken a prominent part in the management of the company's affairs at the Head Office in Montreal. His latest advancement gives him a big scope for further development, and with the paper trade generally we look forward to hearing of big things from him.

We trust however, that there will be no libel against us in using this 6 for a quarter photograph.

DISCUSSING NEWSPRINT REPORT.

The New York trade is talking about the report of the Federal Trade Commission on the News Print situation. According to the report the reason for the increase in the cost of newsprint is ascribed to the manufacturers. The mill agents and manufacturers in New York state and city deny this entirely. Several flaws are pointed out in the statistics and conclusions that have been reached by the Commission. The Commission admits that the cost of producing news print is from $4 to $5 a ton less in Canada than in the United States, and yet they fix the price of news print at $2.50.

The Commission also admits that the average earnings of the news print industry in 1915 were "comparatively low." On their own figures this profit in the great majority of mills was less than the proverbial $10 per ton profit that the American Publishers Association is offering capitalists who build paper mills.

Perhaps the greatest trouble that the news print manufacturers have to find in the Commission's report is the slight credit that is given the News Print Manufacturers' Asociation for calling a conference of the Publishers and Manufacturers to discuss the increasing shortage of news print in April 1916. The report of the commission merely says: "Nothing was accomplished by the conference." The manufacturers point out that the publishers refused to cut down their demand for news print, but instead bid frantically each other and so raised the price of news print.

Philip T. Dodge, president of the International Paper Company, has just sent the following communication relative to the news print situation to Government oficials in Washington. He says:

"In view of the agitation in Congress over a news print paper supply, and the sensational statements in the public press as to an increasing demand and a decreasing supply, I venture to call your attention to one or two significant facts.

"According to the "News Bureau", Boston, the news print paper output of 38 mills increased from 128,783 tons in April to 144,786 tons in May. The production of these mills was 57 tons per day higher than in the same month of last year.

"Finch, Pruyn & Co., of Glens Falls, is circularizing the country almost daily, offering 'news print in rolls in such quantities as you may require, to the extent of several hundred tons per month.'

"The Hudson Trading Company, of 18 East Forty-first street, New York City, are openly soliciting business, and recently offered paper in quantity to the North American of Philadelphia and the Times-Union of Jacksonville, Florida.

"For months, the International Paper Company has not only met all of its contract obligations but has made is making from 150 to 200 tons of special paper, as a substitute for news print on machines ordinarily used for higher priced and more profitable papers.

"I think a little investigation will convince you that there are special interests at work endeavoring to incite the public and alarm the newspapers, and secure legislation based on misstatements."

PAPER FROM SEAWEED.

According to press dispatches a Danish inventor has discovered a process for making newsprint paper from seaweed. The new process is said to entail half the cost of making paper from wood pulp.

What of the Paper Export Trade After the War

H. C. LEWIS, General Manager, National Paper and Type Company, New York.

At the Industrial Exposition and Export Conference, Springfield, Mass., Monday, June, 25, 1917.

* * *

(The advice given in this address by Mr. Lewis to his American hearers applies with equal force to Canadian manufacturers. The upbuilding and maintenance of an export trade by Canada, especialy in pulp and paper products, is not only desirable, but necessary. The outline of an export organization and the explanation of its functions are both comprehensive and timely. There is much real meat in this address.)

That this country requires a substantial volume of export business to insure its permanent prosperity is now too obvious to require discussion or argument. As our Civil War inaugurated the vast development of our internal resources, so in my judgment will the present world war lead to a great and permanent development of our export business.

There are few industries in the country to which a substantial volume of foreign business is more vital than to the paper mills. They have been developed beyond the needs of the domestic market, and I hope have become practically independent in the supply of needed raw material, and with proper legislative and administrative action in Washington, we should become the greatest paper-exporting country in the world. Our labor costs are high, but labor costs in other paper manufacturing countries have likewise advanced greatly. Our record of tonnage output is not equalled by any other country, and with proper attention to quality and permanent attention to minute economies, we should generally successfully compete for the world's markets.

I am not a believer in the policy of furnishing what the foreigner offers. With some exceptions, I rather believe in the policy of creating a world demand for American goods. Such a demand, once created, will remain with us, while the imitating or duplicating of the other man's product means simply price competition, and that in the end helps neither our own country nor our customers.

It is most probable that the end of the present war will see the United States in possession of a large mercantile marine which will be at the service of exporters, and with rates fairly competitive with those from foriegn countries.

Foreign selling organizations now exist and should be used to the fullest possible extent. While I am personally interested in this phase of our export business, I think that I can, and have considered the matter without personal bias. I am convinced that the legitimate, responsible and reputable selling organization is absolutely essential to the development and permanency of our export business. These organizations, by reason of their representations and activities in many countries, have a mass of knowledge and information which a single mill cannot well obtain and cannot keep up-to-date. The province of the selling organization is to obtain customers, rather than to obtain an order or many orders. A customer is of great potential value, while the single order is of comparatively little value. The foreign selling organization is also dependent upon its business abroad for its livelihood, while the individual mill here is generally interested in selling but a small portion of its output abroad, and in times of crisis is likely to neglect its foreign customers, resulting in the loss of their good will and of the prestige of this country and its merchants and manufacturers. There have been many cases of this kind in the past year and a half, and the value of the foreign selling organization, with its responsibility both to its mill connections and to its customers abroad, has been amply demonstrated.

There are two kinds of selling organizations in existence, one doing what is termed an "indent" business, by which its representatives take orders from foreign buyers, placing them with the mills of this country on their receipt and shipping on completion of the order. This business has been substantially developed and is largely responsible for the initial development of our export of paper. The other kind of selling organization carries stocks abroad, as do merchants or dealers in this country. It has the stock ready for immediate delivery to its customers; it places its orders for its stock needs in large quantities and frequently at times particularly advantageous to the mills. As an export organization may cover the entire world, and as the busy seasons of the countries it serves, do not always coincide with ours, large orders may be given the mills during our dull season, and to the mutual advantage of the mill and the buyer.

These two organizations afford legitimate and proper competition if both are honorably conducted. One may create a demand from customers who would not buy of the other. Through their active and honorable competition, a greater volume of export business may be obtained, and to the great advantage of this country.

The character and policy of the selling organization are important. There should be cordial co-operation between it and the mills. Our export business, to be permanently satisfactory, must be profitable to both the mills and selling organization. There may be periods when this will not be fully possible, but in the long run it can be accomplished, with the proper policy and spirit. This end can be best attained if the mills will also cordially co-operate with one another. There will be exceptional conditions and situations to meet, which can be met if the business is properly divided or allotted. I am referring now to possible situations, and not the impossible. All mills cannot advantageously handle export orders, and this should be understood. Some new grades of paper may be required, and the mills which first successfully undertake their manufacture should be respected by the other mills, and their product protected. Cut-throat competition among the mills for export business should be discouraged, as unfair buying policies should be discouraged among the selling organizations.

The special weight and size requirements in export-business often make large tonnage necessary, and this should be handled by certain mills which can equip

themselves for the business rather than be divided among many mills with smaller tonnage for cash. Our Government should permit the manufacturers of paper to co-operate among themselves for the manufacture of paper for foreign business. Legislation is contemplated permitting co-operation for selling organizations; for the protection and benefit of our paper industry; a somewhat similar co-operation should be permitted among the manufacturing units. If this is done, permanent economies can be put into effect and greater efficiency secured through the co-operation of all maunfacturing units with reputable selling organizations. The allotment of export tonnage among a relatively few mills will answer the same purpose, if properly directed, as the allotment of the same tonnage among many mills, and will inevitably result in a lower ultimate manufacturing cost as well as a probable lowering of the selling cost. We shall meet similar co-operation or organization or combination from our foreign competitors, and should prepare now for the competitive war rather than wait until our legitimate markets are invaded and possibly lost.

Full co-operation between the manufacturers and the selling organization is actually a patriotic duty. The majority of our mills, especially the small ones, are entirely unable profitably to do an export business, and to them the selling organization is essential. It is manifestly unfair for a mill to "scalp" on a single order or a few orders which may come easily, with resulting injury to the legitimate selling organization and with possible demoralization of prices. The large mill which can afford to maintain its own selling organization, and which will handle export business permanently and properly should be regarded as a legitimate foreign selling organization and as legitimate competition.

It is well to remember that the paper export business of Germany is done almost exclusively through selling organizations devoted entirely to the export business, and that orders as received are deliberately allotted to the mills best qualified to handle the business and most in need of it. It is understood that in Germany the losses on paper manufactured for export, if any, are pro-rated among a group of mills, with the result that the final export figures may show a profit for all. It is doubtful if such a policy will be permitted by our Government, but permission for free, open and cordial co-operation among mills, for the sole purpose of manufacturing paper for export to the best advantage of the paper-making industry of this country—and therefore to the ultimate benefit of the country as a whole—should and might be given if proper work is done in Washington.

We have the reputation of having the largest producing machines in the world, and this fact may offset the lower wage cost of our foreign competitors. It is even possible that our great production, with its resulting economies, may make it unnecessary to meet all of the light weight requirements which the foreign trade has been encouraged to demand by our European competitors. Other elements, however, than the immediate cost on board ship at selling port enter into this question. The cost of ocean transportation, the cost of duties, which are generally specific, and the cost of postal delivery in foreign countries, must all be considered. As light weight papers—particularly book papers—are essential, certain mills should equip themselves for handling this business, and their policy in this respect should be protected by the other mills. We cannot profitably gain foreign trade by fighting among ourselves.

This special business as regards grades, weights, colors, etc., should be undertaken only where substantial tonnage can be assured, and should then be made a regular, permanent, productive business. Frankly, we have lost reputation among foreign buyers by reason of the erratic and uncertain policy of certain mills; a mill which will undertake a special run in dull times has declined to do so in flush times, and our foreign buyers neither understand this nor have they been accustomed to similar treatment from our European competitors. Our foreign business in a way is more important than the domestic, and should receive at least the same careful and cordial consideration which is given in this country to important buyers. A satisfied foreign buyer is rather more apt to remain as a permanent customer than is the domestic buyer. The foreign customer is dependent upon products originating at a great distance, and if satisfied he hesitates to change lest he fail to receive the goods of the same quality or to receive proper service. He cannot order from another selling house or mill on twenty-four hours' notice, as our domestic buyers can. While he is most important to us in dull times, we must take care of him in good times in order to insure his business when we most need it.

Let me say again in other words that I strongly favor, wherever economically feasible, the sale of goods abroad which are essentially American, and let these American goods be better than those which have been furnished by other countries. Let us give them something different and better if we can—not just what they have heretofore used. This requires salesmanship of a high order; it requires a conscientious working for things American, and its success means the greater ultimate prosperity of our country and its industries.

There is another subject which I shall mention with some hesitancy, but which is of positive importance, and which contains elements of considerable danger to the proper and permanent development of our export business. There are a certain number of domestic wholesale houses which do a moderate export business. This business is almost entirely solicited through the mail, or is the result of the visit to them of foreign buyers. These domestic concerns have rather generally made lower prices on such export orders, as they can get than they have made on their domestic business. The orders come to them with less expense than the domestic business entails; it is an addition to their volume, and is therefore profitable even at reduced prices, because it does not carry the same proportionate overhead or selling expenses. Such competition, however, is not fair to the legitimate foreign selling organization. The latter could with equal propriety sell to domestic buyers at prices which the regular domestic dealer, with his heavy selling expense, could not meet with a profit. The foreign selling organization might, by soliciting business through the mails or inviting interviews with domestic buyers, make prices which the legitimate domestic dealer could not afford to meet. Here again the foreign selling organization would add to its volume and its profits, because it has no domestic selling expense. In either case the extra business is a pick-up, and would not be protected in a crisis. This situation may become even more serious, and is one which should be

very largely controlled by the mills. As a rule, the mills forbid a foreign selling organization to sell in the domestic market, and very properly so. With equal propriety they should forbid a domestic dealer to sell abroad, except as he conducts a legitimate foreign selling organization, and has the same expense and investment as has the legitimate foreign selling company. There is a great difference between those who merely take orders and those who actually consistently create business. The latter should be encouraged always, whether in the domestic or the foreign field. The foreign selling organization has no snap; it must have a greater proportionate investment for its business than the domestic, and is legitimately entitled to every possible consideration and support.

The wood situation is of course vital to the paper industry and its export possibilities. With an assured supply of pulp wood at reasonable cost, I think we need fear no ordinary competition. To the end that there may be this ample supply of wood for both our domestic and export needs, I would strongly urge joint action by the paper making industry in the purchase of tracts of woodland and in convincing our Congress and Executive of the vital importance of permitting no discrimination in our purchase or importation of wood for pulp-making purposes. The paper making industry is one of the greatest in this country, and in the world; its influence upon our prosperity and our business development is probably greater than that of any other single commodity which we largely produce.

As we have developed the printing press, and the type setting machines for the benefit of civilization, let us also develop fully our paper making industries for use in all countries on the globe.

TRADE COMMISSION MAY BE GIVEN MORE POWER.

(Special to Pulp & Paper Magazine.)

New York, N. Y., July 14.

The agitation now on foot to extend the power of the Federal Trade Commission may materialize by Congress taking some action. At the present time, the commission has none but the power to investigate—and then to recommend. With regard to the news print question, it conducted an inquiry into the industry and arrived at the conclusion that the prices being asked were unreasonable, suggesting that 2½ cents was fair. It contrived to get a number of the mills to agree to sell at this price, but had no power to insist that they do so. In other words, after spending all kinds of time and money, the Federal Trade Commission had actually accomplished nothing. It recommended to congress that the government take control of the news print, chemical and mechanical pulp industry—and then Congress wanted to know what it had done.

The commission emphasized its need for greater powers in a statement made to Congress, this week. Almost at the same time, the National Editorial Association, in convention at Minneapolis, Minn., went on record as favoring that "specific power should be given to the Federal Trade Commission to fix prices and take charge of the distribution of print paper. If that is not sufficient, give the Trade Commission power to take over the mills and operate them during the war period." This cry for more power to the commission has also been raised in a few other industries—so that it now appears that there is a likelihood that Congress may be forced to asquiesce with this demand. More than that, this would be the only way in which Congress could get the satisfaction it wants—of knowing that the commission has actually done something to the manufacturers of news print.

SIDELIGHTS ON THE PROBE.

John R. Booth exports about fifty thousands tons of sulphite annually to the United States.

If the publishers are as fair-minded as they profess, why don't they take a day or so off and attend the inquiries, and get an elementary insight into the newsprint manufacturing game? If they did and their "professed fairmindedness" was as strong at the finish as it has been lately, they would from this standpoint have to tell their reading public that the newsprint manufacturer was entitled to receive three cents per pound for his product, and had to get it whether circulation dropped or not, to counter-balance the half cent to make up "equitable" cost of production. Perhaps, after all, the inquiry will show that the publisher has the skin of the submarine and its markings, and the newsprint manufacturing industry have the hide of the tortoise, who usually lets well enough alone, but when he bites hangs on. Sir Hugh Graham appears to be the craftiest of Canadian newspaper owners. He is largely interested in his own newsmaking plant, and Mr. Biermans tells us, "He is confident Sir Hugh will pay him a price later on," even though there is a low-priced contract between the pair that dates till two months after the war.

Where is there a newspaper plant in Canada that has two million dollars invested in its enterprise excepting the Montreal Star interests? The auditor of St. Maurice mills told the Commissioner it figured it had $3,000,000 invested in lands alone. Why shouldn't the newsprint industry have a fair return on its invested capital. How many newspaper publishers would be content to get along from nothing up to five per cent. interest on capital invested the year round. Why are newspaper profits, dividends, "sources of revenue," etc., not investigated and brought to a par with what the newsprint manufacturer receives? This is only equitable.

Laurentide allows five per cent. depreciation for 20 years on its plant.

The output of Price Bros. mills this year may reach fifty or sixty thousand tons of groundwood.

It is the opinion of Mr. George McKee, general manager of the Donnacona Paper Co., Canadian mills cannot compete with Scandinavian mills in the sulphite market if pre-war conditions are re-established. In his talk at the summer meeting of the Technical Section, Mr. Thorne, who is one of the most expert pulp men in Canada, said we must make such good pulp that buyers will insist on getting it.

Wonder how certain jobbers feel on being turned down by the papers who succeeded in buying direct from the mill by complaining to the Commissioner?

Most of the pulp makers seem willing to consider $15 per ton a fair profit on sulphite of news grade. Probably $10 profit would do for groundwood. If they could sell this to themselves at such a price it would settle the possibility of a 2½ cent price for paper.

UNITED STATES NOTES

The Union Bag and Paper Company announced from their New York headquarters that a general ten per-cent increase in the cost of their product will immediately take effect.

Charles R. McMillan, vice-president of the company, commenting on this action said: "Despite the fact that the demand for some grades of paper is now weak there is a strong demand for our product. We expect the carton trade which will offer a substitute for tin plate to increase as the war continues.

"But the real reason for the increase in our selling price is the cost of production. We firmly believe that the cost of raw materials and labor is bound to increase. It is on that basis that we have increased our selling price."

Word has been received from Sergeant Walter C. Sisson, son of Rufus L. Sisson, of the Racquette River Paper Company, Potsdam, New York, who went to France recently with a transport unit. He was made sergeant after enlisting in the unit.

The Southern Newspapers Publishers' Association, on July 9, 10, 11 endorsed the recommendation of the Federal Trade Commission to have the Government take control of the news print industry. This action on the part of the southern publishers is contrary to the feeling of the majority of publishers, especially the larger publishers, who do not desire government control. The National Editorial Association has also endorsed the plea of the Commission to have the government control the news print industry.

The Founder of the Burgess Sulphite Fibre Company, Berlin, New Hampshire, Theodore Phillips Burgess, died at his home at Dedham, Mass., on July 6 He was a prominent yachtsman and inventor.

An important conference was held in Watertown, N. Y. this week to conserve railroad freight cars. Well known paper manufacturers, including James E. Campbell, president of the Dexter Sulphite Pulp and Paper Company, were at the meeting.

The Arrowhead Mills, Inc., at Fulton, N.Y., are planning to erect a kraft mill on the site of the defunct Battle Island Paper Co. Work has already begun and it is proposed to install one machine next Spring.

The C. K. Williams Company which controls several chemical plants in different parts of the country have acquired a plant in Watertown, New York. Within the next few months this plant will be fitted up for the manufacture of rosin, size and chemicals to be used in the paper mills of Northern New York.

The Bache Trading Company, 5 Keekman street, New York City, has been formed to deal in paper and pulp, both foreign and domestic. Mr. Bache who heads the company, has been connected with Mr. Bonnevie inthe firm of Bonnevie and Bache which recently dissolved.

Some of the mills at Holyoke are still closed because of the lack of orders. Two of the units of the American Writing Paper Company, Riverside No. 1 and 3 divisions, are down. There have been rumors that the American Writing Paper Company contemplate selling their mills, but this is absolutely denied.

The Secretary of the Treasury has granted the Champion Coated Paper Company, of Hamilton, Ohio, the contract to supply the Bureau of Engraving and Printing with revenue stamp paper at $.0838 a pound.

The annual supply of stamp paper for the Government will be made by the Kalamazoo Paper Company, Kalamazoo, Mich. This company will furnish 30,000,000 sheets of 18½" x 20¾" in sheets, at $.08 a pound, and 190,000 pounds of this paper in rolls at $.0775

Henry E. Surface, of the Forest Products Laboratory, Madison, Wisconsin, has just returned from a three months trip throughout the West and Northwest. The object of the journey was to determine to facilities of starting new pulp and paper mills in Montana, Washington, California and Alaska. These projected mills are to be built by private capital but will get their woodland and water power from the Government of the United States. Some eastern mills intend to establish western plants because they wish take advantage of these woodlands.

Mr. Surface is delighted with the vast supply of woodlands in southeastern Alaska. He reports, moreover, that the paper industry in the west now operating with private timber holdings is now in a very prosperous condition. Mills that were not running before the war are in full swing. Two mills in the Puget Sound district are being constructed. Many of the western mills are making paper for oriental and western consumption, but there is an opportunity to ship to the east if the high prices continue.

EXPLORING PULPWOOD LIMITS.

The James W. Sewall office, timber explorers and surveyors, Old Town, Maine, reports the following work going on. Kenneth McR. Clark, with 2 assistant cruisers, and other labor, is in the Upper St. John region of Maine, exploring 50,000 acres. R. L. Whitney with 3 assistant cruisers and laborers, is exploring 100,000 acres on the lower St. John watershed. Wentworth Peckham, with two men, is cruising 10,000 acres in the divide between the head of the St. John River and Penobscot waters. W. F. Billings, with an assistant cruiser and several men, is cruising 45,000 acres on the lower Allegash watershed. C. E. Cobb, with an assistant and labor is exploring 45,000 acres on the upper Allegash. A. J. Preble, with 2 assistants and labor is exploring 85,000 acres in Aroostook River watershed; O. W. Madden, with an assistant cruiser and help is exploring 100,000 acres in the Red and Fish River watersheds; James A. Conners, is exploring 18,000 acres in Nova Scotia; Francis Dougherty about 20,000 acres in New Brunswick, and A. C. McPheters is making a rough reconnaisance of some 300,000 acres in western Ontario.

The Sewall office has about 50 men out, and states that business is rushing as far ahead as can be seen. Pulpwood is being looked after much more than saw timber at present.

PULP AND PAPER NEWS

In order to facilitate the collection of waste paper, E. Pullan, 20 Maud street, Toronto, is putting out a bag holder made of steel which will hold four bags. Mr. Pullan states that the holder is very useful in an establishment where paper is graded for selling, each bag being used for a different paper.

A charter has been granted to the Ontario Wood Working Co., Limited, with headquarters in Kitchener, Ont., and a capital stock of fifty thousand dollars. The incorporators are D. B. Betzner, and E. B. Betzner and others of Kitchener, Ont. The company is empowered to manufacture, sell and deal in all articles made, in whole or in part, from wood, metal or paper and to carry on business as electric platers, printers, etc.

A charter has been granted to the Abell Mercantile Corporation, Limited, with headquarters in Toronto. The capital stock is forty thousand dollars. Among the incorporators are, E. F. Abell, G. P. Yeo and H. A. Ambridge, of Toronto. Among the wide powers conferred on the company are to carry on the business of a mercantile rating, reporting, collecting and adjusting agency and to print and publish newspapers, books, directories, catalogues, ratings, digests, lists, etc.

Work is progressing apace on the erection of the two digesters of the Port Arthur Pulp and Paper Co. at Port Arthur, Ont., and the city will start early next month to lay the water mains to the new sulphite mill. The chip bin floor is now being laid in the digester building thirty feet above the first floor. The wood room foundation is finished and the digester house is fast nearing completion.

I. D. Bradshaw, President of Bradshaw, Limited, manufacturers of waxed papers, Toronto, and wife, are spending a few weeks at Muskoka. Mr. Bradshaw has three sons who are in service overseas.

Robert E. Sweeney, New York, President of the Rainy River Pulp and Paper Co., is spending some time at the company's mill in British Columbia and intends to make a tour of the Pacific Coaest. The new plant is running smoothly and producing its capacity of kraft paper.

A. G. Hinzke superintendent of the Port Arthur Pulp and Paper Co.'s sulphite plant who had to enter the hospital at Port Arthur a few days ago for an operation, is making progress toward recovery. For a while he was very low.

R. S. White, editor of the Montreal Gazette and a son of the late Thomas White, who at one time owned the Peterboro Review, was recently presented with twenty-one thousand dollars and an illuminated address by importers, manufacturers, business and transportation men of Montreal in acknowledgment of his splendid services, as collector of customs at the port of Montreal. Mr. White resigned this post some time ago to resume newspaper work, after being twenty-one years in the employ of the Government.

The name of the Dominion Envelope Co., Limited, 90 Ontario street, Toronto, has been changed to the Dominion Envelope and Carton Co., Limited.

Fire recently visited the mills of the St. Lawrence Lumber and Box Co. at South Lancaster, Ont., and destroyed about thirty thousand dollars' worth of lumber. Rain was falling heavily at the time and this combined with the good work of the men in the yard saved the two mills from destruction.

Mrs. Pamela Wallace, died in Toronto last week at the residence of her daughter, in the eighty-first year of her age. She was the widow of John Might the widely known publisher and the founder of Might Directories, Limited.

Mr. E. Wright formerly of the Garden City Paper Co., has accepted the position of boss-finisher at the Kinleith Paper Mills, St. Catharines, where he succeeded Mr. J. Beck, who has returned to his old position as boss-finisher with the Lybater Paper Mills at Merritton.

The Lincoln Paper Mills at Merritton, are extending their siding in order to accommodate more cars in preparation for starting up their new sulphite plant.

The Riordon Pulp and Paper Co. at Merritton, are evidently not taking any chances this winter, with regard to the coal problem, as they have been busy all week with an extra gang of men, filling up the vacant spots around the mill.

OTTAWA NOTES.

An intense electric storm, accompanied by blinding sheets of rain and hail, broke booms and loosed fifty thousand logs—three-fifths of which were pulp logs in the Quyon boom on Sunday. The reconstructed steamer G. B. Green, which made its first passenger trip July 14th, and which was tied up at Quyon dock for Sunday, was hastily called into commission with other Upper Ottawa river boats, when the boom broke. Fifteen thousand of the pulp logs were gathered up before Sunday night. About five hundred logs escaped, going down the river toward Ottawa in the open channel. Many of the logs were for the J. R. Booth mills.

The official headquarters' statement this week says that there were 14 companies of the Canadian Forestry Corps operating in France up to April. The first eight companies arrived during a period between December last and March of this year. Five companies arrived in April, with their full technical equipment and approximately 60 per cent. of their transport. It is said there will be sixty companies of the Canadian Forestry Corps employed in France by September. The operations of some of the corps are being carried on under shell fire.

ARTHUR SUCCEEDS O. M. HENNESSY.

The north country is still mourning the loss of O. M. Hennessy who was drowned in the "Little Couch" rapids recently. His brother Arthur succeeds him as Woods Foreman for the Abitibi Power and Paper Co.

Although a municipal coal yard was proposed some time ago in Ottawa, if the project proves to be feasible it will be for the citizens only as the Ottawa Board of Control does not intend to wait for its establishment for the city's supply this winter. All the paper, pulp and lumber mills are taking every possible means to ensure their supplies for the coming winter.

THOROLD AND INDUSTRIAL EVENING CLASSES

On Monday evening last, the public library at Thorold, was the scene of a rather interesting meeting, where by the request of Mr. G. Carruthers, President of the Interlake Tissue Mills at Merritton, and chairman of the Advisory Board for the industrial evening classes, the board of trade had asked the different school boards and the town council to attend, in order that Mr. Carruthers might address them on the subject of evening classes.

Owing to a very severe electric storm which passed over the town, at the time of opening of the meeting, the number was not quite as large as it might have been, though there were twenty in all present among whom of those known to the paper trade were: D. Daverin, T. A. Weldon, F. M. H. Cushing, G. Carruthers, E. P. Foley, Mayor Battle and Jas. Battle.

On being called upon Mr. Carruthers said in part: "Although we were pleased with the progress of the classes last winter, which showed a good average attendance, and in fact surpassed many of the older schools in larger cities in that respect, still it was evident to those who had interested themselves then, that the equipment was entirely inadequate. It was their hope, however, that things would be in better shape for the coming winter. It was not fair that the advantages within our reach should be denied our children for want of proper equipment. The chief necessity was a technical teacher, and the services of one ought to be sought after. Each one should make up his mind as to what should be paid a teacher. He wondered that teachers could keep up their enthusiasm, though he held no brief for them.

Regarding trained labor, the serious position of this country at the present time and especially after the war, requires the necessity of arousing the interest of every citizen, and making him acquainted with the facts, which is essential for the success of industrial evening classes, otherwise it will only be a plaything.

In Canada the system of apprenticeship has been abandoned, and in its place there is nothing provided, the consequence of which is, that the trained labor has had to be brought from Britain and the United States principally, which is not a fair showing for the young people of this country, and it was his opinion, that the citizens of a community were in duty bound, to give the young men a training which would enable them to fit themselves for a position in life.

Thorold had a very old school, with unsuitable appointments, and he suggested supplementing the present equipment, even before approaching the question of a new building. In this the industries of the town would not be found wanting, but would show the same interest, both financially and otherwise, they had done before. If Thorold is not large enough to carry on the enterprise of a new school, what is to prevent the uniting of Merritton and Thorold for this purpose, as each town has a similarity of industries.

Studies special to this district would be navigation and fruit-growing as well as pulp and paper making.

There is need of home studying comforts which are not always found by young men who are obliged to stay in boarding houses, and a school should be more of a social center, so that students who are not situated suitably for studying can find it in the school at anytime.

It is also necessary to have the young people realize the advantages a place like Thorold has, situated as it is within a day's run of most of the big cities in Canada and United States, besides having the facilities of railway and water transportation. Mr. Carruthers' opinion the situation of Thorold lacks a great deal of appreciation.

In closing he thought that if the gentlemen present would get busy with the young men who are no doubt as good here as anywhere, there is nothing to prevent Thorold becoming one of the technical educational centers of Canada.

Chairman Brockbank said that he was right behind anything that could be done for technical education, and thoroughly approved of the suggestions put forward by Mr. Carruthers. As a product of the university himself he felt very keenly on the subject and especially as he employs several technical men. Only recently after having searched over Canada for a technical man, he had to bring a man over from England.

The keenness of competition after the war is over, is an outlook which is very serious, and must be met by well trained men, and unless the people of the town are in sympathy with the movement, it can not be a success. In his opinion it is absolutely necessary to have the best of teachers and facilities.

Mr. F. M. H. Cushing said in part that the plan of providing students with studies to which they were especially adapted, and placing them at that certain class of work, was, he thought, a good way of giving them a start in life. Some of the students who are earnest can not get the encouragement, and others who are better situated are sent over to the United States to get the training which ought to be given here.

Mr. Faulkner suggested that the school board should secure a technical man to fit the young men to enable them to go to a technical school in Toronto or other universities.

Mr. E. P. Foley regretted the fact that he had been unable to gain a technical education, but that he realized the necessity, and felt the need of it in his own mill, and as head of one of Thorold's industries, he was ready to do all they had promised.

Rev. W. H. Smith as a member of the school board said that when the new school was built, the trustees had in mind something in the direction of technical education, it was still in their minds. He regretted that the school-board did not contain omre men who were fathers of children attending the schools, as they might take a different interest in school management. Boys and girls should be put in a position to work out their own salvation with brains and hands, and some of this should be done before they reached the high school. This district is likely to be the vast manufacturing district of Canada, if we see and utilize all our advantages. So we ought to be looking ahead to the preparing of the young for life when they leave school.

Chairman Brockbank said he felt the ice had been splendidly broken, and he expected to see great things come from the meeting.

The board then adjourned.

The Markets

NEW YORK MARKETS.

New York, N.Y., July 14.

Paper makers are interested in some of the testimony in the investigation of the newsprint industry in Canada. They figure that statements made at Ottawa will be considered by the Government, and that it is inevitable that prices on pulps will come down a "pitch." In pulp circles, there does not seem to have been anything definite. In spite of it all, ground wood pulp rules steady, and fair trading is reported in considerable quantities. Due to the fact that it was expected the draft would take place this week, there was some expectation—and not a little hesitancy in activities. However, it was announced to-day that the draft had been postponed again for two weeks—prolonging the suspense. It is interesting to note a report that great quantities of pulp wood are to be cut in Maine this summer, one particular concern having advertised for 7,000 men to work on the Penobscot and Kennebec rivers, and along the line of the Bangor and Aroostook Railroad, getting out 20,000,000 feet, or about 40,000 cords of timber. Although this work commands the highest wages ever paid in that section of the country, it is difficult to get native loggers to engage in it, and the cutters have been forced to seek laborers in other parts of the country. No statement has been made as to what success is expected in the search for help. It is realized that upon this rests the answer to the question, what will the next season's supply of wood be? Most of the pulp manufacturers in Maine made their usual cut of long logs, and short pulp wood last winter, but the needs of the mills are such that operations must be continued all summer. Due to the increased cost of production, the cost of wood to grinders gives promise of exceeding all previous records next winter and this, it is thought, is bound to result in an increased cost of wood pulp. Quotations of most grinders still range about $44 per ton at the pulp mill, and while some lots of pulp are being disposed of at lesser values, it is doubtful whether any large amount of stock can be obtained below this level. Supplies are limited, and there is no appreciable accumulations of pulp in any section, as far as can be learned. According to reports, quotations for the East are about $42 to $46 per ton, f.o.b., pulp mill, while, for the West, they are about $44 to $48 per ton, f.o.b., pulp mill.

The chemical pulp market is firm, though interest in it is far from what might be called active. Paper mills generally are operating on a restricted basis, and invariably find their contract commitments of pulp sufficient to care for their wants, yet find it necessary now and then to seek additional supplies in the open market. Replacement difficulties, however, are more of a factor in keeping the market on its prevailing level, than the existing demand. Importers declare that it is practically impossible to buy stock in Sweden or Norway, and bring it here and net a profit at prices which manufacturers in this country are content to pay. The opening of the Baltic has thus far accomplished practically nothing in the way of remedying the situation in this market. It is understood, on good authority, that there are no great stocks on the other side, and that increasing difficulty is being found in getting pulp to this market. The opinion is expressed that higher prices will yet prevail.

In the rag market, interest is being manifested in a special meeting of the Paper Stock Division of the National Association of Waste Material Dealers which has been called by Emanuel Salomon, chairman, for July 17, at the Hotel Astoor. The gathering will be for the purpose of ratifying the amendments to the Trade Customs covering roofing rags recently suggested by the Felt Manufacturers' Association and also to act upon a set of resolutions to be presented to the Council of National Defense. At this meeting, it is expected that there will be appointed a committee to represent the Division at Washington together with the committee of felt manufacturers. While the demand is said to have improved for most of the grades, roofing still appears in the foreground. From some circles, comes the information that roofing is forcing its way further in the limelight, hence the hope that the effect of this condition on the rest of the market will be felt sooner than is being looked for. The impression given is that, without question, holders of rags which have been acquired during the past several months can easily dispose of accumulations now and realize an attractive profit. This is quite some contrast with the situation that prevailed a little over a month ago. However, the market is still far from the record level established early last year, and stock which was purchased by dealers at that time is, in most cases, being held, as to sell it now would necessitate the holder suffering a loss. Regarding the demand for roofing, it is said, on good authority, that representatives of the felt mills are themselves going about among packers and dealers in an effort to secure stock, and are paying high values for whatever they can obtain. As we noted last week, this can result in but one way, and that is that soon, when the roofing grades are exhausted, as it is predicted by some that they will be, it will be necessary for the roofing men to reach out and buy from the next higher grades, with the effect that the latter grades will go up in price to their regular consumers. Thirds and blues, white rags, black stocks are all in fair demand, with sales apparently increasing, while prices are clearly pointing upward. It is reported that a Western felt manufacturer has just placed a fairly large order for No. 2 roofing stock at 2 cents a pound f.o.b., New York, somewhat above the market. It is also understood that an order has been placed in Chicago at $40 per ton for all grades of roofing stock mixed. Western mills are said to be freely paying between $45 and $50 a ton delivered for roofing. A good average for thirds and blues is said to be about 2¼ cents. Old whites are held as high as 4½ cents for the better grades, with about 3¼ cents for the No. 2 grades. The demand for new cotton cuttings shows improvements and quotations on several descriptions prevail on a higher range. Manufacturers are buying in moderately large quantity and are finding it neces-

sary to pay better values in order to secure stock, particularly in several grades which are becoming scarce. New light silesias are moving well. Washables are in good demand, going considerably over 5 cents.

The movement of baggings continues strong, with indications very promising. It is feared, and with some grounds for these fears, that supplies are not unusually plentiful, and that it is wise to cover up at this stage of the game. As one authority says, "The tendency of the market is unmistakably forward. Consumers are buying in steady volume, while dealers are buying up at what are considered big prices. Supplies are gradually reaching the point of depletion, and quotations naturally tend strongly upward." Mixed bagging is quoted up to considerably over 2¾ cents. No. 1 scrap bagging is quoted at over 3 cents. Gunny is firm, with trading restricted only by a scarcity of stock. Quotations are up to about 3¾ cents. While prices of old manila rope are as firm as ever, there is said to be a slight easing in conditions. This is accredited to a perceptible slackening in demand, due to the fact that a number of consumers who have been buying heavily of late, have apparently filled their requirements for a period ahead, and have dropped from the market as buyers for the moment. Dealers look upon this as merely a temporary affair, and expect that the same strength which has characterized the market heretofore, will again prevail soon. Quotations range from 6¾ cents up.

In waste papers, the market can be said to be little more than holding its own. Transactions are reported in fair volume, but dealers feel that there is something lacking to make the market what it ought to be. Confidence is apparent, however, and it is evident that the trade is waiting for improvement that it feels sure is not very far off. About the early part of September is regarded as about the time when things ought to pick up. Then, it is calculated, the demand for papers will have taken on greater proportions, with the consequence that waste papers will be in rather active demand. To-day, the bulk of the movement is confined to low qualities of stock, mixed paper, folded news and similar grades going well. One sale of mixed news was noted at 57½ cents, while some strictly folded was recorded at 80 cents. Dump mixed is held at high prices in spite of the fact that consumers are buying in limited quantities, due to the high costs of labor. The labor item is expected to be one of the potent factors that will boost a number of the other figures before very long. Strange, the demand for krafts, manilas and soft white shavings has not picked up as was expected. Hard white shavings are quoted up to 4¾ cents; soft white shavings, up to about 3¼ cents; magazines up at about 2¼ cents; krafts up to about 3¼ cents.

No notable improvement has yet been reported in any of the paper markets. News print continues active, and is expected to retain this status for some time. Wrappings, however, are not so strong, with the demand not at all satisfactory. Aside from the general lull in the markets, this is attributed, to some extent, to the economy measures that have been in force for several months, in the department stores and in the other large concerns, consuming big quantities of wrapping paper. Tissues have undoubtedly suffered, to some extent, from the same causes. The demand for them is still weak. Books are fair, super having been sold ahead. Coated stocks can be obtained at some concessions. Boards seem to be on the down trend, with interest said to be decidedly lacking.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b., mill	$42.50 to $48.00
Foreign bleached sulphite, ex-dock, N.Y.	9¼c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	6¾c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b. pulp mill	4c.*
Kraft, pulp, f.o.b., pulp mill	6½c*
Foreign kraft pulp, fo.b., ex-dock, N.Y.	6½c*
Bleached soda pulp, f.o.b., pulp mill	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	6c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6½c*
Mitscherlich unbleached	5½c*
Bond papers, sulphite	11c*
Best grade writings	21c*
Regular superfine	18c*
Ledger papers	11c*
News contracts, f.o.b., mill	3¼c to 4c
News, spot lots	3¾c*
Book, super	8½c*
Book, coated	8¼c*
Tissues, good sulphite, bleached, per ream	$1.15*
Tissues, ground wood, manila, per ream	$1.25*
Kraft, domestic	8¼c*
Wood Manilas, No. 1	7c*
Strawboard, per ton, f.o.b. New York	$50 00*
Strawboard, per ton, f.o.b., New York	$50.00*
Chip board, per ton, f.o.b. New York	$45.00*

(*)—And higher. Rowland W. Jolly.

THE CANADIAN MARKETS.

TORONTO, July 16

The demand for news print continues active and all the mills are working hard to turn out the increased amount desired. The cost of making news goes up all the time and, yet to peruse the Canadian Associated Press despatches of the proceedings of the investigation at Ottawa, the average reader would think that the mills enjoyed a bonanza and were specially favored by governmental and other conditions. The troubles of the news print manufacturer are aplenty without being harassed by inquiries, fixed prices, prejudiced publicity and other arbitrary regulations.

Several dailies profess to admit that the cost of everything entering into the manufacture of paper should determine the price of the sale of the product and then go to rule out everything in the way of the present cost of pulp wood, the value of limits, and the prevailing figure for pulp. Whether pulp is too high in price, both mechanical and chemical, is not the question at present under discussion. There is no doubt that many news print mills, which make their own products in this line, could turn around and sell their pulp for a large sum and make more profit out of the transaction than they have been doing by including the material in paper. That is the point at issue. Values have to be taken on their present, up-to-the-minute, basis and not what was the prevailing quotation six months ago. To show what this means, it is understood that the daily newspapers, who have to spend many thousands more a year in wages owing to the increase given printers, immediately took this outlay into consideration and raised their rates for advertising ac-

cordingly. They did not go on the old former wages scale.

"I notice," remarked one news print manufacturer this week, "that the publishers are saying that all they wish is a fair figure, one that will give a reasonable profit to the paper makers. Well they are not living up to this pledge or conception of affairs in their news columns. To read their account of the proceedings of the Commission at Ottawa reminds one of the garbled and misleading reports that are often given concerning debates in the House. The newspapers do not have an adequate appreciation of the difficulties of what paper companies are up against.

If there is so much money in the business why don't the publishers raise a co-operative fund and start a mill of their own? How many new news print mills are going up in Canada and how many are extending their plants? There never was a period in the last decade when such enterprises were as unpromising as they are now. Several plants, which had planned putting in additional machines have called matters off. I know of three or four large paper companies, which have sat back and are just marking time now. Will they go ahead? No, sir; not until the war is over and the condition of the paper maker becomes a happier one."

All the pulp and paper mills have filled out and sent into the Canadian Manufacturers' Association detailed statements in regard to the coal situation, their requirements for the coming year, what they used last year, the stock on hand. how long it will run them, the contracts they have with United States producers and the amount that has been received up to June 30. It is hoped the Fuel Controller for Canada will be able to ensure a supply sufficient to tide the mills over the present stringency. This is only one of the vital difficulties the plants are up against today and another is pulp wood. By the end of August the supply that some firms have on hand will be exhausted and where they will get sufficient to see them through is causing much anxiety.

There is not a great deal doing in the pulp market at the present time, but prices are holding fairly firm under the circumstances and several concerns are piling. The reports received from abroad give very little hope for relief in that quarter. There is a feeling among the producers that prices will again ascend in the early fall owing to higher freight rates and the acuteness of the labor situation and that sulphite and ground wood will be very scarce. Germany is buying all the Swedish pulp and using it in the manufacture of ammunitions where it is found a suitable substitute for cotton. Then ships are practically unobtainable and any pulp that does arrive in America is all contracted for before hand.

Book and writing mills are well employed but orders are not plentiful. The companies are now catching up with business. The jobbing trade is rather quiet at the present time. This creates no disappointment, but in the fall it is expected that business will be more active then ever. Prices will undoubtedly ascend as men who take a calm view of affairs can see no other tendency with supplies growing shorter and labor scarcer.

The fibre container business is booming in Canada owing to the high cost and scarcity of tin. Several canning companies are making use of the new containers which are thoroughly treated with paraffin and are so far well pleased with the results. The containers are light and airy and are germ and moisture proof. If they will only stand long shipments and the knocking about, there is no doubt that the container business in Canada may develop as rapidly as has the coated paper business, the waxed paper line and other branches of the trade.

Envelope factories are rather quiet at this time of the year and until the fall advertising starts in earnest there will not be much renewed activity. At a meeting of the postal clerks association, held in Winnipeg last week a resolution was passed which will be presented to the postal authorities asking them to prohibit the use of "window envelopes."—either the using of a hole in the envelope to show the address on the communication inside or a transparency for the same purpose. According to the resolution passed hundreds of "window letters" do not show the address through the aperture, it is claimed and envelopes with holes to show the address are torn and catch other letters while passing through the stamp cancelling machines.

The Writing Paper Manufacturers' Association of America have adopted the trade custom, which was adopted by the National Paper Trade Association in New York some time ago, and have notified Canadian consumers. It is to the effect that terms of sale shall be cash in thirty days less three per cent. No discount after thirty days and no time option. Thirty days shall be construed to mean thirty days from date of invoice and where several invoices fall in one month, thirty days from the average date of said invoices, or if a definite settlement date is preferred, said settlement date, at which settlements are to be mailed, shall not be later than the twentieth day of the month next succeeding the date of the invoices.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.35
xBook papers (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook papers (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, manila	20% discount

HOYT METAL COMPANY

EFFICIENCY

In order to bring your plant up to the highest standard of efficiency, it is not only essential to have competent workmen, but it is necessary to have the very best Sheet Metal for lining your tanks.

The Hoyt Metal Company has had a great many years experience in experimenting along this line and have evolved an alloy which will not only stand up under acid, but which does not creep or buckle, and will stand rough usage without breaking.

If you are contemplating renewal or installation of a new unit please let us go into the matter with you in detail.

Write for our Babbitt catalogue.

Sales—Over five million dollars worth annually.

FACTORIES: London, England. Toronto, Canada. St. Louis, Mo. New York, N. Y.

The Standard  **For Quality**

KRYPTON PARCHMENT
KRYPTON LINEN LAID
ROYAL RECORD BOND
GENOA BOND
OLD DOMINION BOND
BELL-FAST BOND & LEDGER
TRIBUNE BOND
PROGRESS BOND

Howard Smith Paper Mills, Limited

MONTREAL

Mills at BEAUHARNOIS and CRABTREE, Que.

J. R. Walker & Co.

GRADERS AND PACKERS OF ALL KINDS
—OF—

Paper Making Material---Rags
Cuttings and Paper Waste

Rag Warehouse, 35 Common Street.

Waste Paper Warehouse, Grand Trunk Siding Wellington Street.

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y

THIS IS THE WAY

The old wasteful method of barking logs with knives is passing away rapidly. The proper way to bark a log is to take off the BARK ONLY. Wood is so valuable that no mill can afford to cut off 15 to 20 per cent of it along with the bark. That is why the

AMERICAN BARKING DRUM

is such a great success. It takes off the BARK ONLY. And as stated by a user of one of our drums,

"In our opinion, wood treated with the drum barker, if it is properly washed with spray after leaving the drum, makes CLEANER pulp than the old knife barker proposition."



How the wood looks in the process of passing through an American Barking Drum. Only the bark is removed. The good wood remains. There is no cutting or destroying.

Besides, there is the great labor saving that every paper mill must seriously consider today. With an American Barking Drum in your mill you are relieved of modern labor troubles.

Install one of our drums, pay for it in a few months out of the savings effected, and at the end of the first year put a few cool thousand dollars in the bank as NET PROFIT. We will gladly give you names on request of mill after mill who are doing this very thing today.

The more you tell us about your barking problems the better we can advise as to what to do. Our recommendations will cost you nothing and there are no strings attached.

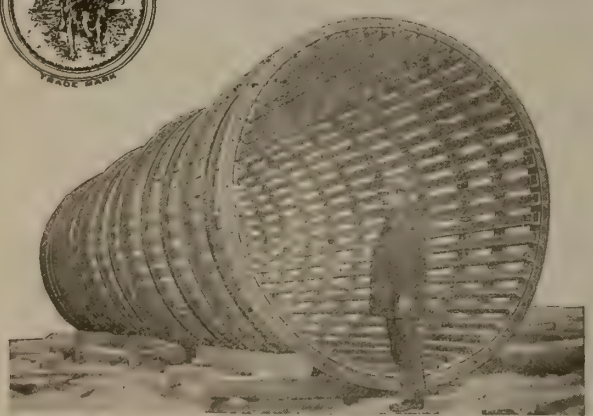
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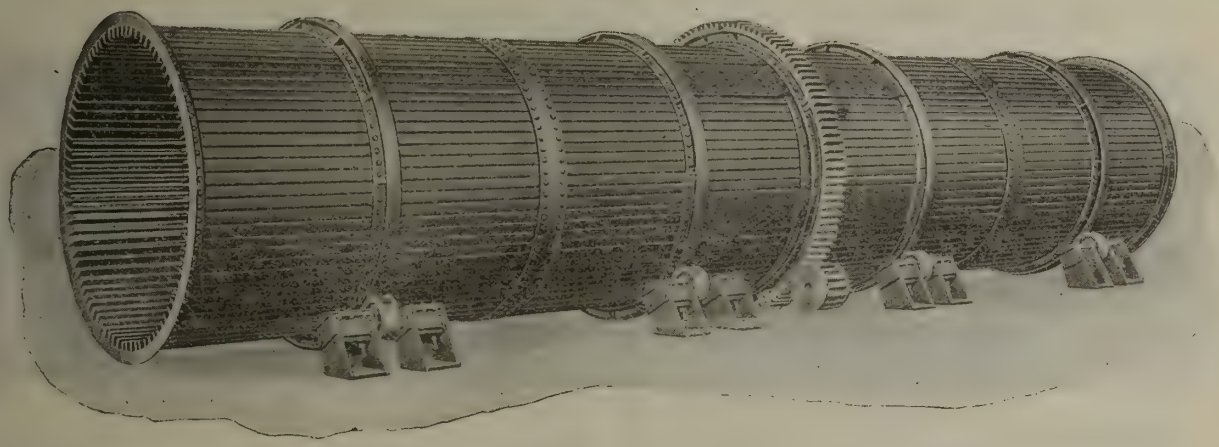
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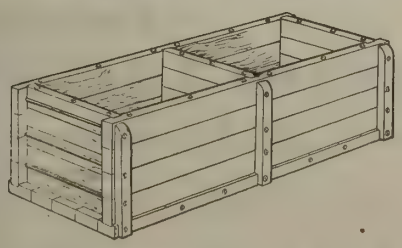
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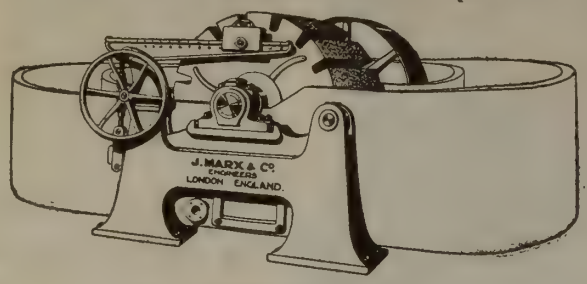


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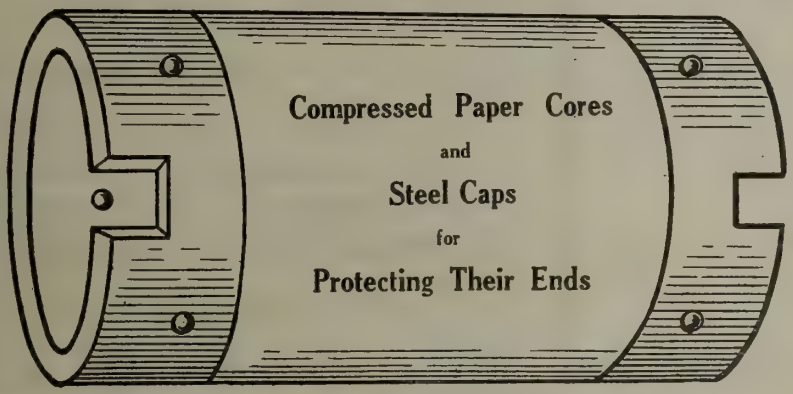
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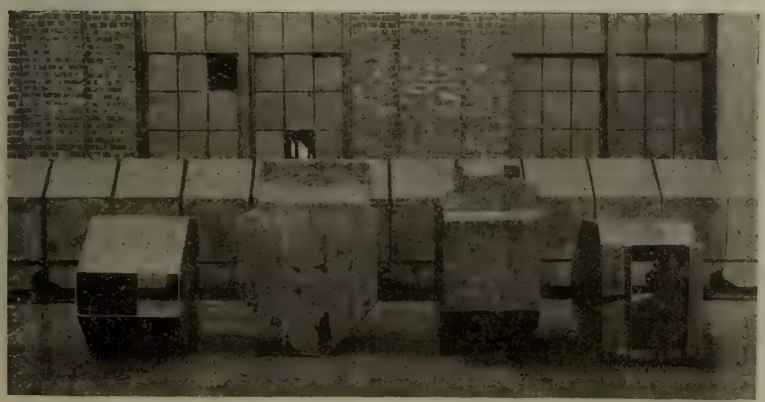
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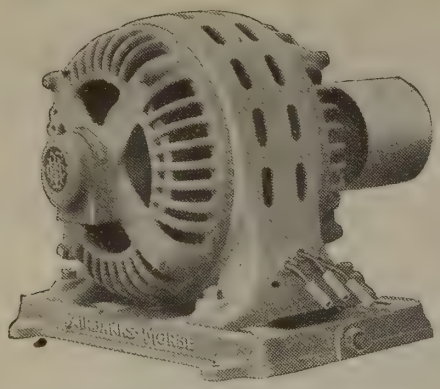
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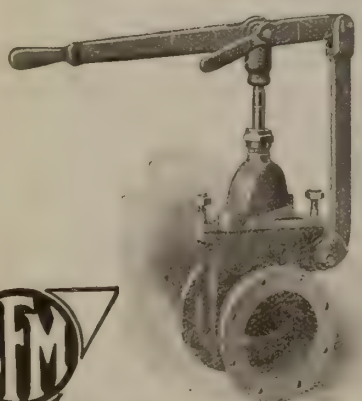
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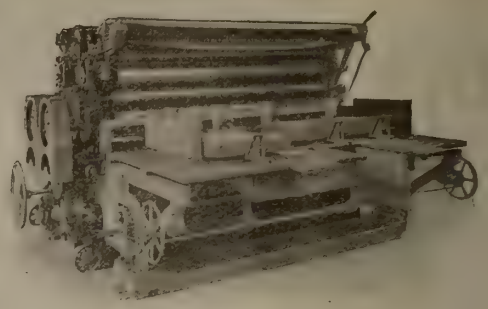
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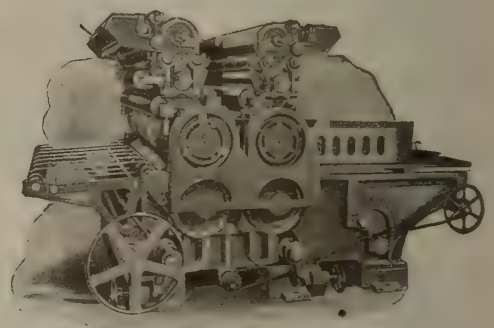
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

TRADE SCHOOL HINT FROM FRANCE.

The armies of the Allies are learning to do things efficiently. One important element in efficiency is intensive application to the thing to be done. This is as true of the training of the men as of the bombardment of a particular trench system that is to be captured. If so many bomb throwers, or machine gunners, or other specialists are wanted for a regiment, the necessary number of men best adapted to the work are selected and sent to school. They spend two, four, six weeks or more, studying every phase of their work. They know it thoroughly.

A member of the staff at the Forest Products Laboratory who has been at the front, brings the suggestion to the paper makers of Canada. If a mill wants an expert beater man, color man, or cook, let them select promising men and send them to school to study one specialty at a time. It may take a week to learn the essential points and principles of one process, and a month or two for another. The men selected would ordinarily be department foremen, and the time spent in the intensive study of their own particular job would result in greater efficiency and better work in that part of the mill. It would also instill in the workman a greater respect for his job, and greater inspiration in his work.

With characteristic generosity and interest in our industry, the Forest Products Laboratories suggest that their paper mill equipment at McGill University can be used for conducting part of this work. The industry would have to furnish the instruction and the materials. It might be found desirable to add some instruments to the equipment, but the Laboratories already have two beaters, a paper machine, a chipper, a small sulphite digester, a sulphate system under construction, a chemical laboratory, and several instruments for testing strength and color.

It would be distinctly worth while to make a start with what is available, and by trying this out it will be possible better to determine future steps. Just the gathering of the workmen from many mills in an educational atmosphere will generate ideas and create ideals that will be of immense benefit to the industry.

If it but develops the desire and inclination to read and study on the part of one or two men a year in each mill it will have been a success.

Such an educational scheme as this would give an immediate opportunity for improvement to the men who are already partly trained by experience. Many of them do their work by habit more than by thinking. Some think in the wrong direction, as Mr. George Harvey explained at the meeting of the Technical Association at Neenah, Wis., last May. Part of the paper was coming poorly sized. After a time one beaterman was heard to remark that he was saving the mill a lot of money, as he was using only half as much alum as the order called for. The stock felt the same to him. That was his test of the beating. It ran well over the machine, its weight was all right. But none of the ordinary mill tests give any idea of size-fastness. In fact, most mill men would not understand the term. How could they be expected to? They have never been taught anything about paper. There is no mill library from which they can take a book for over Sunday, or a reading room where they can sit down for a few minutes when they arrive before it is time to go "on tour" and read a bit in the trade papers.

These things go hand in hand with the trade school or extension school. Thorold has made a fine beginning with the local work in preliminary education. It is now time for the Pulp and Paper Association to make a beginning, preferably in co-operation with Provincial or Dominion Departments, in establishing the supplementary education or training for special parts of the business. The Technical Section has a committee at work on education. How can they help you? How can you help them?

A NEW FOOD—IN CANADA.

In this time when there is more or less gloom, it is cheering to find some possibilities of good that may result from the war. One of these bright spots is the chance that Canadians may be permitted to make and eat a food that for years has been giving satisfaction and sustenance to the people of every other civilized country—oleomargarine. The case against this cheap, edible and nutritious synthetic butter has been the complaint from the dairyman that if oleomargarine is permitted in Canada the price and demand for butter will decrease. This has not been the case in other places, and there is no reason to expect such a result here.

The only sensible objection to its introduction would be its fraudulent sale in the guise of real butter. Even this difficulty can be very simply met in two ways

—first, allow the manufacture of oleo in a few plants under government (Dominion) license and supervision, each package properly stamped; second, require that each pound contain a substance, that when a test is applied will give a conclusive reaction and proof. Both these methods have been shown to be entirely feasible.

The advantages in the use of oleomargarine are too well known to require elaboration. Good oleo is incomparably better than poor butter. Oleo is all right on the table. Many families in the States use it, and the writer has eaten it at the table of college fraternity houses, and college boys are as finnicky as anybody. In the kitchen its use is entirely satisfactory, with the possible exception of a few cases where the somewhat harder fat of oleo does not blend quite so well as butter.

And now Mr. Hoover, the American Food Commissioner says: "Don't use butter in the cooking, use substitutes." Oleo is more than a substitute, it is butter; made of clean, pure fats and oils in a far more sanitary manner than a large proportion of our butter. We hope to see our Canadian Food Commissioner, Mr. Hanna, get behind the pro-oleo movement. The ungrounded prejudice of the dairyman is the only obstacle.

There will never be too much butter.

UNDERHANDEDNESS REVEALED.

We had intended this week to let the "sleeping dog lie." Our readers can put their own interpretation on that word of three letters. The following extract from an article in the "Fourth Estate," however, reveals a situation that is almost beyond calm comment. To think that the "guardians of the public conscience" should put the price of newsprint as more important than, or even in the same class with supplies of food and fuel! And they expected to sneak the newsprint business through Congress under the skirts of a food control bill that is vital to the nation and the Allies. The publishers pulled off a trick like that with the Reciprocity Bill. Some such action might have been expected, but it is surprising to have it openly admitted that their pet measure might " 'slip through' as an amendment to the food bill."

Here is the extract, read it, and pray for those who can see only in the mirror:

"That Congress wrangles over food control while the newsprint dilemma and other important issues are sidetracked is not, however, the fault of those Senators who are striving to gain relief for publishers.

"For a time it looked as though authorization for the Government to take control of the newsprint supply along the lines recommended by the Trade Commission would "slip through" as an amendment to the food bill, but, sad to relate, the prospect is not now so good as it was.

"So many different interests, scenting the scheme of the publishing interests, sought to follow suit and tack on amendments calling upon Uncle Sam to exercise price control in their respective industries that many Congressmen became perplexed or disgusted and have taken the position that Government control under the pending bill must be restricted to food and fuel.

"Senators who regard the hooking up of the newsprint proposition with the general bill covering foodstuffs and the necessities of life as the only chance of getting action at this session of Congress have told the Washington correspondent of The Fourth Estate that they will strive, right up to the last (that is through the medium of an amendment offered on the floor or any other means) to get a decision on newsprint along with the decision on fuel and foodstuffs.

"If the newsprint proposition has to stand on its own bottom there is yet time for Congressional help at this session because the most optimistic prophets have moved forward for the date of probable adjournment from September 1 to October 1.

"If the War Revenue Bill, which can scarcely reach a vote before the last of August, contains, as is now threatened, provisions for the special taxation of publishers, via a levy on profits, a tax on advertising or a raise in postage rates, this circumstance in itself is bound to be an influence in favor of action on newsprint.

"If Congress proposes to take extra toll from publishers it is in honor bound to protect publishers from being shaken down on the cost of paper, lest, indeed, there be nothing left for the Government to tax."

P.S.—We are Irish enough to enjoy a good fight, but we don't like to see anybody hit below the belt.

HE WANTS TO KNOW.

"Though Montreal has the best facilities in Canada for the obtaining of food supplies yet prices are higher than any other city or locality in eastern Canada. We read that there is a food controller—that is all we know about it.

"There has been a very energetic campaign at Ottawa, we hear, against high paper prices. Is it anticipated that man, woman and child are to be reduced to newspaper as an article of diet?

ANXIOUS ENQUIRER.

From a letter in the Montreal Gazette.

FROM FRYING PAN TO FOREST FIRE.

Mary caught a little fish,
Jack built a fire to fry it,
They didn't put the fire out,
—And now a lot of fine timber is burnt up.

And that isn't all. Two other fires have started in British Columbia, and one of them cannot be stopped by human beings. Someone was guilty of criminal carelessness.

Douglas Fir Fibre With Special Reference to Length

By H. N. LEE, A.M., and E. M. SMITH[1].

(This article is a specially prepared abstract of the bulletin recently issued in the Forestry Quarterly, December, 1916, under the same title).

Sanio in 1867 investigated (6) the variation in size of the tracheids in Scotch pine (Pinus sylvestris L.), and deduced five general laws:

1. In the cross-section of a stem or branch the tracheids increase in size for a certain number of annual rings from the pith until a maximum is reached, after which the size remains constant.

2. The final constant size in the stem varies at different distances from the ground, first increasing till a maximum is reached and then decreasing toward the top.

(a) The tracheids in a given annual ring increase in size from the ground upwards until a certain maximum is reached and then decrease toward the top.

The other laws have to do with the fibres of the branches and roots.

As a result of their study on pine, fir, spruce and hemlock, Shepard and Bailey (1 and 2), reach the following conclusions:

1. No constant maximum length of tracheids** occurs.

(a) The length rapidly increases, in a given cross-section of the stem, for the first 25 to 50 years, then there is a marked decrease in length for about a decade which in turn is followed by an increase. In the only old material studied there was a maximum at 160 years followed by a comparatively rapid decrease.

2. Sanio's second law holds for Picea rubra.

(a) The maximum tracheid length occurs higher from the ground in rings nearer the bark.

3. There is no relation between the width of annual ring and the length of the tracheids.

4. The tracheids in "rotholz" are shorter than those in "zugholz" of the same annual ring.

5. There is so much variation in the length of tracheids that this feature is not a cafe method to use in identification of wood.

After an extended study on White pine, Loblolly pine, Longleaf pine and Douglas fir, Miss Gerry (3) comes to the following conclusions:

1. In any cross-section the fibres nearest the pith are shorter, there is a gradual (iregular) increase in length from the first annual ring outward.

(a) No constant length is found.

2. In 26 specimens taken at from 2½ to 3 inches from the pith at four-foot intervals from butt to stop there was a gradual increase in length for about two thirds the height of the tree.

3. No direct relation between length of fibre and strength could be determined.

(a) From butt to top specific gravity and strength decreased but average fibre length increased.

(b) Late wood found to be about twice as strong as early wood, although fibre was some 12 per cent shorter

(c) In "rothholz" the wood is stronger but fibre length shorter than in normal wood.

4. General range of variation in fibre length is not greater within the species than in the individual tree.

5. Longest fibres are in the earliest spring wood, shortest in layers of late wood.

6. Root fibres have length equal to or greater than stem fibres.

Mell (4) states the following:

1. The average length of tracheids increases within the plane perpendicular to the axis from the centre outwards until the tree reaches its maximum height growth, after which it remains quite constant.

2. The average length of tracheids increases from base until a maximum is reached, after which it decreases toward the top.

3. The length of Douglas fir, based on measurements from different parts of trunk and branches, is: average 2.68 mm, maximum, 3.30 mm, minimum 1.82 mm.

Microscopic Characteristics of Fibre [3].

As is shown in Plate 1, Figure 2, [4] which includes one spring, one intermediate and one summer fibre, the average tracheids of Douglas fir are roughly one hundred times as long as they are broad, and are more or less pointed at the ends. In length there is much variation, depending on the position of the fibre in the tree. In the wood formed around the pith the fibres are less than one third as long as the average, as may be seen from comparison of Figures 1 and 2, Plate 1, in which are shown mature and first annual ring fibres on the same scale of magnification ("see also" Tables and Curves). According to studies made by Miss Gerry (3) the fibres in the early or springwood of any given annual ring are longer than those in the late or summerwood. Our measurements show no great difference in the average length of the fibres of the springwood and those of the summerwood. There is, however, an indication that the fibre of the summerwood is slightly lighter, as is illustrated in Plate 1, Figure 1. The shortest fibres of the summerwood are those last formed, in the springwood the location of the minimum fibre appears to be more irregular. According to Penhallow (5, p. 360), in width the tracheids of Douglas fir are about .03 mm in early wood, and .027 mm tangentially or .018 man radially in late wood. The actual walls are about .0024 mm thick in the springwood and .0084 mm thick in the summerwood, i. e. they are some three times as thick in the late as in the early wood. We have made no special study of the thickness of the walls.

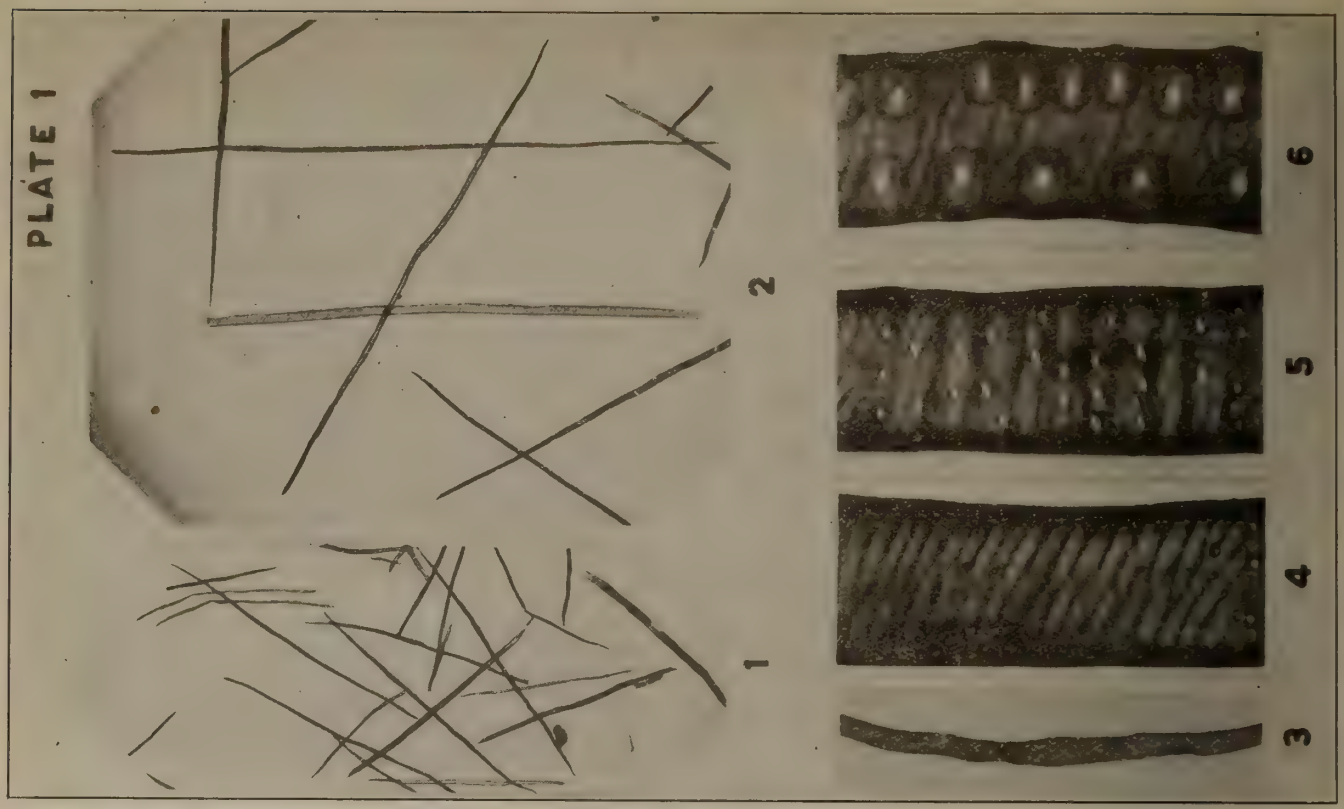
Under exceptional conditions, apparently when the wood is compressed as it is forming, the fibres develop remarkably heavy walls. Because of the reddish color this type of wood has been named "rotholz". The single tracheid from such an area may be recognized by the spiral striations (not to be confused with the tertiary, spiral thickenings referred to above), which appear to

1. Both of Forest Products Laboratories of Canada.

2. The fibres of which coniferous woods are composed are botanically known as tracheids.

3.—The terms fibre and tracheids are used interchangeably throughout this discussion.

4—Description of Plate 1.



Douglas Fir Fibers.
Description, see footnote on opposite page.

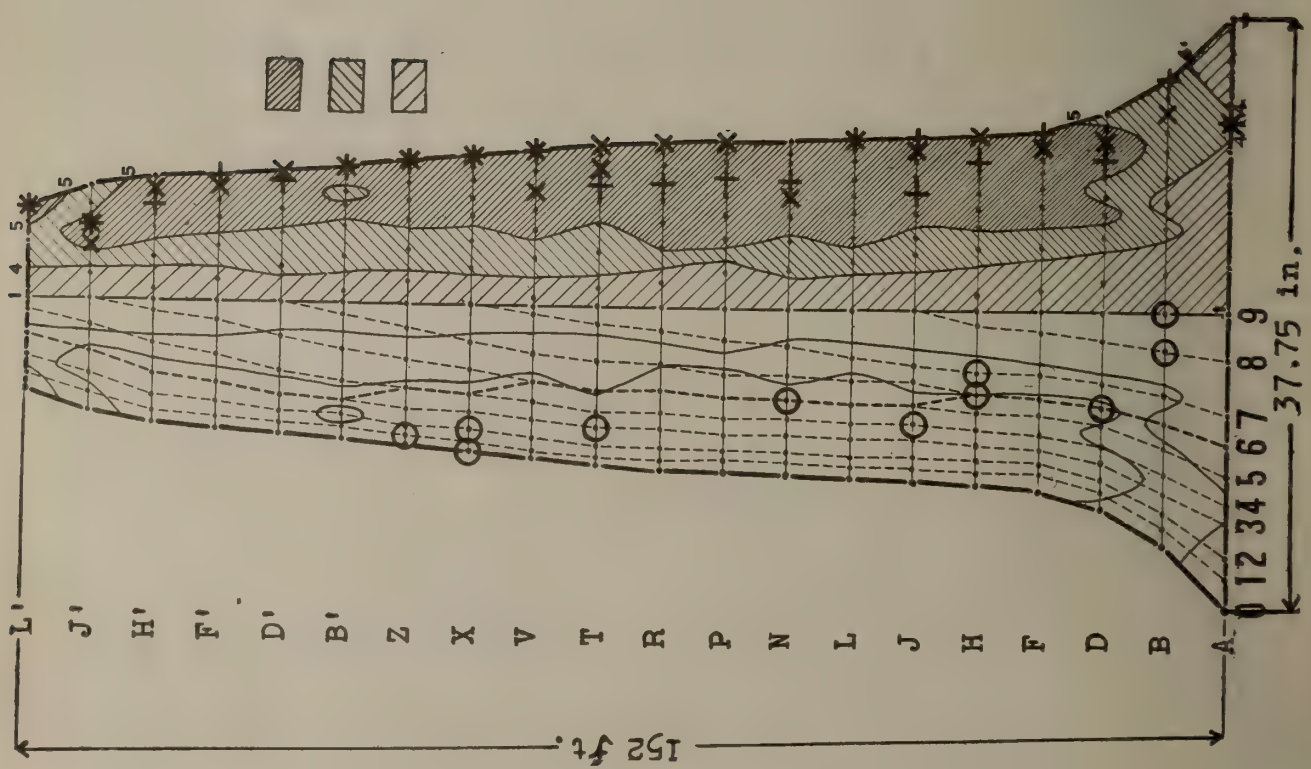


Figure 1.

Description of Plate 1.

Fig. 1.—Fibre from the first annual ring of Douglas fir, shipment 2, tree 1, disc X. Stain nigrosin, mounted in balsalm. x 20.

Fig. 2.—One springwood, one summerwood, and one intermediate Douglas fir fibre from ring 152 years from pith, shipment 2, tree 1, disc B. Stain Haidenhain's haematoxylin, mounted in glycerin jelly. x 20.

Fig 3.—"Rotholz" fibre, showing spiral striations, from same amount as figure 1. x 100.

Fig. 4.—Part of single springwood fibre of Douglas fir, shipment 2, tree 1, disc F, last annual ring, showing the characteristic tertiary spiral thickenings. Stain nigrosin, mounted in balsam. x 285.

Fig. 5.—Another part of same fibre as shown in figure 4, showing the crossing-field of the ray. Note the three smaller marginal pits at both the top and the bottom of the group of larger pits. x 285.

Fig. 6.—Another part of the same fibre as shown in figure 4, showing bordered pits. x 285.

Photomicrographs by Mr. W. B. Stokes, Forest Products Laboratories of Canada, Montreal.

averaged to be 3.3 mm long, while those in the "zugholz" of the same ring were 4.51 mm. Since this agrees with condition found in various woods by other investigators, we made no further determination. It may be noted here that spring tracheids occurring in "rotholz" ordinarily do not show the typical spiral thickenings which occur in the normal fibre.

Material.

All measurements included in this study were made on Douglas fir trees from British Columbia, one set being referred to as shipment 2, which came from the coast region, the other as shipment 3, which came from the mountains. Discs including the complete diameter were taken out at intervals of eight feet, as is shown in text figure 1, and fibres were measured in various annual rings which are listed in table 1. Annual rings twenty years apart were used.

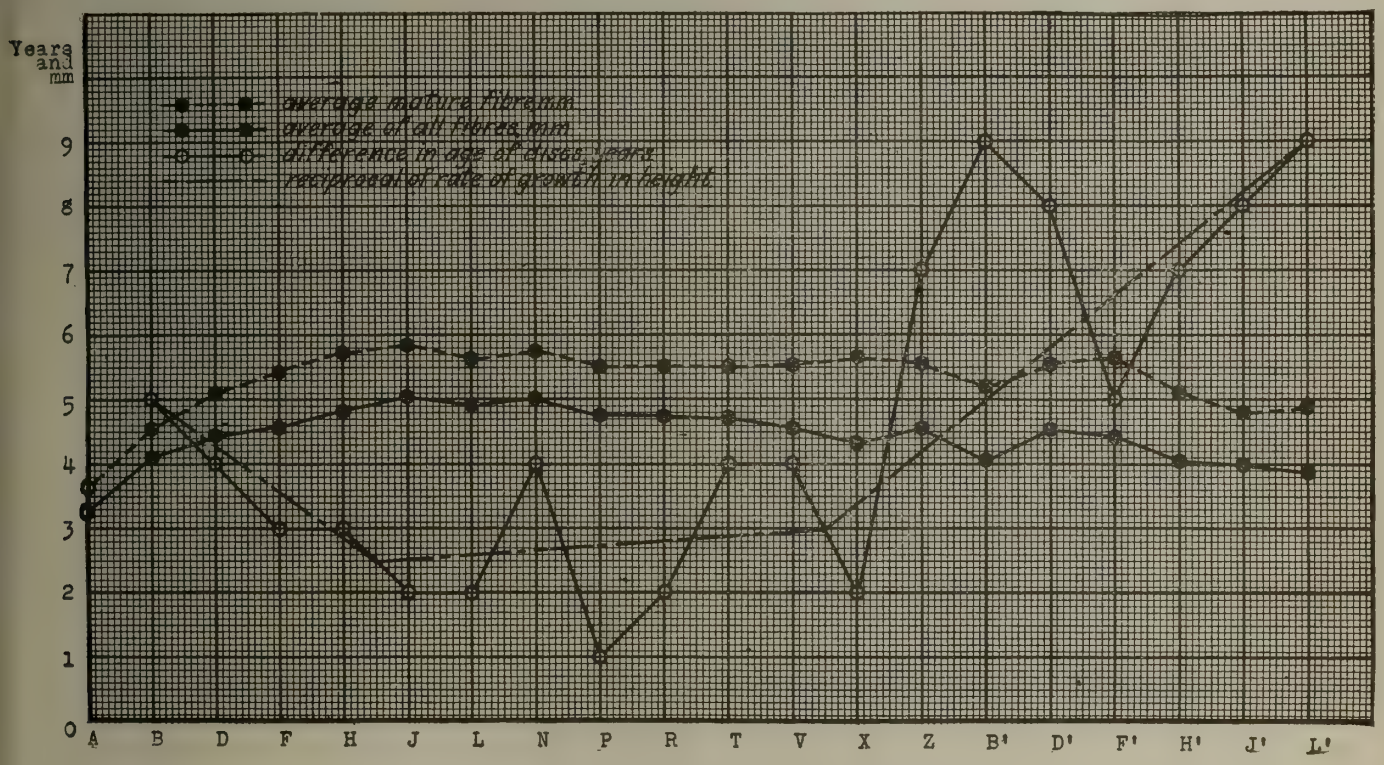


Fig. 2.—Disc Designation, Intervals 8 feet.
Douglas fir. Shipment 2, tree 1. Curves showing average fibre length by discs and rate of growth in height.

represent the method in which the walls of the tracheid are formed. (Plate 1, Fig. 3.) The pits in such a tracheid usually exhibit long, slit-like openings, and the walls themselves seem often to be spirally split. According to Shepherd and Bailey (1) and Miss Gerry (3) the fibres are shorter in the rotholz" than in the same annual ring where "rotholz" does not occur. We measured one case in which the fibres in the "rotholz"

* * *

Explanation of Fig.

Fig. 1.—Diagram of Longitudinal Section of Ship 2, Tree 1, Showing Location of Discs and of Points Where Fibres Were Measured.

Annual Ring Designation.
Intervals 20 Years.
× indicates location of maximum fibre in disc.
\+ indicates point of longest average fibre in disc.
O indicates point of longest average fibre in ring.
\- - - indicates limit of wood over about 50 years from pith.

From Figure 2 there appears to be a relation between growth in height and length of fibre. The curve of height growth is plotted by taking the difference in age between successive discs of 8 feet apart, beginning with disc A. This, of course, means that a greater difference indicates slower growth in height. At the butt the average difference up to 34 feet from the ground is almost 4; from 34 feet up to 98 feet the difference averages 2.7; while from 98 feet to the top disc the average difference is more than 7. Up to 34 feet, therefore, it seems that the tree was growing in height at a medium rate, from 34 to 98 feet at a rapid rate, and from 98 to 154 feet it was growing more and more slowly in height. The dot-dash line in the curve indicates the reciprocal of the rate of growth in height. Comparing this condition with the average fibre length at various heights, it will be seen (Fig. 2), that the fibre length is short at the butt end, but increases to a maximum at 42 feet from the ground; from 42 feet

to the top there is a steady decrease which is, apparently, more rapid after about 90 feet from the ground. While it appears from this that the more rapid the growth in height the longer will be the fibre, it must be taken into account that the fibre measured at any particular height from the ground may have been formed long after the growth in height had passed this point. Here again further determinations must be made before the relation between fibre length and growth in height can be positively established, although the indication is that the greater the latter the greater will be the former.

In the tree as a whole the fibres in the first year's growth, i.e., in the annual ring surrounding the pith, show the shortest figures for length. From the first year to about 50 years the increase in the length of fibre is very rapid each year, but after the fiftieth ring from the pith the length in any given cross-section seems to be comparatively constant. In some cases the rings nearer the bark show a slight increase of decrease. Comparing the average of all measurements made in each annual ring, as stated in Table 1 and as illustrated in Figure 3, it is found that there is apparently a very rapid increase up to about 100 years from the pith, and then a constant slight increase in the length of the fibres to the periphery. The true condition is shown better in the curve which includes only mature wood, i.e., over about 50 years from the pith, than in the general curve of all figures, since the data from which this general curve was obtained when averaged gives too much weight on the short fibres in the disc containing the lesser number of annual rings.

The fact that the fibres farthest from the pith are the longest is of considerable interest, for it means that slabs are composed of the longest fibres in the tree and therefore paper made from slabs will be strong.

The final average of all fibres measured is 4.46 mm., the average maximum is 7.26 mm., and average minimum (always in the first annual ring), 0.51 mm. Table 1 gives concisely the averages for each 50 measurements taken throughout the tree as well as the averages by discs and by rings. Since the rings were cut out every 20 annual rings from the periphery toward the pith, the first annual ring varies from one to 19 years from the next ring measured. As a result in two cases (discs X and B') there is a measurement in an annual ring very close to the pith as well as the first annual ring and the former figures are omitted in making the higher average in those cases where two are stated. The average omitting this extra short measurement is probably more nearly the actual average to be compared with the averages of other rings.

A comparison of the length of fibre with strength values seems to indicate no relation except that both these factors tend to increase rapidly up to a certain distance from the pith, and then vary irregularly within comparatively narrow limits toward the periphery, both tending to increase slightly. However, the fact that the butt gives in general the highest and the top the lowest strength values rather indicates that the fibre length is not correlated with strength, since the fibre length is low in both these regions. It, therefore, appears that no marked relation exists between strength and fibre length in the vertical direction, although there may be a relation to the horizontal direction. [5].

TABLE I

Average fiber length, mm

Disc Designation	Annual Rings, Age in Years	Dif. in Age, Years	Diameter, Inches	Radial Increment mm.	Height From Ground Feet	Annual Ring Designation 0	1	2	3	4	5	6	7	8	9	Fiber Length, Disc Averages	Disc Averages, Mature Wood
L'	88	9	11.5	1.8	154	5.17	5 07	4.96	4.37	2.74	0.99					3.88	
J'	97	8	14.5	2.0	146	4.21	4.87	5.14	5.00	3.73	1.00					3.99	
H'	105	7	15 5	2.0	138	5.08	5.05	5.20	5.13	4.53	2.30	1.04				4.04	5.11
F'	112	5	17.0	1.8	130	5.92	5.88	5.71	5 08	4.68	2.89	0.87				4.43	5.64
D'	117	8	18.0	1.8	122	5.66	5.81	5.56	5.11	4.70	4.03	0.94				4.54	5.53
B'	125	9	19.0	1.9	114	5.36	5.32	4.90	5.22	4.71	4.11	1.95	0.90			4.36 4.06	5.20
Z	134	7	20.0	1.5	106	6.11	6.03	5.17	5.43	5.05	4.46	3.18	1.06			4.56	5.55
X	141	7	20 75	1.8	98	6.31	5.52	6.17	5.23	5.10	4.14	4.18	1.20	1 08		4.71 4.32	5.66
V	143	4	21 0	1.9	90	5 79	5.69	5.49	5.62	5.29	5.38	4.69	2.27	0.92		4.57	5.54
T	147	4	21.5	2.0	82	5.91	5.31	5.66	6.08	5.33	4.80	4.89	3.30	1 12		4.71	5.51
R	151	2	23.0	2.0	74	5.56	5 55	5 73	5.84	5.34	5.07	5.15	3.43	1.07		4 74	5.51
P	153	1	23.5	2.0	66	5 61	5.56	5.54	5.91	5 20	5.20	5.02	3.85	0.91		4 75	5.50
N	154	4	24.0	1.9	58	5.35	5.82	5.56	6 04	5.99	5.75	4.81	4.49	1.29		5.01	5.75
L	158	2	24 0	2.0	50	6.09	5 92	5.55	5.80	5.31	5.06	5.06	4.42	1.11		4.92	5.62
J	160	2	25.0	2.1	42	6.07	5.94	5.87	5.78	6.07	5.42	4.99	4 15	1.28		5.06	5.85
H	162	3	25.5	1.7	34	6.01	6.02	6.05	5.85	5 60	5.34	5.26	4.50	2.66	0.91	4.82	5.73
F	165	3	27.0	1.9	26	5.97	5.70	5.25	5.50	5.39	5.11	5.12	4.10	2.57	1.09	4.58	5.43
D	168	4	27.5	2.0	18	4.84	5.29	5.04	5.43	5.19	4.68	5.26	4.33	3.07	1.19	4.43	5.10
B	172	5	31.25	2.3	10	4.98	4.41	4 71	4.23	4 77	4.76	3.97	4.38	3.52	1.29	4.10	4.54
A	177	0	36.75	2.9	2	3.56	3.25	3 20	3.66	4.63	3.61	3.67	3.13	2.99	1.15	3.28	3.65
Average fiber length, by rings.						5.47	5.40	5 32	5 31	4.96	4.20	3.89	3.30	1.81	1.12	4.46	
Average mature fiber, by rings.						5.47	5.40	5.32	5.31	5 30	5.01	4.65					5.21

Tree	Height from Ground	Annual Ring-approximate Pith	10	30	50	70	90	110	130	150	170	Average
2–5 Coast	19	1.18	2.99	4.06	3.92	3.99	4.62	3.78	4.10	3.48	2.89	3.44
2–1 Coast	18	1 19	3.07	4.33	5.26	4.68	5.19	5.43	5.04	5.29	4.84	4.43
3–8 Mountain	19	1.13	2.24	3.06	3.56	3.30	3.85	3.66	3.70	....	....	3.06
3–10 Mountain	19	1 10	3.43	3.93	4.41	4.51	4.70	5.17	4.81	4.98	4.76	4.18

Table II.

Table II.—Average length of fibre in discs from trees 2-5 and 2—1 from Coast and 3—8 and 3—10 from Mountain Region of British Columbia.

5.—For complete discussion of strength values of Ship. 2, tree 1, see "The Mechanical and Physical Properties of Canadian Douglas Fir." R. W. Sterns, Dominion Forestry Branch Bulletin No. 60.

6.—In choosing annual rings the last was taken and then every twentieth, going toward the pith. Since the exact number of annual rings was not 170 the annual number of rings between the pith and the next ring removed was variable, being 8 for 2—5, 8 for 2—1, 20 for 3—8, and 9 for 3—10. See Figure 1 for method followed.



Fig. 3.—Annual Ring Designation.
Douglas fir. Shipment 2, tree 1. Curves showing average rate of growth in radius and fibre length, by rings. The broken line is made from measurements excluding fibre under 50 years from pith.

Comparing the coastal forms with both the mountain forms it appears that the former produces a somewhat longer fibre, as is shown in table II.

Summary.

1. Measurements of 8,550 tracheids at 171 points in a single Douglas fir tree showed the average fibre length to be 4.46 mm., the maximum fibre 8.60 mm., and the minimum 0.34 mm.

2. The length of the tracheids increases rapidly up to about 50 years from the pith, after which there are comparatively small and irregular increases or decreases, with an average slight increase toward the periphery.

a. The most marked decrease near the periphery occurs near the butt.

3. The average fibre length increases up to somewhat less than one-third the height measured and then gradually decreases.

4. The tracheids in a given annual ring increase in size from the ground upwards until a maximum is reached, and then decrease to the top.

a. The maximum length occurs higher from the ground in the rings nearer the bark.

b. The annual rings last formed give the longest average fibre.

5. Measurements indicate that a greater growth in diameter may be correlated with a shorter tracheid.

6. A greater growth in height appears to be correlated with a longer tracheid.

7. The tracheids in "rotholz" or compression wood, are shorter than those in "zugholz," or tension wood, of the same annual ring.

8. Fibre length appears, in tree measured, to be somewhat longer in the summerwood than in the springwood.

9. Both fibre length and strength increase rapidly from the pith outwards to a certain point, after which comparatively small increases and decreases occur irregularly. No definite relation at various height in tree could be established.

10. Douglas fir from the coast region of British Columbia appears to produce a fibre averaging slightly longer than that growing in the mountains.

Similar studies to the above have been made on black and white spruce, and on white and red pine. The results of these studies will be published in the Pulp and Paper Magazine in the near future.

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(4) Mell, C. D. The length of tracheids in the wood of cone-bearing trees. Paper Trade Journal, 15 June,, 1911, p. 52.

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BOOK REVIEW.

Steam Turbines, a Practical work on the Development, Advantages, and Disadvantages of the Steam Turbine; the Design, Selection, Operation, and Maintenance of Steam Turbine and Turbo-Generator Plants. By Walter S. Leland, S.B. Chicago:—American Technichal Society, 1917. Pages 137 and 5. Numerous illustrations. Price $1.00.

The fact that the author was formerly an Assistant Professor at the Massachusetts Institute of Technology and is a member of the American Society of Naval Architects and Marine Engineers,, combined with his professional record, immediately commands a hearing for his book. In it, the fundamental principals of the turbine are well explained, so that the operation of prime movers of this type can readily be understood from the discussion that follows. The history of turbine development is given in a concise and clear treatment.

The care with which the book is written is shown by the attention to such points as the necessity for special valves, piping, etc. where superheated steam is used.

This is a book which an engineer should have at hand, for use if he has any turbines; for its educational value if he has not. It is a book the practical man can read with interest and profit.

The following list of contents will give an idea of how the subject is treated:—

History.

Fundamental Principles, Comparison of water and steam turbines, Single-stage and Multi-stage principle, Action of jets and shape of unpiping surfaces.

Nozzle.

Compounding.

Types of Turbines. Impulse type; DeLaval single-stage, Multi-stage, and Reaction types.

Low-pression turbines, connected with reciprocating engines.

Installation of Turbines.

Performance, Losses, Steam consumption, Economy of turbines.

Tests.

Impulse turbines. Single-stage impulse turbines.

Compound impulse turbines with velocity steps.

Compound impulse turbines, pressure stages.

Compound impulse turbine with pressure stages and velocity steps.

Reaction turbines.

Combined impulse and reaction turbines, Double-flow turbines, Governing.

The various types mentioned are explained by descriptions of the important makes, with diagrams.

The Technical Man in the Paper Mill[1]

How Co-operation Between the Technical Men and Practical Men Works to Advantage.

By HENRY P. CARRUTH.

President of the Technical Association of the Pulp and Paper Industry.

The subject of the relations of technical men to the pulp and paper industry is an inspiring one to me because I am convinced that the future of our industry depends to a large extent on the attitude adopted by our manufacturers toward this question. As a start, let us look at the industries of pulp and paper manufacture and see what they really are.

First, pulp. Except for groundwood, there can be no argument but what this industry is a straight-out question of applied chemistry. We have our wood, a chemical compound, and we treat it under certain more or less fixed conditions with other chemical compounds—e. g., bisulphite of lime, caustic soda, bleaching powder, etc. The chemical reactions involved are not carried out in beaker or test tube, but rather on a very large scale requiring tons of each material and involving the use of many types of machinery and equipment. This means engineering. Then there is the purchase of raw materials which means more chemistry, and the selling, which again may need chemistry or engineering, to explain those complaints which we all have to face at times. Stated in this way, our pulpmaking operations take on the appearance of a highly technical matter indeed.

Let us look at our papermaking from the same angle. First we have the preparation of our rag stock. This is simply another kind of chemical pulp manufacture, and all that has been said of woodpulp applies to it. There the beaters are full of chemical reactions; in fact, there is more chemistry going on in a beater than we are yet able to explain. There is the hydration of the cellulose, the colloid chemistry of filler retention, the reactions of rosin size and alum, and the chemistry of the colors used in tinting the stock.

There are also chemical problems of the paper machine, particularly in the size tub on fine writings, not to speak of the chemical operations of rosin-size menufacture, water purification, tub size making, electrolytic bleaching liquor, coal, etc.

And along with these chemical problems go hand in hand the mechanical problems of their control. In one department of the mill you may see these mechanical problems become of first importance, as on the machine and in the finishing room; while in others the chemical side preponderates, as in the beaters and size rooms, but you never can entirely divorce these two in industry. Always they both exist side by side.

I have tried to show you that these industries are technical industries, and by technical industries I mean such as require the supervision of technical men. Our next step is to decide what is a definition of technical in this connection. Here is where there may be a great chance for argument and disagreement, but after all is not the answer simple? A technical man is one trained to see these matters as an expert and to understand them.

College and technical schools are not necessary to this definition, although they have their place in it as we shall see.

I am happy to say that I can count in my acquaintance many men who have never attended any college, and some who have not even been through high school, who yet are, in my opinion, just as truly technical men as any graduate of the Massachusetts Institue of Technology or Carnegie Tech.

Some of these men are engineers, and admit it, others are chemists, but usually they do not admit it, a larger number are working chemical engineers and appear unaware that that is their profession.

As I see this question, it is all in a man's attitude toward his work. If he has the logical brain to trace the march of events from cause to effect. or backward from effect to cause, he is in truth a scientific man, and if he cannot so reason he is not scientific, and school or college does not enter into the equation at all except as it predisposes the educated man to such methods and may train him how to best employ his brains.

All this leads us to the consideration of the college or technical school graduate in our industry. Has the such a place in our industry, and if so where and what is it?

By his technical school education he has been equip ped with a certain number of tools and with these the young man applies to the employer for a job. Many young men do not realize that all they are offering is an inexperienced brain and body, and a set of mental tools. They think, many of them, that they are offering a trained man to the employer.

Those of us who have had to employ these men, or who have ourselves gone through the experience, realize fully that the average new graduate is just so much raw material, and when we employ him we gamble that he has the innate ability to coordinate the natural gifts which he has, and to use intelligently the tools given him by his education. Frequently we find that he does not possess this ability, or that we ourselves cannot succeed in getting him to use them. This is where many employers, especially those unaccustomed to dealing with college men, take a serious and often fatal blunder. They think that in some occult manner a college can create a man and they assume a degree of experience and ability because of that college training, which few such men possess, and which is never due to the college alone. What then does the college give which employers can use to advantage? The college teaches a man to use the brains with which he was born, in certain ways which he might otherwise never have acquired. It teaches him the fundamental reasons of certain phases of life and matter. It teaches him to use the knowledge of other men who have recorded their experience and thoughts in written forms, and finally it teaches him to observe and question the facts which come under his observation.

1--An address delivered before the Miami Valley Pulp and Paper Technical Association at the Hamilton Club, Hamilton, Ohio, April 21, 1917.

These qualities are of value to the pulp or paper manufacturer, and if he has been so fortunate as to select a man, a real man, who has this training, he is getting an addition to his staff of a new point of view and new perception of his business activities. This new point of view is of particular value because it brings to bear the piled up experience of other industries and branches of science upon the paper or pulp markers' particular problems, in this way the practical man often finds that what seems difficult and obscure to the paper or pulp maker has been solved years before by some one else in an entirely different field of activity.

So far my remarks have been mainly addressed to the employer and practical papermaker who do not consider themselves to be technical men, although as stated they may be just that.

Now you men who do consider yourselves technical men, you college men, do you take the right attitude toward your job and your associates? Do you clearly realize that your college education is only a means to an end and that you can never achieve real success in the pulp or paper business if you rely solely on your college education to see you through?

The first great essential in an executive is the ability to get work out of his subordinates, and this can only be done by securing their respect. It is possible to rule by fear, but it is more efficient to rule by stimulating your subordinates and associates to develop their initiative and to completely interest themselves in the particular work on which they may be employed. The attitude of superiority assumed by many young college men has exactly the opposite effect and anything approaching a patronizing attitude is fatal.

College men must always bear in mind that although they may have had certain academic advantages over their associates, there is on the other hand a very great deal which they can learn from the men who have spent years in the mill, and they will find many times that this laboriously acquired experience, one might almost say instinct, of the "practical" man will often completely upset their most carefully thought-out schemes. Furthermore, the college man is prone to do things in an uneconomical manner, whereas the practical man has been trained in the hard school of experience to know that the dollar is always the measure of success in any business undertaking, and if an improvement or change cannot stand the dollar test, it will very seldom be a success.

Try to earn for yourselves a firm place in the respect of all your associates, be patient with what may seem to be their inconsistencies and illogical ideas. Realize that their skill and experience entitles them to your consideration at all times, and do not adopt an arbitrary attitude toward them. Try to eliminate the ego from your cosmos, for if you are the average college man only recently out of school, there is probably an excess present.

The practical man always looks for the chip on the college man's shoulder, and too frequently he finds it there. This is very unfortunate, and to it can be traced the greater part of the hostility which technical men so often experience.

On the other hand the practical man should realize that the college man is often driven into a defensive attitude which is not by any means inherent in the class, and that if he will only open up and co-operate he will usually find the college man to be just a plain human being like himself.—Paper.

TECHNICAL MEN IN JOINT MEETING AT HOLYOKE.

The local committee of arrangements for the fall meeting of the Technical Association of the Pulp and Paper Industry are looking for a record-breaking attendance on September 27, 28 and 29, the three days named for the joint convention of the American and Canadian technical associations at Holyoke, Mass.

Henry P. Carruth, manager of the Department of Tests of the American Writing Paper Company, is chairman of the committee of arrangemetns, which also includes George E. Williamson, of the Strathmore Paper Company, Mittineague; Raymond S. Hatch, of the Croker-McElwain Company; W. L. Nixon, of the Chemical Paper Mfg. Company, and L. M. Yoerg, of the Carew Manufacturing Company, of South Hadley Falls.

The big, new Hotel Nonotuck, now under the direction of P. J. Behan, former manager of the Hotel Knickerbocker, New York, assures accommodations for the visiting members that cannot be surpassed.

Next to the annual meeting the fall meeting of the Technical Association of the Pulp and Paper Industry is, perhaps, the most important of the meetings held during the year. On account of the arrangements for a joint assembly of the technical men of the Canadian and United States mills, the Holyoke meeting in September promises to be an especially notable gathering. In addition to new views and insight on papermaking processes and apparatus which will be gained by members on their visits to the mills of the Connecticut Valley, valuable contributions to the literature of papermaking in engineering and chemical technics will be at their disposal during the business sessions through committee reports, addresses and lectures.

The first two days of the meeting will be occupied with the official program for the presentation and discussion of technical papers and committee reports, while the third day will be reserved for unofficial visits to mills situated at a distance from Holyoke. Special invitations are expected to be forthcoming from a number of mills in the papermaking districts of New England, particulars of which will be available later.

In a statement given out by L. M. Yoerg, of the committee, the point is made that in Holyoke the members and visitors in attendance at the fall meeting will find themselves within easy distance of no less than thirty paper mills, practically all being well and favorably known wherever paper is bought or sold.

AMERICAN COMMITTEES ON PURCHASE OF PULPWOOD AND ABSTRACTS OF LITERATURE.

The membership of the Committee on Standard Specifications for Purchase of Wood has been completed by recent appointments and the committee now stands as follows: Carlile P. Winslow, Forest Products Laboratory, Madison, Wis., chairman; O. L. E. Weber, manager, Watab Pulp and Paper Company, Sartell, Minn.; W. R. Wheaton, manager, Pulpwood Company, Appleton, Wis., associates.

Vasco E. Nunez, formerly of Arthur D. Little, Inc., and now with the Nashua Gummed and Coated Paper Company, Nashua, N.H., has been appointed chairman of the Abstracts Committee of the Technical Association of the Pulp and Paper Industry, to succeed Prof. John D. Rue, who has been called to the colors as captain in the Ordnance Officers' Reserve Corps.

BROMPTON IS PROSPEROUS.

Directors of the Brompton Pulp and Paper Company, Limited, at a meeting held last Thursday, decided to place the common stock of the company on a regular 5 per cent. basis, and a quarterly dividend of 1¼ per cent. was declared.

Two quarterly dividends have already been paid by the Brompton Company of 1 per cent., together with a bonus of one-quarter of 1 per cent., the first being paid on February 7, and the second on May 7 last. While to-day's action will not increase the yield to investors, it places the stock on a regular dividend basis, and removes another bonus from the list.

In addition to increasing the dividend the meeting was of special interest because of the presentation of the figures covering the first half-year of the company's operations.

That the increase in the dividend is warranted is apparent from the strong cash position in which the company finds itself at the present time. The liquid assets exceed the current liabilities by $1,500,000, and there is no indebtedness to the banks.

Total revenue on pulp and paper for the first six months of the year was $664,156, while administration expenses, salaries, etc., amounted to only $14,000, which left a surplus of $617,263.

The revenue account for six months is as follows:

By revenue on Pulp and Paper and Sawmill	$664,156.20
By discount taken on purchase	2,381.00
	$666,537.20
Administration, legal, etc, expense	$35,274.01
Salaries, official	14,000.00
	$49,274.01
Surplus revenue	617,263.19
	$666,537.20

The profit and loss account is as follows:

To accrued interest on bonds	$45,989.16
To accrued interest on preferred stock	70,000.00
To dividend No. 1 on common stock, paid February 7, 1917	87,500.00
To dividend No. 2 on common stock, declared and payable May 7, 1917	87,500.00
	$290,089.16
Balance down	*326,274.03
	$617,263.19

*After setting aside $150,000 for contingencies and estimated war taxes.

HOWARD SMITH PAPER CO.

The Howard Smith Paper Company have just inaugurated dividends on the common stock at the rate of 2 per cent. a quarter, thus making the stock start off on an 8 per cent. per annum basis. In common with all other paper companies, the Howard Smith concern has been making big money during the past two or three years. Within the past year the Company have cleaned up 21 per cent. of accrued dividends on the preferred stock, and now have inaugurated an 8 per cent. dividend on the common as well as purchasing the Edwin Crabtree & Sons mills, and installing new machinery in the main plant at Beauharnois. The Howard Smith Company make high class bond and writing paper.

SUDDEN RISE IN PRICE BROS.

Price Bros. common, recently a very inactive stock, attracted some attention last week by selling a one-lot purchase at 125, a clear 10 points above the last transaction several weeks ago. A further advance in bids to 130 failed to bring out any stock; offerings were marked at 135, at the close.

Last year, during the bull market for the paper stocks Price rose from 60 to 131. When the boom collapsed it was marked down with the rest, but very little stock came out. Until Friday the range for the year was between a high of 120 early in January and 115 in June.

Ten days ago bids began to be advanced, but without results until Friday,, when a seller for 25 shares was found at 125.

The stock is closely held by members of the Price family and business associates, and there is very little on the Street. None the less the fact there were buyers willing to "climb" for it naturally suggested to the Street possibilities of some coming developments.

The first dividend was declared at the end of August last year, and was 1½ per cent., presumably a quarterly distribution. Another payment of 1½ per cent. was ordered three months later, but in February the directors declared 3 per cent., making 6 per cent. in all for the fiscal year ending that month.

As the dividend policy for 1916 was decided upon about this time a year ago, the Street naturally speculated Friday as to whether the current rise suggested an approaching revision of that policy in an upward direction.

PERCENTAGE PRODUCTION INCREASES.

Secretary G. F. Steele has sent out the following interesting report on June production of newsprint:—

Because of the fact, as stated last month, that various mills have ceased the manufacture of newsprint paper during the past year, the number of mills reporting to this Association are five less in number than they were during the same month a year ago, and production of newsprint paper has fallen from 5,390 tons in June, 1916, to 5,250 tons in June, 1917, but the production as compared with maximum or ideal production has increased from 95.4 per cent in June, 1916, to 98.9 per cent in June, 1917.

Shipments have decreased slightly. The shipments in June, 1916, amounted to 99.2 per cent of maximum production, while in June, 1917, shipments amounted to 97.7 per cent of maximum production.

During June, 25 American mills made 86,522 tons and shipped 85,799 tons, while 13 Canadian mills made 49,960 tons, and shipped 49,032 tons.

Stocks have increased during the month from 42,885 tons at the end of May to 45,321 tons at the end of June, or a total increase of 2,436 tons, or less than one-half day's production.

There has been more or less trouble on account of shut-downs caused by labor troubles and accidents in mills, and it is feared that labor disturbances may cause decreased production during the next few months.

Instead of rebuilding their recently burned mill, the Perkiomen Paper Company has decided to build a new mill near Allentown, Pa. The old plant was so badly damaged that it was finally decided to give up the original plans to restore it.

WOMEN AS SUBSTITUTES IN ENGLISH MILLS.

Paper making being a continuous process, the statutory prohibition of the night employment of women has caused many operations to be confined to males.

The temporary relaxation, however, of this prohibition in the present national emergency has very much widened the scope of women's labor in English paper mills, and their ability to perform much of the work is becoming recognized.

Women and girls have already been substituted on the following processes:

A. Preparatory processes:

(1) Stowing bales of esparto or wood pulp.
(2) Trucking bales of wood pulp (up to 4 cwt.)
(3) Opening bales of chemical and mechanical pulp.
(4) Working hand crane to load carts and trucks.

B. Manufacturing processes:

(1) Feeding mechanical pulp into willowing machines.
(2) Feeding esparto into willowing machines and boilers.
(3) Trucking from esparto boilers.
(4) Feeding mechanical and chemical pulp into potchers and beaters.
(5) Feeding rags and paper chippings into pulping machines.
(6) Feeding edge runners or "rollergang" machines.
(7) Assisting at coating machines.
(8). Assisting at calenders.

C. Finishing and warehouse processes:

(1) Assisting at some kinds of reeling machines.
(2) Filling cutting machines (with aid of lifting tackle).
(3) Assisting to pack webs of paper (up to 1,650 lbs. weight), and transporting these on trucks.
(4) Tying and bundling into reams and half reams (generally up to about 40 lbs. weight, but in one case a weight of 130 lbs. was being dealt with).
(5) Trucking and general warehouse work.
(6) Sewing up bales for export.
(7) Loading vans and railway trucks.

In view of the wide variations in the machinery and general conditions in the different mills, it is not suggested that the processes named can always be assigned to women, but while the circumstances of each mill must be considered it is certain that many manufacturers have failed to grasp fully the assistance which women can render. In some works very few attempts have so far been made to introduce women in place of men, whereas in other works the substitution has already been carried very far.

Supply of Women Workers.

Special arrangements have been made by the government for recruiting women workers to take the place of enlisted men. Employers may apply to the local Labor Exchange, who will give them every assistance in obtaining the workers they want. In some cases, owing to the special need for women of strong physique, it may be necessary to bring them from other districts, and the fullest possible information must be given by employers in order to secure the right type of women.

The supply of women can be frequently increased by adaptation of the conditions of employment to local circumstances. For example, one large mill in a district where ordinary operatives were scarce obtained many married women by arranging the hours of work to suit household exigencies. In one department these hours were from 10 a.m. to 5 p.m., while another branch was kept going by two shifts of women, one set working from 7 a.m. to midday and the other from 1 p.m. to 6 p.m.

Special attention must be given to the fencing of all driving straps, gear or shafting which may be within reach of the worker. Women engaged near machinery should be suitably clothed and their hair should not be worn loose, but confined by a cap or other suitable means. Women of strong physique should be selected for laboring work such as the transport of material. Work can be facilitated by the employment of mechanical aids such as good lifting tackle, inclined planes, easy running trucks, and similar appliances. In some cases, parcels of paper have been reduced in weight so as to avoid risk of strain to young girls.

The district inspectors and lady inspectors are ready to advise employers in regard to any questions as to health and safety or otherwise which may arise in connection with the introduction of women.

TRADE INQUIRIES.

The Department of Trade and Commerce announces the following opportunities for foreign trade. In asking for further particulars, the correspondent should quote the reference number.

1012. **Wood-pulp and Lumber.**—An old-established agency in Florence, Italy, wishes to secure supplies of Canadian wood-pulp. They would be glad to make arrangements with Canadian manufacturers of wood-pulp for after-the-war business. They wish to represent Canadian exporters of lumber, including planks, beams, etc.

1014. **Cardboard Soap Boxes.** —A London firm wishes to purchase 600,000 cardbaord soap boxes according to sample in the possession of the Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa, for direct shipment to South Africa, and invites quotations from Canadian manufacturers, price per 1,000 f.o.b. Canadian steamer for South Africa, or preferably c.i.f. Durban, cash against documents in Canada.

1016. **Traving Cloth and Paper.**—Samples and quotations of tracing cloth and tracing paper, upon a f.o.b. steamer basis, are desired by the principal heliographers in Melbourne. Transparency is most essential, particularly in the tracing paper. Small samples may be seen at the Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa.

1017. **Marbled Paper for Ledger, etc., Linings.** — One of the largest wholesale printers' furnishing houses in Australia desires to receive samples and quotations for marbled paper suitable for ledger linings. Prices must be on a f.o.b. steamer basis.

1021. **Pulp-board or Pulp for Making Mounts.**— One of the leading photographic supply houses in Australia desires to receive samples, and f.o.b. steamer quotations, of pulp-board or pulp suitable for making mount boards.

1042. **Paper.**—A stationery firm in British Guiana inquires for newsprint, paper and papeteries.

1045. **Paper.**—A well-known firm in Demerara inquires for newsprints, wrapping paper, stationery sundries, paper and papeteries.

1063. **Paper.**—A manufacturers' agent in Barbadoes would like a Canadian agency for paper and stationery.

Review of Recent Articles of Interest to the Pulp and Paper Industry

(From Technical Association Department of "Paper")

Characteristics of Paper Fibers (Part IV)—Henry A Maddox. Pulp & Paper Mag., Vol. XV., No. 18, p. 435. Two classes of solutions for dyeing fibers are mentioned. The first consists chiefly of aniline dyes, as methylene blue, magenta, malachite green, eosine, and bismarck brown. These serve merely to bring out fiber markings. The second class consists of dyes acting selectively on different fibers. Method of application same as first class. The reagents and their color effects follow:

Iodine and Potassium Iodide Solution

Brown Coloration.—Cotton, linen, bleached hemp. **Yellow to Yellow Brown.**—Unbleached jute, unbleached straw, mechanical woodpulp. **Grey to Brown.**—Adansonia. **Colorless to Slightly Grey.**—Bleached jute, Manila hemp, chemical wood, Esparto, bleached straw.

Zinc Chloride Solution.

Light to Dark Claret.—Linen, cotton, hemp. **Blue to Claret.**—Esparto. **Blue to Red Violet.**—Adansonia. **Olive Green.**—Manila. **Blue to Blue Violet.**—Straw. **Blue.**—Chemical wood. **Yellow to Colorless**—Mechanical woodpulp, unbleached jute, unbleached straw.

In using the Iodine-Potassium Iodide solution, if the excess be removed with the edge of a filter paper and a drop of sulphuric acid diluted 4 parts water to 5 parts acid be added, the results given below are obtained:

Violet to Wine Red—Cotton bleached jute. **Golden Yellow to Dark Yellow** — Mechanical woodpulp, unbleached jute, impure fibers. **Blue to Blue Grey**—Chemical wood, straw.

Solutions for testing sheets of paper for the presence of groundwood. Colorations are not always absolute proof, as other lignocelluloses sometimes gives similar results:

Phloroglucinol solution—red stain; Benzidine hydrochloride—orange coloration; Aniline sulphate—vivid yellow; Alpha naphthylamine hydrochloride— orange stain; Anthracine hydrochloride—red; Phenol hydrochloride—blue-green; Phenol hydrochloride—purple-red; Concentrated nitric acid—brown; Dimethyl paraphenylenediamine—deep red; Ferric ferricyanide — blue.

Bleached and unbleached soda and sulphite can be distinguished by means of malachite green or rosaniline. With the former, bleached pulp is colorless, unbleached is dark green. With the latter unbleached sulphite is deep violet or red, bleached sulphite is the same but lighter. Unbleached soda is the same, but pale; bleached soda is colorless or tinted only.— Ross Campbell.

New Uses of Pulp and Paper—Pulp & Paper Mag., Vol. XV., No. 18, p. 438.—Ross Campbell.

Some Valuable "Don'ts" for Users of Belts.—A. T. Deinzer. Pulp & Paper Mag., Vol. XV., No. 19, p. 463. (Taken from **Paper Trade J.**)—Ross Campbell.

Side Rolls and Culls as Profit Earners.— Pulp & Paper Mag., Vol. XV., No. 21, p. 512. It is pointed out that, when a machine is making a roll order that does not utilize the entire machine width, it is often profitable to utilize this entire width, making a side roll. This is later cut into narrow rolls for special purposes. —Ross Campbell.

Volume of Mineral Filling.—Pulp & Paper Mag., Vol XV., No. 21, p. 515. (Extract from Papier-fabrikant.) —Ross Campbell.

Finding Fires with Aeroplanes.—W. E. Boeing. Pulp & Paper Mag., Vol. XV., No. 22, p. 536. Reprinted from the Canadian For. J.—Ross Campbell.

The Great Northern's Great Dam.—L. T. Smyth, Pulp & Paper Mag., Vol. XV., No. 22, p. 539. Reprinted from The Nation's Business.

Injurious Rosin in Sulphite Pulp.—Dr. Bjarne Johnsen. Pulp & Paper Mag., Vol. XV., No. 24, p. 577. The alcohol and ether extracts of wood may contain appreciable amounts of sugars, tannins, etc. These extracts may contain as much as 50 per cent. fats. The total ethereal extract from fresh cut wood is soluble in petroleum ether. As the wood ages, the solubility in petroleum ether decreases. In the ethereal extract the fat, which is said to cause the trouble, is entirely soluble in petroleum ether. It was found that cooking removed 4.2 per cent., washing, opening, screening, etc., 51.8 per cent., and bleaching 15 per cent. of the ether-soluble substances. It is concluded that the trouble from pitch is due to the combination of the emulsified fats and oils with calcium and magnesium present in the water. In so doing, particles of rosin are mechanically carried down. The use of petroleum or caustic soda in the wash water and of fat emulsifiers has been recommended as a remedy. The best cure is probably a proper storing of the wood with good air circulation and the use of soft water. A qualitative test for fat content can be made as follows:

Treat 25 grams of pulp, torn in small pieces, with 300 Cc. of ether in a stoppered 500 Cc. bottle over night. Pour into a flask and evaporate all but 5 Cc. of ether, which pour on a watch glass. Wash the bottle with 2 Cc. of ether, which add to that on the watch glass. Treat a standard cellulose at the same time as a blank and compare the results.—Ross Campbell.

Producing Half Cellulose.—E. Kittelsen and T. Kittelsen. Pulp & Paper Mag., Vol. XV., No. 20, p. 483. (Translated from Papir-journalen.) The object of the process described is the production of fiber for good quality wrapping paper with a minimum loss of wood material. The loss is about the same as in the case of brown woodpulp, but the product is superior. Pulpwood is cut into lengths for grinding and the blocks ripped from one end for half their length, revolved one-quarter turn, and ripped from the other end until the cuts cross. A digester is charged with the blocks, which are then steamed under low pressure for a short time, and afterward subjected to the action of black liquor from a finished digester for from three to fifteen hours at low pressure. Half of the black liquor is then relieved and strong liquor added for the cook proper. The entire time of treatment is twenty-four to thirty-six hours, and the loss in cooking is about 22 per cent. The blocks are then ground cold. Production is 50 to 60 Kg. per hp. per twenty-four hours. This pulp should be beaten six to eight hours. The resulting paper is stronger than natural and half-kraft. The cooking liquor can be made either from soda ash, which has been causticized with quick lime or from electrolytic caustic soda. In the latter case, the sale of by-products so affects the cost of the caustic that only the interest, depreciation and labor costs need be charged against it. Figures are given showing plant and production costs and probable profits. The latter is estimated at over three times profit obtainable on "natural" paper.—Ross Campbell.

The Manufacturer of Corrugated Paper and Its Uses.—S. M. Langston. Pulp & Paper Mag., Vol. XV., No. 24, p. 581. An outline is given of the raw materials required, of the processes and machinery used, and of the uses of the finished product. The rate of production and labor required with certain machines are also given.—Ross Campbell.

Present and Possible Products from Canadian Woods.—John S. Bates. Pulp & Paper Mag., Vol. XV., No. 23, p. 553. A survey is given of the present and possible future products of the Canadian forests, and a summary in the form of a diagram is also given. There are four major headings: "Woods Used as Such," "Wood Used for Pulp and Paper," "Distillation Industries," "Minor Industries."—Ross Campbell.

Paper Mill Ventilation.—E. A. Briner, M. E., Carrier Engineering Corp. Pulp & Paper Mag., Vol. XV., No. 22, p. 531. It is pointed out that improved working conditions give improved product. Suggestions are made for the proper ventilation and air purification in rag rooms, beater and grinder rooms and machine rooms. It is averred that the use of the Belcher and Wilson drying system entirely avoids roof condensation.—Ross Campbell.

Accident Prevention.—Why and How.—Pulp & Paper Mag., Vol. XV., No. 22, p. 534. A brief analysis of the causes of the accidents which occurred during a period of two years in three different mills is given.—Ross Campbell.

Grading, Decay and Preservation of Mill Timber.—Pulp & Paper Cag., Vol. XV., No. 23, p. 560. The fact brought out is, that proper wood, properly used, is satisfactory for mill buildings. Rot is caused by dampness, and the use of preservatives should be governed accordingly. Figures on the heat transmission of several roofs are given.—Ross Campbell.

PATENTS.

(Courtesy of Chemical Abstracts).

Sizing. C. W. Fish. Brit., 16,742, Nov. 27, 1915. In a process of sizing pulp involving the use of niter cake and Al salts for fixing the size, the niter cake is added separate from the Al salts and only after the size and the Al salts have been incorporated in the pulp. The resin size is thoroughly mixed with the pulp, a small quantity of a soluble Al salt, say 0.5—1% of the stuff in the beater, is added, and when these are thoroughly mixed the bisulfate of Na or niter cake is added.

Moisture-resistant wall-paper. J. A. Ross, U. S., 1,218,474, Mar. 6. Paper is rendered resistant to moisture by coating it with a mixture formed of H_2O mixed with clay 79, glue 18 and an emulsion of wax and soap 3 parts, drying, coating, with shellac or similar substance and then calendering.

Lignone derivatives. E. Oman. Brit., 103,652, Jan. 4, 1917. Nitro compounds are prepared by nitrating lignonesulfonic acid or its salts, obtained from waste sulfite-cellulose lye. The process may be effected by concentrating the lye freed from ligninsulfonates, and nitrating with HNO_3 or mixed acid; the nitro compound precipitates or is separated by adding H_2SO_4 or by neutralizing and adding alcohol.

Lignin derivatives. E. Oman. Brit., 103,651, Jan. 4, 1917. Nitro compounds are prepared by nitrating ligninsulfonic acid or its salts, obtained from waste sulfite-cellulose lye. The process may be effected by means of dilute HNO_3 at a moderately low temperature; part of the product precipitates, and the remainder is separated from the reaction mass by neutralizing and adding alcohol.

Lignin derivatives, dyes. E. Oman. Brit., 103,653, Jan. 4, 1917. Nitroso compounds are prepared by treating with nitrous acid, or a substance yielding it, lignin-sulfonic acid or its salts, obtained from waste sulfate-cellulose lye. The process may be effected by treating a ligninsulfonate solution with a nitrite and acid, or with nitrous gases; the product is salted out from the reaction mass, and may be used as a coloring matter. Instead of ligninsulfonic acid, waste sulfite-cellulose may be used.

Lignin derivatives. E. Oman. Brit., 103,649, Jan. 4, 1917. In the treatment of waste sulfite-cellulose lye with a salt solution, such as NaCl, a precipitate is obtained consisting of a ligninsulfonate, and the filtrate contains lignonesulfonates. Oxylignin is obtained by fusing a ligninsulfonate with caustic alkali, dissolving the melt in H_2O, and acidifying; an oridizing agent, such as $KClO_3$, may be added to the alkali; the process may be applied to waste sulfite-cellulose lye itself or to the lye deprived of lignonesulfonates.

Lignone derivatives. E. Oman. Brit., 103,650, Jan. 4, 1917. The treatment of waste sulfite-cellulose lye sulfite-cellulose lye by the addition of a salt, and are washed with solutions of, say, NaCl or alcohol containing free alkali, such as soda or NaOH; the resulting product can be dried at high temperatures without decomposition.

Lignin derivatives. E. Oman. Brit., 103,655, Jan 4, 1917. The treatment af waste sulfite-cellulose lye with a salt solution, such as NaCl, gives a precipitate consisting of a ligninsulfonate; the filtrate contains lignonesulfonates, and may be evaporated down, and the precipitated NaCl removed. Oxylignone is obtained by fusing the concentrated lignonesulfonate solution, with caustic alkali, dissolving the melt in H_2O, and acidifying; an oxidizing agent, such as $KClO_3$, may be added to the alkali; the process may be applied to waste sulfite-cellulose lye itself, or to the lye deprived of ligninsulfonates.

Lignone derivatives. E. Oman. Brit., 103,654, Jan. 4, 1917. Nitroso compounds are prepared by treating with nitrous acid, or a substance yielding it, lignonesulfonic acid or its salts, obtained from waste sulfite-cellulose lye. The process may be effected by treating the lye, deprived of ligninsulfonates and concentrated, with a nitrite and acid, or with nitrous gases; the product is salted out from the reaction mass. Instead of lignonesulfonic acid, waste sulfite-cellulose lye may be used.

Fermenting waste sulfite liquor. A. V. Jernberg. U. S., 1,221,058, Apr. 3. Waste sulfite liquor from the treatment of wood is treated with sufficient $CaCN_2$ or reaction products of $CaCN_2$ with H_2O or steam to reduce its acidity to 2-4% and then fermented at a temperature of about 25-32 degrees after standing for 75 hours. $CaCO_3$ or $Ca(OH)_2$ also may be used to assist in the neutralization of strongly acid liquors. The N compounds present as the result of using the $CaCN_2$ act as nutrients to the ferment and thus promote the fermentation.

Apparatus for dissolving and hydrolyzing cellulose. Z. Ostenberg. U. S., 1,220,778, Mar. 27. Comminuted wood is fed from hopper into a tank where it is sprayed with acid from a nozzle, and may be cooled if necessary by H_2O in the coil surrounding the tank. A series of similar tanks is filled in rotation and after material has digested in them for a sufficient time, air is blown through the mass, the material is extracted and the extract is dialyzed.

UNITED STATES NOTES

Most American colleges and universities will not open for the coming year until October.

An echo from a students' training camp says: "Life is just one damn drill after another."

President Frank H. Milham, of the Bryant Paper Co., Kalamazoo, Mich., is a busy man. In addition to being a director in the Wahlen Pulp and Paper Company, Mr. Milham is also a director in the Nashwaak Pulp and Paper Company, of St. Johns, New Brunswick; managing director of the Munising Paper Company, Munising, Mich.; vice-president of the Eddy Paper Company, Three Rivers and White Pigeon, Mich., and an officer in the great paper selling concern of Bermingham & Seamans, with warehouses in many of the leading cities of America.

The first pulpwood raft of the season to reach Ashland, destined for the mills of this part of Wisconsin, got in last week. The wood in it was valued at $37,000. From this time forth during the navigation season similar rafts will be received periodically. Also, last week, the Canadian steamer Easton arrived at Manitowoc, with 2,500 tons of woodpulp from Canada, consigned to the Fox river valley paper mills. Six other boatloads of pulp are expected during the season.

When the steamer "Kansan" was torpedoed, 200,000 letterheads and 100,000 envelopes were lost. These were contributed to the Y. M. C. A. war work by the United States Envelope Co., at Springfield, and the Springfield Printing and Binding Co.

Hilson Munsey, assistant secretary of the Continental Paper Bag Company, has received a commission in the Canadian Army. Mr. Munsey was active head of the New York office at 17 Battery Place. He is a cousin of Frank Munsey, the well-known publisher. The reason for Mr. Munsey's joining the Canadian army instead of the American forces is that he is a British subject and he thought it would be most proper for him to join the Canadian forces.

Tait & Sons Paper Company, of Bridgeport, Ct., is one of the mills that has taken advantage of the slack in paper demand to prepare for the future. The mill has been thoroughly overhauled by the installation of new electrical machinery, the Dodg Gravity Evacuator System and other devices to increase the efficiency of the plant. Because of the new machinery the Tait Company will be able to make other grades of board beside the chip and news board now being made.

Charles Pratt, owner of the Island Paper Mill, of Carthage, New York, who is looked upon as an authority in the paper trade, says that the over-production has caused a stagnation in the entire paper industry. Mr. Pratt, in outlining the existing conditions said that the paper dealers had overstocked when the lull in the buying of the country came, with the result that they must hold their stock or sell at a loss. Mr. Pratt said, however, that the mills expected business to increase rapidly in the autumn.

Allen Potter Knight, the son-in-law of Frank H. Milham, president of the Bryant Paper Company, of Kalamazoo, Mich., was killed last week in a motor car accident.

The Ideal Coated Paper Company, of Brookfield, Mass., has started a coating mill at Ware, Mass., under the name of the Ware Coated Paper Company. Hereafter all the coated paper work of the Ideal Company will be done at the Ware mill, while the gumming work will be done at the Brookfield mill.

The Kimberly-Clark Company, of Neenah, Wisconsin, have acquired 7,700 acres of timber land in Luce County, Mich. Together with the 15,200 acres controlled at McMillan, Laketon, Danahar, and Goodson, Wisconsin, the company will have a large supply of spruce and balsam pulpwood.

The New York, New Haven and Hartford Railroad embargo on pulp was announced last week. This embargo includes almost every kind of freight except perishable foods for human consumption and fodder.

The mobilization of the national guard of the different states has effected the paper trade very seriously. In one mill centre, Appleton, Ohio, more than 250 men have been taken out of the industry by mobilizing with the Wisconsin National Guard. Other centres, like Watertown, New York, Dayton, Ohio, Holyoke, Mass., Kalamazoo, Mich., etc., furnished large numbers of men.

The three tour system is making labor trouble in Wisconsin according to the latest reports from that part of the country. Because of the division of the day into three parts it is difficult to make the time for changing shifts agreeable to all the employees. It is planned to go back to the two tour system with an additional force of men on hand so that the workers may have a day off once a week or once a fortnight. That plan would at the same time obviate the necessity of overwork and the change of shifts at bad hours. Many of the mill owners are interested in this new movement.

Changes in the Workmen's Compensation Law in the State of Wisconsin, will aid the employees to increase the benefits they derive from this legislation.

For instance, the old law limited the compensation payable to a workman permanently and totally disabled to six times his annual wage. Under the new law a workman so injured receives compensation for fifteen years. Again, the act provides that workmen who sustain multiple injuries, as for instance, when several fingers are cut off, shall receive not merely the compensation payable for each injury, but something additional because of the more serious character of the injury sustained.

The law provides that where employers unreasonably delay the payment of compensation, they shall be liable to 10 per cent. penalty. The law limits the fees that attorneys may charge to 10 per cent. of the amount recovered, and not more than $100, unless the industrial commission finds that a higher charge is justified. Where minors are employed without permits, or at prohibited employments, the compensation which can be recovered shall be trebled.

John P. O'Brien, formerly superintendent of the Windsor Division of the American Writing Paper Company, has been appointed superintendent of the mill of The Tait & Sons Paper Co., at Bridgeport, Conn.

PULP AND PAPER NEWS

A charter has been granted to W. T. C. Boyd Co., Limited, with a capital stock of one hundred and fifty thousand dollars and headquarters ni Toronto, to carry on a general business as dealers in timber lands and in lumber, timber and woodenware, including pulp and paper. The incorporators are: W. T. C. Boyd, Eric M. Boyd, and Charles E. H. Clement, of Bobcaygeon; Thomas Stewart, of Lindsay, and Henry J. Wickham, of Toronto.

C. H. Fetherstonhaugh, sales manager for J. C. Wilson, Limited, Montreal, was in Toronto recently calling upon the trade.

C. Nelson Gain who, for the past three years, has been superintendent of the plant of the Don Valley Paper Co., Toronto, has succeeded his father, the late Thomas Gain, as sales manager of the company, and has entered upon his new duties. Mr. Gain will have a competent assistant at the mill to assist in the manufacturing end over which he will exercise a general supervision in addition to his duties as general sales manager. He has many friends in the trade who are pleased at his promotio n inthe service.

I. Segal, who for the past year and half has been manager of the Hamilton branch of E. Pullan, has been given a responsible position in the head office in Toronto. He has been succeeded in Hamilton by Daniel Kaufman, late of the Hamilton Metal and Smelting Works. J. Rashkofsky, manager of the rag department of E. Pullan, Toronto, has returned from a pleasant holiday to Baysville, Ont., and resumed his duties.

A charter has been granted to Hall Bros., Limited, with headquarters in Toronto, and a capital stock of twenty thousand dollars to purchase, cut, sell, and manufacture timber and lumber in Canada, Great Britain and the United States. The incorporators are S. E. Hall and James M. Hall, of Toronto; Thomas G. Hall, of Vancouver, and A. A. McDonald, of Marmora, Ont.

James J. Salmond has been elected President of the Monetary Times Publishing Co., Limited, of Toronto, succeeding the late Thomas Robertson. Mr. Salmond has resided in Toronto for twenty-two years and was, prior to that period, connected with trade and class papers in New York city. He has been managing director of the Monetary Times for nearly ten years. That publication this year is celebrating the fiftieth anniversary of its founding.

Robert Rolland, President of Paper Sales, Limited, Toronto, has returned from an extended business trip through the western states.

James Prentice, 291 Richmond street west, Toronto, was killed instantly in the factory of the Dominion Paper Box Co., Toronto, last week. The accident was not seen by any of his fellow employees and it is thought that he short-circuited the power from his machine and electrocuted himself. He was found lying dead on the floor. He was thirty-three years of age and leaves a widow.

Norman Brown, of Brown Bros., Limited, manufacturing stationers, Toronto, who is a member of the Granite Bowling Club, took part in the recent tournament of the Ontario Bowling Association, at Niagara-on-the-Lake.

The Dominion Envelope and Carton Co., Toronto, have taken out a permit to erect a new factory, which will be constructed of brick on the north side of Duchess street and will cost forty thousand dollars.

Duncan Chisholm, President of the Mattagami Pulp and Paper Co., Toronto, has returned from spending a few days on business in New York.

The Toronto Paper Mfg. Co. are erecting at Cornwall, Ont., a new warehouse, of reinforced concrete, 100 x 40 feet, which will consist of two storeys and a basement. The building will be used for storing raw stock, and is an accommodation which has been required for some time. The company will also build a trestle for the more expeditious receiving of coal at the mill.

The new plant of the Wax and Glassine Paper Co., at Cookshire, Que., which has been fully equipped, with all the latest machines, has started operations and the prospects for a busy season are good.

A. P. Costigane, Safety Engineer, Toronto, who has returned from an extended visit to all the pulp and paper mills in the Niagara Peninsula reports that good steady progress is being made in the safety campaign, and that, as a result of the recent convention at Niagara Falls, considerable impetus has been given to the work.

Alex. Buntin, of Buntin, Reid Co., wholesale paper dealers, Toronto, who has been confined to his home with an attack of pleuro-pneumonia, is able to be around again.

A. R. Currie, Vice-President of the George Irish Paper Co., Buffalo, spent a few days in Toronto last week with E. A. Crippen, of the Monarch Paper Co.

Bruce Easson, who for the past eleven years has been on the staff of the Canada Paper Co., Toronto, recently enlisted with the 10th Royal Grenadiers for overseas service, and was presented with a wrist watch and set of pipes by his fellow employees, and a substantial cheque by the firm.

President C. R. Whitehead, of the Wayagamack Pulp and Paper Co., has the sympathy of his friends in his bereavement. His mother, Mrs. W. J. Whitehead, died suddenly last Thursday at her home in Three Rivers.

J. R. Buchanan and family, of Ottawa, Ontario, formerly of Appleton, Wis., have been visiting relatives in this city of late. They made the trip from Canada by motor. Mr. Buchanan is president of the Capital Wire Co.

Mr. R. L. Seaborne, manager of the newly formed Laurentian Forest Protective Association, has had valuable experience as an inspector of the St. Maurice Forest Protective Association.

T. B. Molloy, assistant superintendent of insurance, Winnipeg, has assumed charge of the fire prevention branch and is busily occupied in organizing the municipal officials who will, under the new laws, report all conflagrations, with causes, damage, etc., to the department at Winnipeg.

"Papyrus," the house organ of John Martin Paper Co., has a cartoon of two printers pulling a tug-o'-war, the rope, marked "My Price," lying across a block. The purchaser standing by with an axe, says: "While they are pulling against each other it's a cinch to cut their prices." The comment is equally pertinent to the paper situation in ordinary times.

Back to the land is the vacation call of W. V. Grant, accountant for Montrose Division of the Provincial Paper Mills, Thorold, who is spending two weeks with his parents at Mille Roches. Ont. Bill likes fishing, so we are looking forward to a few good tales.

Mr. F. M. H. Cushing, electrical superintendent of the Montrose Division of the Provincial Paper Mills at Thorold, is in Toronto for the past few days, on business for the company.

The Riordon Pulp and Paper Mills at Merritton, are fortunate in having such industrious help, as is evidenced by the fact that the spare ground, which the company handed over to the men for cultivation, is now coming ahead and a good crop is looked forward to.

Mr. W. P. Woodruff, of the Lincoln Paper Mills, at Merritton, is surely to be congratulated, according to the local news announcement: "At De Veaux Hall, St. Catharines, July 4, to Welland P. and Mrs. Woodruff, a son."

Bruce Easson, who has been with the Canada Paper Co., Toronto, for the past eleven years on both the warehouse and the selling ends, has resigned, having enlisted for overseas service with the 10th Royal Grenadiers. He was presented by the staff with a wrist watch and a set of pipes, while the company remembered him with a substantial cheque.

The Canadian Association of Magazine Publishers was recently formed in Toronto in order to further the general interest and welfare of these publications. D. B. Gillies is President of the organization, George M. Bertam, Vice-President, and I. Simonski, Secretary-Treasurer.

I. H. Weldon, President of the Provincial Paper Mills Co., Toronto, who has returned from a visit to Port Arthur and Winnipeg, reports that the prospects for a good business in the paper trade this fall are very bright in the West.

NEW FOREST FIRE PROTECTION SCHEME.

One of the most advanced ideas in the scheme of forest protection from fire is now being worked out by the Maine Forestry Department, whose engineers are engaged in making panoramic maps of each of the fire lookout stations' area. All the configurations of the land will be shown, in fact, everything that can be seen from the lookout will be reproduced, such as hills and levels, woods and cleared lands, buildings, landmarks, streams, lakes and rivers. And then, with such a map in his possession, a lookout can locate a fire almost to an inch and can also so designate it to his fellow workers by means of his telephone system that they find it with great ease. So simple but so effective in promise is the plan that woodsmen are wondering why it has not been instituted previously.

INVENTOR BIRKELAND IS DEAD.

The death took place last month in Tokio of Professor Kr. Birkeland, of Christiania. Professor Birkeland, who was about 50 years of age, was the co-inventor with Mr. Sam Eyde, of the Birkeland-Eyde process for the manufacture of atmospheric nitrogen, the commercial development of which on the Continent has been extremely rapid. In 1903 the first experimental plant of 25 H.P. was erected. In 1912 the company controlling the Birkeland-Eyde patents had 200 000 H.P. at work, and it was anticipated that between that time and the end of last year a further 300,000 H.P. would be added.

FOREST FIRES RAGING IN B. C.

McBride, B.C., July 20.

A large forest fire has broken out ten miles east of McBride, through fishing parties not putting out their camp fire before leaving. All section gangs and extra gangs have been sent out to help to fight the flames, but the heavy winds make it next to impossible to stop the fire spreading. Over 100 men are now on the spot and still the fire grows larger. It has been burning now for four days and the blaze can be clearly seen fifteen miles away. The fire has spread into the green timber of the mountain and along the Shuswap Valley. Everything possible is being done to save the timber, but before the fire is under control a great amount of forest will have been destroyed. The fire is now working its way east and has already travelled a distance of ten miles through the green timber.

McBride is 340 miles west of Edmonton and 55 miles from Mount Robson, on the Grand Trunk Pacific.

PRESS FELTS IN MARITIME PROVINCES.

Mr. V. A. Barnwell, of Picton, N.S., has recently been appointed special agent for the Maritime Provinces for the well-known Bates and Innes press felts, manufactured at Carleton Place, Ontario. Mr. Barnwell has given special study to the needs of the mills in the Maritime Provinces, and it is assured that his knowledge of the subject of wool manufacture combined with frequent visits among the mills will establish a valuable service for the eastern pulp and paper industry. Bates and Innes, Limited, recently established their chief sales office at Montreal, 312 Coristine Building, under the charge of Mr. E. S. Bates. This expansion in the sales policy of the company is thoroughly in line with an endeavor to give the pulp and paper trade the most efficient service possible, and is a token of the increasing popularity of their product with the Canadian mills.

CANADIAN RAILWAYS IN A BAD WAY.

At the annual meeting of the Canadian Manufacturers' Association, recently held in Winnipeg, the report of the Transportation Committee referred strongly to the necessity for additional railway equipment in Canada. Attention was called to the recommendation of Mr. A. H. Smith, president of the New York Central Railway, in his minority report as one of the Royal Commission enquiring into Canadian railways and transportation. Mr. Smith had recommended that the Government should undertake at once to provide for an ample supply of freight cars and locomotives, against immediate and imperative needs. The committee urged that the convention should make representations to the government to this effect.

OTTAWA NOTES.

An exceptional good fortune has fallen to the lot of an Ottawa paper worker, Mr. Lorne Casselman, 57 Maple street, whose wife, through a ruling handed down by Sir Glenholme Falconbridge, after a two and one-half days' trial at Cornwall last week, falls heiress to an estate valued at $20,000, according to the will of her father, the late Herbert Pruner, of Toronto.

A slight falling off in orders, due to the midsummer lull, has characterized the local paper market during the past two weeks, on grades outside of newsprint. Prices despite the decrease remain firm and the paper plants are busy, and have sufficient orders to put them through for a fairly good season's operations.

Francis Ritchie, of the New Russell hotel, was recently fined $25 in the Ottawa police court for having sold a newspaper on Sunday.

The work of fighting the white pine blister recently undertaken by the Commission of Conservation is proceeding apace in the Niagara district. Total eradication of currant and gooseberry bushes, both cultivated and wild, is being made from Niagara-on-the-Lake to Fort Erie, on a strip from a mile to a mile and one-half in width. Similar work is being done on the other side of the river by the United States authorities.

A new issue of postcards and stamps is to be shortly made by the Dominion Government in commemoration of the Golden Jubilee of Confederation. On the postcards some very interesting information will be given of the general resources of the country to-day as compared with those of 1867.

BIG FIRES THREATEN B. C. TOWNS.

NELSON, B.C., July 23.

Bush fires closing in on Trail from several directions are menacing houses in the outskirts of the city. Several houses have caught fire, but up to a late hour last night no buildings had actually been destroyed. East Trail, east of the Columbia River, is said to be in most danger. Conditions in the Crow's Nest Pass are serious.

Blazes Around Fernie.

Fernie, B.C., the mountain fires in the immediate vicinity of this city are not serious, but the atmosphere surrounding is heavily laden with smoke.

Reports from outside points indicate that a number of large fires exist to the east, west and north.

The conflagration in the Bull River Valley is reported to be beyond human means to extinguish, and has already destroyed some abandoned camps and large quantity of railroad ties, the property of the Canadian Pacific Railway, which is operating a large number of camps in that locality. This fire so far has confined itself chiefly to cut over areas and slashing, but eventually will reach the large green timber unless heavy rains occur promptly.

A large fire is reported to-day within six miles of the town of Coleman, fifty miles east of Fernie, but the inhabitants are not as yet alarmed as to the safety of the town. Between Morrisey and Ella, on the west another fire sprung up yesterday and is making rapid progress.

The fires reported Saturday at Hosmer and Corbin are still burning, but their progress is being checked.

The use of tank cars for fire-fighting purposes is now in effect on the Canadian Pacific, Grand Trunk, Temiskaming and Northern Ontario and Canadian Government railways.

Book Reviews

The "F. M. Book."

Even those best acquainted with the Canadian Fairbanks-Morse Company will be surprised at the very wide range of goods shown in their new general catalogue which they have called the "F. M. Book." This book is a marvel of complete mechanical information condensed into a convenient size for easy reference. It contains 1048 pages, and over 4670 illustrations.

It is, in fact, a key or index to the vast warehouses of "Canada's Departmental House for Mechanical Goods," and contains a very wide selection of "Made in Canada" Goods.

Twelve distinct departments are represented; each department covering a line of goods which is ordinarily considered a business in itself.

The Scale Department (52 pages) covers a full line of Fairbanks Scales.

The Valve and Steam Goods Department (138 pages) contains 42 pages of Valves, and 96 pages of Pipe, Fittings, Steam Specialties and Tools.

The Automobile Accessory Department (140 pages) —you will find practical accessory for Automobile, Ford and otherwise, besides a complete line of Motor Boat Fittings.

Engine Department (16 pages). Electrical Department (22 pages) — These pages are merely an index of the various styles of Fairbanks-Morse Oil and Gasoline Engines, Electrical Generators and Motors. Complete descriptive bulletins of this apparatus will be sent on request.

Pump Department (62 pages)—Here is shown a very complete line of Steam, Power and Hand Pumps, Duplex, Triplex and Centrifugal, besides a number of Pump Accessories and Windmills.

Machine Tool Department (110 pages) — Nearly every type of Machine Tool is represented; among them some of the best known Machine Tools on the Continent. Truly a representative department.

Wood Working Machinery Department (88 pages) —As fully representative as the Machine Tools.

Transmission Department (86 pages) — Every appliance for Transmission of power through belts, ropes, chains, conveyors, etc., is here shown.

Railway and Contractors Department (100 pages)— Containing Railway Track Tools, Motor Cars, Road Machinery, Trucks, etc., etc. A very interesting section.

Supply Department (138 pages)—Representing a line of Tools and Supplies for equipping any Factory.

Safe and Vault Department 26 pages)—showing a line of high grade Fireproof Safes and Vaults Fronts.

In addition to all this is a 65 pages section, printed on yellow paper, and containing beside, an excellent index, a quantity of tabulated information most commonly used.

A copy of the "F. M. Book" will be sent free to any one interested in mechanical lines, on receipt of their request.

THE PURSUIT OF SAFETY.

Under this title the Automatic Sprinkler Co. of America, has got out a very attractive 40-page booklet describing the sprinkler and illustrating various types of installations. Pictures also show some "horrible examples" of fires that might have been prevented by the sprinkler system.

The Markets

THE CANADIAN MARKETS.

TORONTO, July 23.

This is known generally as the slack season in pulp and paper circles and all lines are seasonably quiet with the exception of newsprint. The demand for this commodity still keeps up. Manufacturers are wondering whether the present price of two and a half cents will be continued for another month. This figure has prevailed for practically four months now and in consequence of the suspense, the outlook is rather disturbing. Mr. G. T. Clarkson refuses to give out any information regarding when his audit of the books of the companies will be completed, but the general opinion prevails that it is a rather larger job than at first supposed, and it may be several weeks before the undertaking is finished.

There is one thing certain and that is, the newspaper publishers are not quiet nor have they given up the fight. On the contrary the bulletins which the Association formerly sent out to members and were marked, "Confidential—not for publication in any form," are now public property. All publishers who make editorial comment on the paper situation, have been requested to send a marked copy or clipping to the office of the Canadian Press Association.

It is reported that the publishers hope to make a great issue out of the whole situation, and to bring further pressure on the federal authorities, in case the decision of Commissioner Pringle is not to their liking. It is further alleged that the Canadian Press Association will go over the head of the Commission direct to the government, and if that does not have the desired effect, they will find some members who will bring the question directly up on the floor of the House. Just what definite plan of action they have in view, no one can tell as all moves are secretly made, and no body will give out the slightest inkling of what is the intent and purpose of the Association.

There appears to be one regret on the part of the publishers, and it is that the issue is not one of great national or public importance like wheat, flour, steel, foodstuffs, bacon, railway rates, etc. If they publish too much they are afraid they will be accused of "talking shop," and it is rather hard to arouse the interest of their readers. No public bodies like boards of trade, chambers of commerce, or labor organizations take the slightest concern in the paper situation, which the publishers very much regret. It is declared that a series of large advertisements will be run all the leading dailies of Canada asking certain questions and that these announcements will be so strikingly displayed that even the most casual reader cannot pass them by. In this way, it is hoped to "manufacture" public sentiment in behalf of the press and, then, if this procedure does not have the desired effect and parliament absolutely declines to take any action, in the event of the price of newsprint being raised, all the dailies will materially advance their subscription rates. The public will be charged a fair figure for their diurnal reading matter, which move, in the belief of all fair-minded men, should have been made long ago. In the meantime, there is another disturbing element in the trade of the paper makers, and that is the number of representatives and offers that have come from mills on the other side where many of them are finding business dull, to cut prices so as to get some orders in the Dominion. Book and writing papers, box board of all kinds, tag manila and other brands are being offered at very low prices.

Book and writing plants in Canada have orders enough ahead to keep their machines going over the summer months. Jobbing business is rather inactive, but that is to be expected at this season of the year. There will be higher prices for all lines of paper next fall and those who have given the matter close study are advising consumers and wholesalers to purchase now.

"The fellow who places his business during this month or early next is going to strike it right and will heartily congratulate himself later on," remarked one manufacturer this week. "I know what I am talking about and am telling my customers exactly what I am telling you. How can it be otherwise than higher values with the raw material situation, labor problem and pulpwood and coal supply as unstable as they are. I am looking for a particularly active fall business in the paper line."

The sulphite market does not show an evidence of strength and has been quiet for some time. The paper maker who has to buy his sulphite takes a very different view of the future than does the sulphite manufacturer. He thinks that with so many additional tons coming on the market in the near future, there will be an easing up in prices, and that further declines are on the way. The sulphite producers declare, with the foreign situation as it is and no perceptible minimizing of the German U-boat dangers, there will be no relief from abroad and all the added output will be absorbed on this continent. Little change is looked for in the near future and not until the demand for book, ledger, bond and other papers begins to reassert itself and conditions on the other side of the line grow more normal.

In the mechanical pulp line there is no material alteration, and buying is very light. One manufacturer sums up the situation in the announcement that he has seen matters much worse, and he has also seen them better. An increase of consumption is anticipated, but not until the holiday period is over. Production and consumption are pretty well balanced, and this has kept prices up. Quotations in Ontario remain at forty to forty-two at the mill.

In the rag and paper stock market conditions are not much changed, and there has been a small advance in magazine and book stock and in clean, mixed papers. There is a healthy demand, but mills are still hanging out so far successfully for low prices. Dealers are doing their utmost to keep up and encourage an increased demand.

Paper.

The following prices prevail f.o.b. Toronto:

***News (rolls) at mill, in carload lots.....$2.50**

News (rolls) in less than carload lots	$2.75
News (sheets) at mill, in carload lots	$3.25
News (sheets) two tons and over	$3.50
News (sheets) less than two tons	$4.00
Book papers (carload), No. 3	$8.00
Book papers (ton lots), No. 3	$8.00 to $8.50
Book papers (carload), No. 2	$9.35
Book papers (ton lots), No. 2	$9.50 to $10.50
Book papers (carload), No. 1	$9.50
Book papers (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
Grey Browns	$4.75 to $5.50
Fibre	$7.35 to $8.75
Manila, No. 1	$7.35 to $8.75
Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $12.00
Glazed kraft	$9.00 to $12.00
Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 14c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Sulphite, easy bleaching	$85.00 to $90.00
Sulphite, news grade	$70.00 to $80.00
Sulphite (bleached)	$125.00 to $130.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.80
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.50
No.1 printed manila	$1.25
Folded news	65c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	55c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.50
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City third and blues	$2.50
Flock and satinettes	$1.75
Tailor rags	$1.65

CANADIAN CHEMICAL MARKET.

MONTREAL, July 23.

Caustic soda is still advancing due to the sold up condition of the market. Bleaching powder is easier for immediate delivery. Potash alum is stronger. Transportation conditions show no improvement, consequently deliveries are extremely slow.

The following are the prices in the Montreal market for not less than car load lots:

Alum, ammonia lb.	5½c @ 6½c
Alum, potash, lb.	8½c@9c
Blanc, fixe-paste, lb.	4c @ 4½c
Blanc, fixe-powder, lb.	5c @ 5½c
Bleaching powder, lb.	3c-@ 4½c
Brimstone, f.o.b. mines, long ton	$35.00 @ $37.50
Casein, lb.	30c @ 40c
Caustic soda, 76 per cent, lb.	7¼c @ 7¾c
China clay, imported, ton	$30.00 @ $40.00
China clay, domestic, ton.	nominal
Lime, ton	$7.25 @ $8.00
Sal soda, bags, 100 lbs.	$1.25 @ $1.30
Sal soda, barrels, 100 lbs.	$1.35 @ $1.40
Salt cake, 100 lbs.	85c @ $1.00
Soda ash, lb.	2¾c @ 3¼c
Starch, pearl in bags, lb.	6¾c @ 7½c
Sulphate alumina, technical, lb.	3½c @ 4c
Sulphate alumina, iron free, lb.	5c @ 5½c
Talc, American, ton	$13.00@$18.00

NEW YORK MARKETS.

NEW YORK, July 21, 1917.

In general, the groundwood market is reported as fairly quiet, though there is considerable buying by a number of the newsprint mills. However, a good many of the mills are working on old obligations and are thus able to keep their stocks moving. It is reported that some of the mills that are dependent on "foreign" sources for their woods supplies have been compelled to curtail operations, from time to time, pending the arrival of supplies, otherwise the plants seem to be operating fairly well. It is calculated that, as soon as the status of the country is actually learned, after the first conscription, and the uncertainty removed, things will begin to pick up. The announcement was made in Washington, that the price-fixing committee, whose business it will be to investigate into various industries with regard to fixing a just price on their commodities to the government and to the

public, is about to be appointed. As a matter of fact, the Food Control Bill is occupying so much time in Congress and there is so much fighting over trivialties, that it is beginning to appear doubtful as to whether or not any government action will be taken with regard to the control of the pulp production and its price. At the same time, it is understood that another bill (perhaps more) is to be submitted within the next week or so, asking for the control of chemical and mechemical pulp. The most common figure named for groundwood pulp to-day is about $43 a ton at the grinders mill. The following quotations seem to rule: For Eastern sections, $41 to $45 a ton, f.o.b., pulp mill; for Western sections, $43 to $47 a ton, f.o.b., pulp mill.

No added strength, with regard to buying, has been reported in chemical pulps. Conditions seem to reflect the inactivity of a number of the sulphite paper mills throughout the country. However, let it not be thought that prices have been acting accordingly, for while occasional concessions have been reported, they are not credited as being authentic unless the sources is well known. One report says: With paper mills consuming considerably less than normal amounts of chemical pulp and with manufacturers disinclined to buy for future requirements, the demand for sulphite continues restricted and sales of both domestic and imported pulp are scattered and confined to small volume. The increasing cost of production in the United States, however, causes domestic manufacturers to insist upon the same prices as previously, while the difficulties in importing pulp from Scandinavia and the exceptionally high cost of fibre there keeps quotations of foreign pulp steady. Consumers are endeavoring to eke out their contract supplies as far as possible and are remaining out of the market as buyers, in so far as their immediate needs will permit. Inquiry for soda pulp is reported slightly more active. Book paper mills are said to be operating at a fair percentage of capacity, and their stocks of pulp are said to be low. Domestic bleached soda pulp commands from 5 to over 5½ cents. Those who make it a practice of looking into the future, shook their heads during the past week, when it became known that sulphur had been placed on the export control list by the Administrative Board of the Exports Council. Any further shipments of this commodity from the United States will require licenses, and it is the belief that the government plans to restrict shipments of sulphur, particularly to the Scandinavian countries, because of the fact that the suspicions have been strong that these nations were doing considerably in the way of passing a great deal of this material over into Germany. While this is not likely to have any immediate effect on the chemical pulp market, importers declare that the ultimate effects will be of much consequence. Usually at this time of the year, the paper mills do most of their buying for the fall. However, the situation today is somewhat different from the ordinary, for, believing that conditions are very uncertain, many of them still having hopes of government putting the price of pulp down a pitch, they are refraining from buying wherever they can. The mills up State are being favored with good water conditions, which is aiding materially wherever it is necessary to get out good production. The question of freights is again looming up as very important in various parts of the country, especially now that the government is using all facilities available in taking care of its armies in the different training camps throughout the country. Several big meetings have been held to consider the freight problems and the answer seems to be but one thing—everyone must do his utmost to unload, load and release cars with the greatest facility at his disposal. Certain it is that there are possibilities that it will be quite a problem to get wood to the pulp mills, and also to get pulp to the paper mills, unless something is done in the very near future.

Roofing rags continue to hold the big portion of the demand in the rag market. Prices on the other grades are being maintained firmly, but this is attributed largely to the status of roofing rags, for dealers are now looking forward to the time when they hope this demand will scare consumers into buying up the other grades. Manufacturers appear less anxious to buy, yet dealers continue to ask high prices and, on what sales are being consummated, are realizing attractive values. The activity of the felt mills is causing the situation in roofing stock. The felt mills are inquiring eagerly for supplies, and, in frequent cases, are bidding against each other on offerings. It is said that No. 1 roofing is bringing about $50 a ton delivered to Western mills. The attitude of the sellers is extremely bullish. It is said to be doubtful whether mixed satinets can be obtained in New York in any large quantity at this time, below $1.80, while most packers are asking about a dollar more per ton. Some sales have gone to 2 cents and higher. Black cotton stockings are holding firmly and are said to have brought as much as 3 cents. Thirds and blues are fairly firm and are moving in fair quantities with quotations ranging up to 3 cents. Old white rags are finding a steady demand, while the lower grades are fairly active. The quotations on old white rags are up as high as 4 cents. House soiled whites top at 3¼ cents, while street soiled whites find their limit at about 2⅝ cents.

The demand for new cotton cuttings is fair, stock moving in moderate quantities and the market is being characterized by a firm undertone. Dealers are insistent for high prices and are freely turning down offers at figures which fail to measure up to their ideas of values. When it is understood that a large portion of the stock now held by dealers has been purchased at values considerably in excess of prices which mills now are offering, it is not surprising that many holders are declining to transact business for the moment. It is felt that the market will undergo much strengthening in the early fall and dealers believe it is but logical that they should be unwilling to dispose of their accumulations at a loss when, by holding for a few weeks longer, they can probably realize a profit. Most interest by paper mills is in fancy shirt cuttings, new light silesias and washables. New white shirt cuttings are quoted up as high as 9⅛ cents.

Bagging continues firm, with an advancing tendency apparent. Stocks are not plentiful, it is said, and, add to that the statement made by the dealers that the mills are in need, a good demand results. Gunny is said to be going at as high as four cents; bright bagging is in fair demand, quotations ranging up to 3½ cents; sound bagging is finding a good market at as high as 2¾ cents; mixed bagging is bringing up 2½ cents. The old rope market is fairly strong. While quotations are said to range as high as 6½ cents, it is doubtful whether more than 6½ cents would be paid at this time. However, there is no doubt in the minds

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Bleached and Unbleached

WOOD PULP

of every description

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of the dealers that activity will soon be resumed and that these prices may afterward be regarded as having been advisable to buy at.

The waste paper market is regarded as being in a healthy state. The poorer, or groundwood grades, are in best demand. This is undoubtedly due to the great amount of reclaiming that is being done. It is felt that the announcement of a few new reclaiming processes lately, will do considerable to stimulate further interest in the waste paper market. At present, there is a good demand for mixed papers at over 60 cents per hundred pounds. It has been said that, at 65 cents, it would not be a simple matter to get a very large quantity of this grade. Folded news is firm, with prices going up to 85 cents per hundred pounds. Strictly overissue news have been quoted at about 1¼ cents. Manilas and krafts have not their usual strength. Both are expected to take on more activity before very long. Krafts are quoted with 3½ cents as top price. Manilas top at a little over 1 cent. Books continue going in fair demand. Ledgers are bringing as much at 3½ cents. Hard white shavings are quoted at up to 4¼ cents, white soft shavings are said to have brought over 2¾ cents.

The paper market continues quiet, perhaps the only grade making a creditable showing being newsprint. The demand for news continues active. The fact that advertising is heavy in spite of the summer, together with the increases in circulation on account of the many interested in new war developments tends to keep the consumption up to a high pitch, although this is usually the time when the mills find opportunity to run stock ahead for the fall.

Wrappings are not very active. Consumption seems to have been considerably curtailed, hence the cause of the general indifference to the market. Some interest is being shown in the fall meeting of the Middle States Wrapping Paper Association, to be held at Toledo, Ohio, September 18. The news that a new kraft paper mill was to be built at Fulton, N.Y., by the Arrowhead Mills, Inc., which recently took over the old Battle Island Paper Co's plant, was not regarded with anything more than usual interest. Had this announcement been made about a year ago, when kraft was much in demand and hard to obtain, it would have been greeted on all sides. Tissues continue more or less neglected. Buying is said to be so poor that some of the mills that have been strongest in adhering to prices are said to have been granting concessions in price. Book papers are fairly strong, with mills working on back orders. The market was given a strengthening tendency by the news that the plant of the Champion Coated Co., at Dayton, Ohio, had been completely shut down on account of strike, and that it would not continue operation until the labor differences were all settled. No statement has been made as to how the loss of this tonnage would affect the market, but it is not likely that it will be missed to any great extent. It is expected that the report of the Federal Trade Commission which has been investigating into the book paper industry will be ready soon — and there is some anxiety as to what it will contain. Boards are suffering from the summer quiet.

New York Quotations.

(These are a nominal range of prices):

Ground wood f. o. b. mill	$43.00 to $48.00*
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	6½c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	4c
Kraft pulp, f.o.b., pulp mill	6c
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6½c
Bleached soda pulp, f.o.b., pulp mill	5¼c
Foreign unbleached soda pulp, ex-dock, N.Y.	5½c
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6c
Bond papers, sulphite	11c
Best grade writings	21c
eRgular superfine	19c
Ledger paper	11½c
News, contracts, f.o.b. mill	$3.00 to $4.0
News, spot lots	$3.25 to $4.5
News, side runs	4½c
Book, super	8½c
Books, coated	8½c
Books, machine finish	8¼c
Tissues, good sulphite, bleached, per ream	$1.1
Tissues, ground wood, manila, per ream	$1.1
Kraft, domestic	8c
Kraft, foreign	8½c
Wood Manilas, No. 1	7c
Wood Manilas, No 2	5¾c
Jute manilas	9c
Newsboard, per ton, f.o.b. New York	$55.0
Strawboard, per ton, f.o.b. New York	$50 0
Chip board, per ton, f.o.b. New York	$50.0
Wood Pulp Board, per ton, f.o.b., New York	$75.0
Binders Board, per ton, f.o.b., New York	$70.0

(*)—And higher. (†)—And way up.

MORE NEWS.

W. T. Haney, who for twelve years has been wi the Rolland Paper Co., Montreal, and has been Toronto for some weeks, has been appointed succe sor to Robert Rolland, now with Paper Sales, Limite and will look after the interests of the Rolland Pap Co., in Toronto. He is widely known to the trade.

The product and business of the Wilson Carb Paper Co., Limited, Montreal, is now conducted und the name of the Budge Carbon Paper Mfg. Co., 33 335 Lagauchetiere street west, Montreal, with Edg C. Budge, who has managed the business for the la four years, as President and General Manager.

W. S. Haley, who for several years was superinten ent of the sulphite plants of the Eastern Manufacturi Co. at Lincoln and South Brewer, Maine, has been a pointed superintendent of the Mattagami Pulp a Paper Co., at Smooth Rock Falls, Ont., and has enter upon his new duties. He succeeds A. G. Hinzke, w some months ago was appointed superintendent of t Port Arthur Pulp and Paper Co., Port Arthur, On Mr. Haley has had a long and thorough experien with a number of leading plants and brings to be upon his new duties the highest qualifications. T Mattagami Co. expect to have their first digester operation next month.

H. H. Black, editor of Dry Goods Review, Toront has gone to Montreal, where he has been appoint Montreal editor of the Financial Post of Toronto. M Black is widely known in publishing circles, and i former news editor of the Toronto News, where spent several years. He is a brother of Robson Blac of Ottawa, secretary of the Canadian Forestry A sociation.

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An ounce of information may save a pound of mi understanding.

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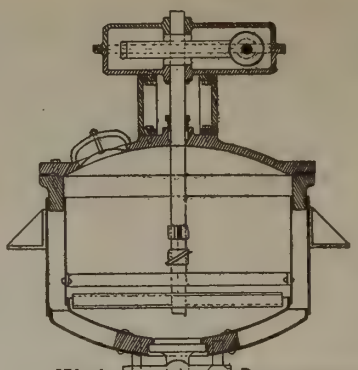
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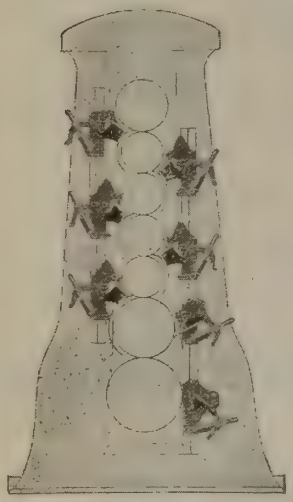


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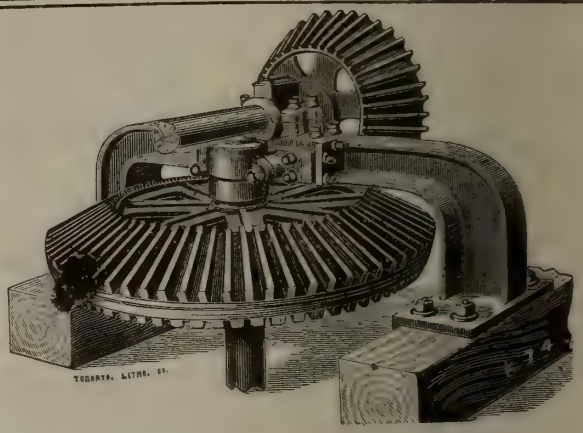
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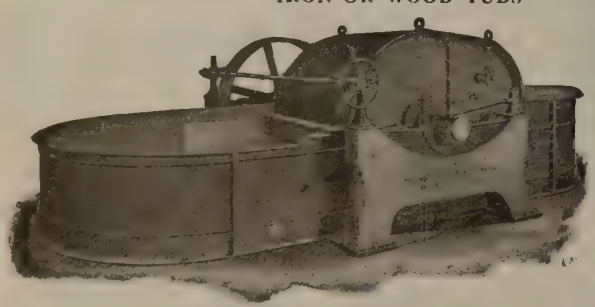
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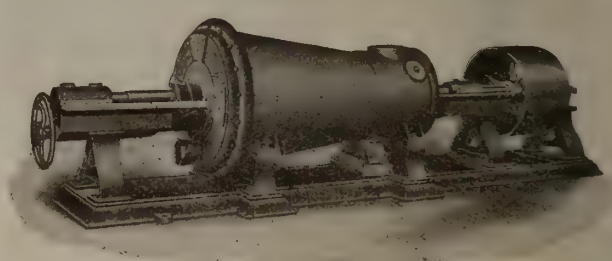
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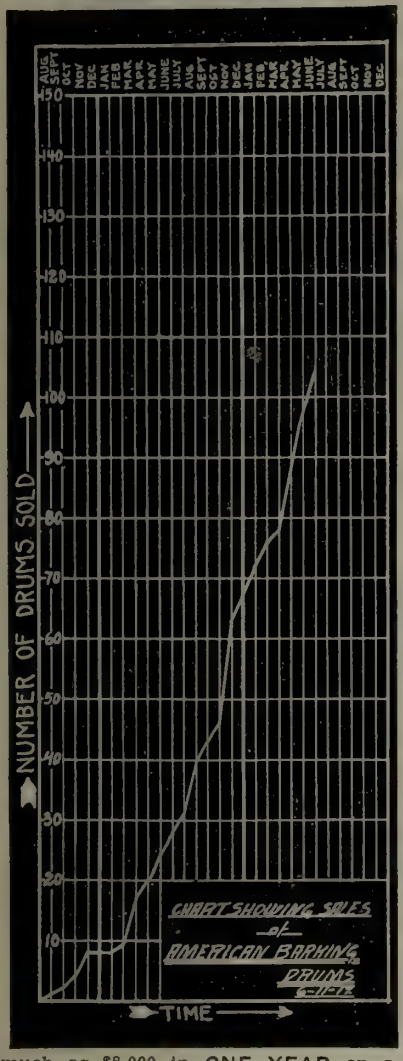


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2,600,000 cords per year, remember, means almost 40 per cent of the entire amount of wood barked in the United States and Canada combined. At the present rate we will soon have an American Barking Drum in every paper mill where barking is done.

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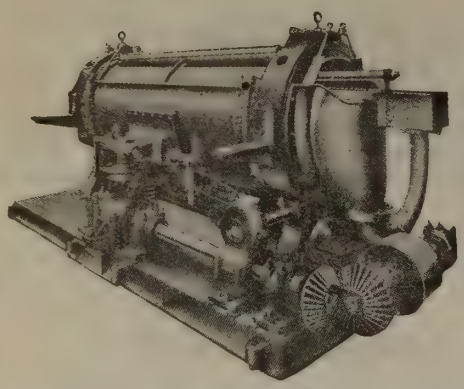
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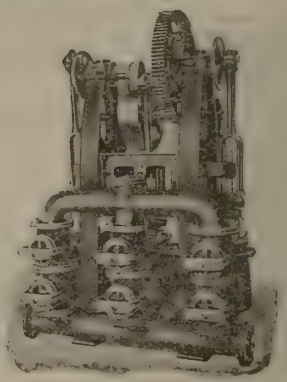
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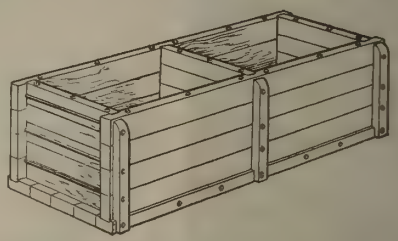
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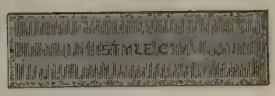
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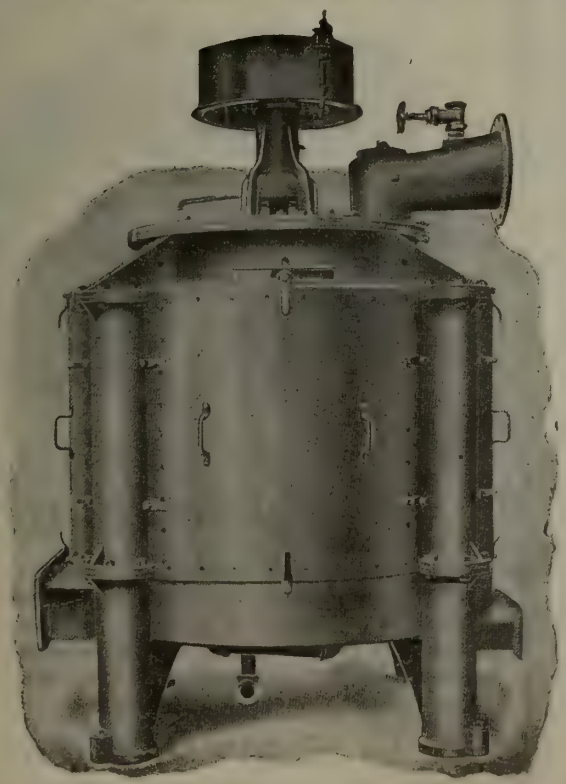
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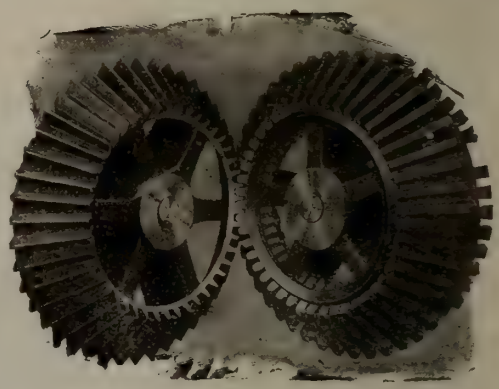
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OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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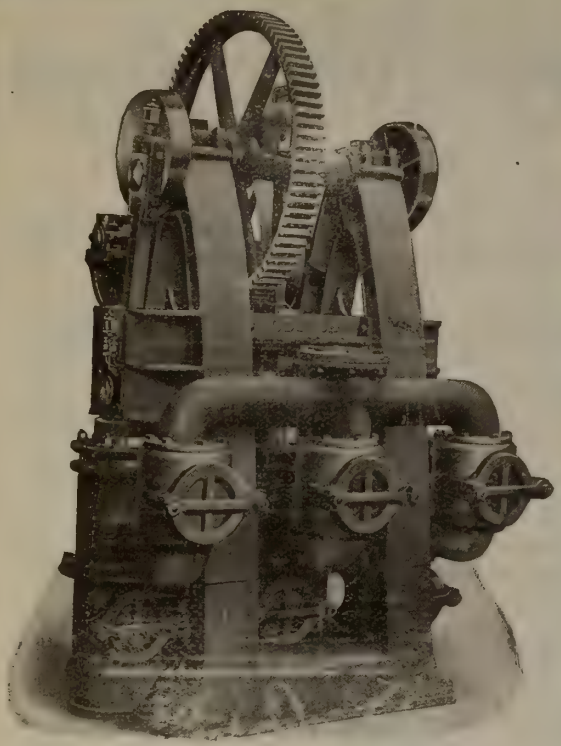
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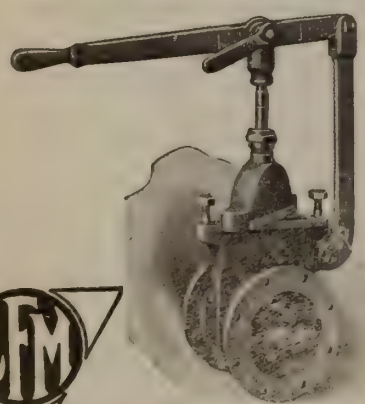
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CANADA'S DEPARTMENTAL HOUSE FOR MECHANICAL GOODS

EDITORIAL

AN EXPENSIVE PIKE POLE.

In referring to the death of a log driver who was drowned when he dived for a pike pole, an editorial in the Spanish River News concludes with these words:

"The accidents that are occurring by chance-taking and thoughtlessness are all too frequent and many of them are resulting very seriously. We will continue to have such accidents until each workman realizes that every time he takes a chance he is gambling, with his life as the stake, and from the experiences of the past we learn that sooner or later he is very likely to lose. It is up to every workman in every department to guard against their own thoughtless acts and deliberate chance-taking and to warn the confirmed chance-taker against the hazards with which he is continually surrounding himself. It is only by individual thoughtfulness and a growing concern for our fellow workmen that we will gradually reduce the number of accidents in our mills. Pulp and paper can be made without the loss of life and other injuries to workmen. Let's do it. It is the workman and his family who suffer through someone's thoughtlessness."

Doubtless a good deal of chance-taking is due to the spirit of "taking a dare" that we had as boys. Most men have recollections of diving off some high place, jumping ice cakes, skating over a "bender," hitching behind a wagon, etc. We now look on such actions as crazy and dangerous, so instead of playing tag-in-a-tree we hop on or off moving trolley cars or race our automobiles across the railroad track, hoping to beat the approaching engine. We ignore safety devices on machines and in many ways endanger not alone our own welfare, but the safety and health of others as well. In many cases the motive seems to be the saving of a little time, or an object of little or no value compared with the sad results; the action is based on a confidence in the ability to "win out."

This feeling of power is not to be discouraged by any means, but in many cases it certainly needs direction. Many of job would never be completed, or even started were it not for this spirit. Quite different, however, is the matter of ignorance and the attitude of indifference. Many a serious accident is caused by someone who "did not care" or did not think. Innocent persons are often the victims of the carelessness or thoughtlessness of others. Careless persons are the most dangerous, they must be reformed or else should be discharged from a position where their carelessness involves a risk to the safety of others. Thoughlessness is often due to ignorance and in this regard is curable by knowledge. This requires diligent effort on the part of foremen and superintendents to explain thoroughly a new man's job and continually to insist on and encourage carefulness in every department. In order that explanations and exortations may have their maximum effect, it is necessary that foreman and workman speak the same language. Every person in the industry, from the chopper to the shipper should know some English, both to speak it and read it.

The output of a mill that has involved the loss of a life has been made at a cost that cannot be estimated. The record of our industry in the taking of life and the maiming of bodies is not an enviable one. There seem to be some people born fools and some who don't know any better. For those who are careless, thoughtless or ignorant, there is hope. Eternal vigilance on the part of everybody is the solution of the problem.

WHY NOT IN QUEBEC?

One of the best movements in the pulp and paper industry in recent times is the organization of the Ontario Paper Makers' Safety Association. The advantages of such an organization are numerous and obvious. It brings the management and the workman together on common ground and binds their efforts in pursuit of a worthy object. It brings the personnel of all mills together on a matter of common importance. Safety is not limited to a news section, nor writing, nor book. A safety association is a link between the mill and the Workmen's Compensation Board. Each can help the other.

Safety has no bounderies, no provincial limits. A man's finger, eye, health or life is worth as much in one province as in another. Quebec has done notable work in the conservation of forests. It is time Quebec organized for the protection of life and limb. Many of the mills already are doing a local work. Further organization would make such work far more effective. Regular visits by a safety inspector, bulletins, posters and safety gatherings have great value in promoting co-operation and efficiency.

The number of non-English speaking workers in Quebec mills would probably make work in this province more difficult, and for that very reason it is

more important. A safety organization is first cousin to an educational movement. One almost demands the other. Both are essential to the welfare and future of the industry.

The Ontario association would rejoice to see a similar movement started in Quebec. It would seem that local safety committees of mills in both provinces could well be organized under the supervision of one safety engineer or supervisor. Ontario and Quebec contain the great majority of Canada's pulp and paper mills. An organization for safety would greatly facilitate an organized campaign for better educational opportunities. The time is ripe for both movements.

AGRICULTURE AND FORESTRY.

In the report of the Ontario Minister of Agriculture there is much interesting information, especially concerning the Junior Farmer Associations and the work of district representatives. One of the former has carried out 46 agricultural experiments; one of the latter has wirtten 29 articles for the papers of his country. The locality is not given in either case, but neither the list of experiments nor the list of articles has any reference to forestry.

The Canadian farmer, in so many districts, receives part of his income from his wood lot or must clear his land before planting, that departments of agriculture should pay considerable attention to the forestry side of the farmer's education. The opportunity seems to lie in three channels, the agricultural bulletin and country paper, the district representative and his local organizations or clubs, and the agricultural college.

A comparatively small amount of instruction and demonstration should be of very considerable value to the young farmer. "Forestry readings" might well be included in the literary work of college and school. The recent "Forestry Primer" by Robson Black for young school children is a commendable beginning. It is particularly a forest protection propaganda. For the farmer and the embryo-farmer there are a number of forestry problems that are intimately connected with the success of the farm. Perhaps the first problem is to decide whether the wood is to be cleared for planting or maintained as a source of income. The answer to this question involves acknowledge of the kind of trees, what they are used for, the sizes demanded and the market conditions and values. Stands of spruce, pine, poplar, maple and mixed hard woods present different phases of the problem. In mixed stands it will be a question of what to cut out, and when. An understanding of the elements of proper cutting and lumbering would greatly benefit many a farmer.

One of the biggest problems in Canada today is the disposal of slash and brush. A recent fire in British Columbia raced over an area of timber slash. Whether the fire could have been stopped there if the slash had been properly disposed of is an interesting question. Many serious fires have been started by farmers' brush fires. Permits have relieved this situation very materially. An intelligent farmer is the best safe guard.

The problem of reforesting areas that are otherwise unproductive should be considered by agriculturists. Perhaps next in importance to the disposal of brush and slash is the effect of close cutting on hillsides. In many instances, the clearing of trees from a slope has encouraged a washing of soil that not only ruins the slope but also buries the productive field at its foot and greatly increases the damage done by brooks at flood conditions.

In many parts of Canada there is a close connection between the pulpwood market and the prosperity of the farmer. Proper handling of his forest might make it a continual source of income. The wanton burning of any timber to destroy it should be made a crime. It is less likely to be burned if the farmer understands how to make money from it. Intelligence is better protection than punishment.

Attention to forestry matters is important, both to the welfare of the farmer and the future of the Canadian forest resources and industries dependent on them.

Co-operation between forestry and agricultural departments in this regard would be an advantage.

THE MANAGER—PLEASE.

Mr. Manager, you of course are aware of the serious shortage of freight cars. There is a great deficiency of motive power too. You can't make locomotives but you can do something to ease up the car situation. One railroad in the United States saved 58,000 cars by increasing the average carload 2.92 tons.

You are probably howling because you are not getting supplies of sulphur, lime, machinery, mill supplies, camp supplies or coal. Are you doing **anything** to help to relieve the situation? Are you doing **everything** you can to release freight cars? Have you seen to it personally that freight cars loaded at your plant are loaded as heavily as the character and dimensions of your product will permit.

Some of you managers are not doing this. Some shipping room foremen make no effort to load more than the minimum weight. If your customer says an order for a carload is twenty tons, tell him he is mistaken. That was before the war. A **carload** now is a **car full.** Do you get it?

"The outbreak of war accentuated the conditions that made hard the lot of the publisher. The cost of paper increased, in spite of the efforts to secure discriminative government action against the mill. — From "A Newspaper Development" in the Montreal Gazette.

The Purpose of the Webb Bill

By HON. CHARLES F. MOORE,
Secretary Bureau of Statistics, Book Paper Manufacturers, New York.

Address at the Industrial Exposition and Export Conference, Springfield, Mass., Monday, June 25, 1917.

(In the following address, the underlying conditions and principles are equally applicable to the need of export trade for Canada. Also, many of the factors that will make desirable an increase in export trade will make it necessary to conduct an ever-growing return business, directly or indirectly, with the people who buy our goods. The plea for the Webb Bill is primarily a statement of the advantage of a properly organized export business).

I have been asked by your officials who were good enough to invite me to be present to-day to say something to you concerning the purposes and provisions of what is known as the Webb Bill, now pending before the Federal Congress.

This measure is not one which has been hastily presented for the consideration of the people, nor is it indeed intended that it should make any drastic revision of the Federal statutes which are now in effect. Of the many laws which have been enacted by Congress few indeed have had more mature consideration and few have been drafted with as much pains taken in advance to ascertain the views of the public concerning its merits.

As you are well aware, the primary object of the Webb Bill is "to promote export trade." This is the expressed declaration of its purpose as set forth in the title to the Bill itself and as is made perfectly plain by its full text.

Whatever our opinions may be concerning the methods to be used in its accomplishment, there cannot be any controversy whatever among us concerning the desirability of promoting the export trade of the country. In the past history of the United States our foreign commerce has not been a matter of such grave importance as it must necessarily be in the days to come. Occupying as we have done a comparatively new country, the greater portion of which has up to the present time been sparsely settled and practically all of which is rich in natural resources, we have not engaged in manufacture to the same extent that the older countries have done. It has not been necessary that we should. Our export trade has consisted largely in the natural products of forest, field and mine which have been largely sought by the foreign manufacturer. Such, indeed, has been the demand abroad for these things that the question of foreign competition has not been a serious one.

Times have changed and conditions have changed. Instead of small cities, towns and villages located throughout the country at points remote from one another, great centres of population have come into existence, and with this enormous growth materially hastened by the constant stream of foreign immigration, we have been obliged to turn our attention more and more to manufacturing industries, until we have reached that point where our domestic market can no longer absorb the manufactured articles of commerce which we produce. There remains but one thing to be done if we desire a continuance of our national prosperity, namely, the extension of our market into the foreign field.

It goes without saying the commercial greatness and prosperity of a country is more or less relative. Our position is one of advantage or disadvantage in accordance with whether we are better off or not so well off as other countries. The individual who is the creditor of his neighbors is, of course, in a stronger position than the one who is indebted to them. The same is true of a nation. It cannot long maintain a commanding position in commerce and finance unless the balance of its trade with other countries is in its favor. Just as the man who buys more than he sells is to the extent of the difference diminishing his resources, so the country that imports more than it exports must to the extent of the difference be losing ground internationally.

With the rapid development of our country we must necessarily become less and less an agricultural people for the reason that much of the land must be put to the other uses. This means eventually a diminished production of the farm products which we have in the past been exporting in great abundance, and not only so, but our increased population means a greater domestic consumption of these products. The same is measurably true of our forest and mine products. Therefore, to increase or even to maintain the present volume of export trade we must make up the loss of export in raw materials by increasing our foreign sales of manufactured goods. To acquire and to hold a strong relative position with other countries this enlargement of our foreign market is doubly important for the reason that our imports have grown and it requires a greater volume of goods going abroad to offset the cost of our purchases.

At this particular time, of course, it is exceedingly difficult to obtain any reliable data upon which to base our plans for the future. The ordinary regulations of commerce are for the time being interrupted and the principles of normal international trade utterly suspended. The great and deplorable war in which the world is engaged has withdrawn a host of workers from their usual occupations and in addition has diverted the productive power of another host into new channels to meet the present emergency. For these reasons the whole situation is altogether unprecedented and no calculations for the future can be based upon the things that are now transpiring.

The countries from which our strongest trade competition has usually come are not in a position to extend their trade, but on the other hand much of the commerce which they heretofore enjoyed has for the time being been abandoned. Not only so, but some of them, our Allies in this struggle, have made tremendous drafts upon this country for the supplies they need. All this has within recent months resulted in an enormous trade balance in favor of the United States. How long matters will continue as they now are no one can do more than guess, but we do know that sometime in the future, and that not far off, there must be an ending of this unusual situation. Therefore, in the revision of our old laws or in the enactment of new

ones, we must have reference to normal conditions rather than abnormal.

The first suggestion which finally led to the formulation of the Webb Bill were made in time of peace, before there was any European statutes to meet peace conditions, and the developments have since been with the same view. It was the belief and comment of many well-informed business men of this country that on account of the very great difference in labor conditions here and abroad we would find it exceedingly difficult to extend the market for our manufactured products in foreign countries excepting a few articles of trade in the manufacture of which we happened to have the advantage. The opinion was also expressed that other countries with which we had to compete in this foreign trade were not only permitted, but encouraged to adopt saving methods which it was doubted our laws would permit, thus increasing our difficulties.

It was found that to conduct trade regularly in a foreign country involved an expense which could not readily be afforded except in connection with a very large business. The smaller producers therefore were absolutely excluded from this foreign field in any direct way, and found they could reach the trade only through exporters who were naturally inclined to look after their own interests rather than that of the producer.

The question thus arose whether a number of independent producers might jointly engage in export trade by the formation of some sort of combination or export co-operative agency, without running counter to our anti-trust laws. In relation to this question the best legal authorities were not entirely agreed. Very many of them were confident, and so declared themselves, that the Sherman law, with its subsequent amendments, whatever its letter might be, was not enacted with intent to interfere with combinations formed to promote export trade. A few, but very few, prominent attorneys were of the opinion that the law did prohibit such co-operation. Most authorities considered the question a very doubtful one and advised those who made inquiry that the meaning of the law was so uncertain that export combinations could not be formed without taking a chance.

About that time, the Federal Trade Commission was created and one of the first problems which came before it was the interpretation of the anti-trust law as related to foreign trade. The members of the Commission gave diligent attention to the matter and sought counsel as well, with the result that the Commission too could reach no positive conclusion.

The President of the United States was desirous of removing this doubt and of providing such definite meaning as might be legitimate for the extension of our foreign commerce. Thereupon Congress requested the Federal Trade Commission to specially investigate the subject and report back its finding.

The Commission sent out interrogatories to several thousand business organizations and prominent business men throughout the country asking an expression of opinion from them as to the desirability of such amendment to the law. Their replies were overwhelmingly favorable to the amendment. A report was thereupon made by the Federal Trade Commission to Congress recommending that such legislation be enacted as would effectually remove the doubt which existed concerning rights of exporters to organize and co-operate in their trade.

In conformity with the report of the Federal Trade Commission the bill which we are now considering was offered in the House as H. R. 17350 by Representative Webb, from whom it takes its name, Chairman of the Committee on the Judiciary during the Sixty-Fourth Congress. The bill was debated, slfghtly amended and passed by the House on September 2, 1916, by a vote of 199 to 25. It was then taken up in the Senate by the Committee on Interstate Commerce and favorably reported with slight amendments by that Committee on February 15, 1917, but failed to reach a final vote on account of the press of other important matters at the end of the session.

The same bill was reintroduced April 9, 1917, in the pending session of Congress by Mr. Webb, and on May 11, 1917, was again favorably reported. On June 13, 1917, it was again passed by the lower House of Congress.

The same bill was reintroduced in the Senate by Mr. Pomerene, of Ohio, and is now on the Senate calendar enrolled as S. 634. The latest and most reliable information available gives us every reason to believe that during this extra session of Congress it will be passed by the Senate and thus become a law.

The Bill itself is a very short and simple one, the principal provisions of which are contained in Sections 2 and 3:

"Sec. 2.—That nothing contained in the Act entitled "An act to protect trade and commerce against unlawful restraints and monopolies," approved July second, eighteen hundred and ninety, shall be construed as declaring to be illegal an association entered into for the sole purpose of engaging in export trade and actually engaged solely in such export trade, or an agreement made, or act done in the course of export trade by such association, provided such association, agreement, or act is not in restraint of trade within the United States, and is not in restraint of the export trade of any domestic competitor of such association:

"And provided further, That such association does not, either in the United States or elsewhere, enter into any agreement, understanding, or conspiracy, or do any act which artificially or intentionally and unduly enhances prices within the United States of commodities of the class exported by such association.

"Sec. 3.—That nothing contained in section seven of the Act entitled 'An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes," approved October fifteenth, nineteen hundred and fourteen, shall be construed to forbid the acquisition or ownership by any corporation of the whole or any part of the stock or other capital of any corporation organized solely for the purpose of engaging in export trade, and actually engaged solely in such export trade, unless the effect of such acquisition of ownership may be to restrain trade or substantially lessen competition within the United States."

It will be seen that the proposed law undertakes to do nothing except to clear up the doubt now existing and to remove definitely from the operation of the anti-trust laws co-operative export combinations. At the same time every precaution is taken in the latter section of the Bill to prevent any unfair advantage being claimed or enjoyed by such export combinations. The provisions of the old law against unfair methods of competition or against such practice as would enhance prices or substantially lessen competition within the United States remain effective, and the Federal

Trade Commission is definitely charged with the duty of supervising the operation of export combinations and to see that they are legitimately conducted.

We are unable to see how any valid objection could be raised to the passage of the Webb Bill, surrounded as it is by every safeguard and intended as it is to promote our foreign trade. Not only should our desire for commercial supremacy lead us to support such measure, but we should likewise be so induced by our national pride.

WHEN THE PROBERS MEET AGAIN.

The newsprint trade is marking time awaiting word from Commissioner Pringle as to the resumption of the newsprint probe. Up to Monday, July 23rd, Mr. Pringle said he had not set a date for a continuation of the hearing, he waiting to hear from Mr. Geoffrey Clarkson, as to the progress being made by the auditors, who are busy examining the books and records of the mills as to cost production prices. With only a few more days remaining of this month there is no likelihood that the set price will be discontinued August 1st, but instead will be further extended to September 1st. The extention really will not seriously affect the manufacturers from a monetary standpoint as in the event of the two and a half cent rate being found to be too low the manufacturers will be reimbursed for such losses as they have incurred since July 1st.

When the newsprint probe does resume it is expected that it will take the form of a stated case on the reports returned by Mr. Clarkson, and what the figures of the auditor for the newsprint manufacturers will show. If the figures found by the auditors for the Commission anywhere near correspond with the figures supplied in the returns to the Commissioner during the newsprint and sulphite probes, it strikes one that the manufacturers' counsel, Messrs. John F. Orde, K.C., George H. Henderson, K.C., Mr. Gordon MacDougal, K.C., Mr. George Montgomery, K.C., and Victor E. Mitchel, K.C., will have mighty good grounds for argument, and the Crown Counsel, Mr. H. A. Stewart, K.C., will have a busy time showing wherein the Canadian newsprint manufacturer to-day selling at fifty dollars per ton is making excess or unreasonable profits—not to mention a loss on operations and omitting his being entitled to a fair and reasonable return on invested capital. Mr. Stewart will likely have the statement put in by Mr. J. F. Sharp, auditor for the manufacturers regarding the "grouping system" of the Federal Trade report gone over by someone more conversant with auditing than himself before the inquiry resumes.

Aside from all the apparent "good" arguments that could be brought out by manufacturers counsel on the evidence so far submitted, another one has been added this week by the Government of New Brunswick having increased the lumber stumpage dues, thus showing that at least one provincial government intends to take to itself further returns from manufacturers on woods cutting operations.

Practically every newsprint and sulphite producer and groundwood user who appeared at either the newsprint inquiry or the sulphite probe was agreed on a two dollar charge for stumpage and figured it into the cost of production at this amount. From "publishers standpoint," which might be termed "fairmindedness," the local press seized on this very charge and headed an article "Stumpage was figured in as after-thought."

"With four dollar stumpage dues abroad in New Brunswick, one is forced to wonder if either the Crown Counsel or publishers will further think it advisable to say any more about the same once styled "arbitrary and assumed figure."

NEW HOUPT PAPER MILL BEGINS OPERATIONS.

The paper machine and super-calender room of the Houpt Paper Mills, Limited, at Camden East, Ont., began operations this week. The plant will turn out pure vegetable parchment, parchmentine, light weight bleached papers for waxing purposes, glazed and unglazed onion skins and bleached specialties when in full operation.

The firm expect that fully eighty per cent of their product will cover the lines of papers that have been and are imported into Canada. They are now installing a Norwood filter plant of a million and a quarter gallons capacity in 24 hours, and their rag preparing equipment will be ready by August 1st. The company are also building a warehouse of stone and mill construction, 34 x 160 feet, and an addition to their parchment mill a stone and mill construction building, 34 x 160 feet. The firm state that these structures will be completed within the next six weeks at which time they will be in a position to manufacture pure vegetable parchment, being the only producers of this grade of paper in the Dominion.

The company have now ready for operation their toilet paper department with a capacity of fifty thousand cases a year. A contract has been placed for a special fast running cylinder machine for the manufacture of tissues, etc., delivery of which is expected by September 1st.

The present equipment of the Houpt Paper Mills consists of two 1,000 pound Horne beaters; one 1,200 pound Horne washer; one rag washer; one rotary; one vomit tub; one large tub for cooking waste papers; a complete equipment for handling rags and waste papers; one eighty-inch Harper Fourdrinier machine; one Millspaugh suction roll; a variable speed line driven by an American ball engine and twenty-seven dryers equipped with Stickles regulator and evacuator.

In addition, there have been installed one heavy duty Cameron slitter back of the paper machine, and one stack of super-calenders, with widest sheet of 45 inches and a Hamblet Duplex cutter. The plant is equipped throughout with hydraulic elevators and the DeCew sizing process has been installed, making the mill one of the most complete specialty enterprises to be found anywhere.

The President of the company is L. F. Houpt, who is also President of the George Irish Paper Co., Buffalo. W. E. Houpt is Vice-President and Treasurer, and E. A. Crippen, of Toronto, Secretary and Sales Manager. The superintendent is C. G. Morrison, who is well known for his ability as a paper manufacturer and particularly qualified in the line of specialties. G. B. Thomson is resident manager, and C. M. Nealy, who was formerly associated with L. F. Houpt in the United States, and later with the Munising Paper Co., of Munising, Mich., is the auditor. The engineer in charge of the extensions and improvements is Dan J. Albertson, of Kalamazoo, Mich.

Testing the Color and Strength of Sulphite Pulp

The approach of a time when pulp will be bought on specifications adapted to the use to which it will be put adds interest to the method of testing practised by the American Writing Co., of Holyoke. When a standard method of testing is accepted and endoresd by both maker and user of pulp a big advance in the industry will have been made. Mr. Rieser's address follows, as reported in Paper, May 30, 1917. It was delivered at the spring meeting of the Technical Association at Neenah, Wis.

It should be stated that Mr. Rieser'scontribution was a commentary and criticism of the report presented by Robert B. Wolf, chairman of the Committee on Sulphite Pulp, at the fall meeting of the Technical Association held at Columbia University, September 28, 1916. The text of Mr. Wolf's report was published in Paper for November 8, 1916, and should be consulted in connection with the accompanying report.

Mr. Rieser's communication described an adaptation of the method used by Mr. Wolf, and he illustrated the points brought out by means of charts and curves. In the laboratory of the American Writing Paper Company satisfactory results had been obtained without the use of the 10,000 lb. cement block employed by Mr. Wolf. The apparatus used by Mr. Rieser consisted of one ball mill, with double jars, one 5x8 in. hand mould, one copper lined vat, a box for counting dirt, a set of racks for drying sheets, one old letter press and a motor-driven color disk machine with ten units.

Sampling the Pulp.

Mr. Rieser described his method of sampling the pulp as received from the manufacturer. The moisture test furnished by the pulp mill from which the pulp comes is accepted as satisfactory. He said:

The sample is received at the laboratory each morning, in a comparatively tight can. Each roll, or strip, as the case may be, is taken out, and a small portion selected from each lap of this strip, or roll. These are then placed upon the balance and the amount so manipulated that the required weight is obtained. At the same time two other samples are taken, one for color, and one for the dirt count. These are laid until it is convenient to make the rest of the test. The amount weighed out for the strength, however, is kneaded up in 1,500 Cc. of water until no lumps are left. The charge is then ready for the ball mill.

In the case of soda pulps, which we have always received dry, our moisture test portion comes in the form of disks, about 4 inches in diameter. The sample is taken from these at regular intervals throughout the can received from the mill. This same method is also followed in the manipulation of air-dry, or nearly air-dry, sulphite pulp.

The method of beating the pulp for testing as followed in the laboratory of the American Writing Paper Company differs in some particulars from that recommended by Mr. Wolf. Mr. Rieser described his method, as follows:

Method of Beating.

The charge of the originally weighed-out pulp, with 1,500 Cc. of water, is put into the ball mill, and the pail rinsed out with 500 Cc. of additional water, thus making two liters in all. The charge of 1,760 grams approximately, of pebbles is added, and the ball mill closed up. The beating in the ball mill is continued for fifty minutes, at a speed of 52 r.p.m. At the end of this time the ball mill is emptied out, and thoroughly rinsed with a small hose into a pail. This pail is then emptied into a strainer containing half-inch mesh wire. The pebbles are thoroughly rinsed off with a hose until all the pulp is in the copper-lined vat, upon which the strainer rests.

This vat is then filled with water up to a mark which indicates that twenty liters have been added. Four sheets are than made onthe hand mold; the pulp having first been thoroughly stirred up. These sheets are put upon a piece of felt, which in turn rests upon a sheet of heavy galvanized iron, and each sheet is also covered with another felt. This felt is simply what is known as a 'first press felt' from a paper machine. The whole is then put in an old-fashioned letter press and pressed for exactly two minutes. The sheets are then removed and put on frames covered with ordinary machine wire, and these are transferred to a rack which in turn is placed in a room which is kept at a temperature between 100 and 120° Fahr. They are here allowed to dry over night, when they are removed and smoothed out over a sharp edge of wood. They are then trimmed to 4x7 inches; this trimming obviates all irregularities due to the rough deckle edge. The sheets are then weighed together on an analatycal balance to the nearest hundredth gram. After this they are cut diagonally and fastened together so that one half of each sheet will be included in each part of four sheets. One division of four sheets is put aside for checking purposes, the other half is sent to the person who does the strength tests. The sheets are then separated and each one tested in four equally spaced places. The sum of the sixteen resulting tests is divided by the weight of the four sheets trimmed 4x7 inches. This figure constitutes the strength test. It will be noted that slight variations in the weight of the sheet due to inaccuracies of the moisture test are hereby eliminated, as the weight of the sheet is a factor in this result. We have noted, however, that large variations in the weight of the sheet are not obviated in this way, as apparently the strength of the sheet is not a straight line function of the weight.

Method of Making Color Tests.

Our original method for making color tests was to make three extra sheets in the same way as the sheets for strength tests were made. These were then dried along with the four sheets used for strength, cut into circles 3⅝" in diameter. These were then placed on the color machine, which is constructed in the same manner as that included in the recent report made by the Sulphite Pulp Committee, except that the disks are spaced 2½ in. instead of 5 in. This method, however, has been abandoned, and the samples are taken at the same time as the samples for dirt and strength. These are then kneaded until no lumps are left. These are then diluted with water and poured on a funnel containing a piece of machine wire and attached to a box to which suction can be applied. After the sheets have been drawn as dry as possible, they are removed and pressed and dried in the same manner as those made for strength. After they are dry, they are cut into disks of 3⅝'' in diameter. These are then placed on the color machine heretofore mentioned and

matched with the closest disk. If a disk lies between two standard color disks the value is interpolated. This method had to be adopted on account of certain parchmentizing effects which the ball mill produced with some pulp, notably the Berlin Mills, and to a very slight extent the Burgess. We will go into this more in detail later.

The formulas for these standard color disks are shown in the accompanying table:

Standard Number.	Cc. of Water.	Grams of Plaster of Paris.	Grams of Potassium Chromate.	Grams of Magnesia.
100	120	107	0	20
95	120	107	0.0245	20
91½	120	107	0.0122	20
90	120	214	0.1490	0
87½	120	214	0.3075	0
58	120	214	0.4660	0
80	120	214	0.6120	0
				Grams of Burnt Umber
75	120	214	0.770	0.1712
70	120	214	0.8560	0.2140
65	120	214	1.0680	

The last three in the table are made of such a shade that they are applicable for testing color of soda pulps. The disks used in all cases are made in the same manner that were recommended by your committee on pulp testing.

Estimation of Dirt.

Originally the dirt spots were counted in the same sheets as those used for strength. Two objections arose to this method. First, that the sample taken was not large enough to get a figure which was representative. Second, the dirt so obtained was not in the same condition as it was in the pulp as received, the large spots having been almost entirely disintegrated in the ball mill. Therefore, samples were taken as previously mentioned, at the same time as the samples taken for color and strength. These samples are then split into their ultimate sheets as made on teh wet machine on the pulp mill. They are then placed on a box having a glass top and containing four 60-watt tungsten lamps and a mirror in the bottom. The light from these lamps enables the operator to count the smallest speck in pulp which has been split up in this way. The dirt specks are then classified in three groups: No. 1, fine black particles: No. 2, lorge black particles and yellow shives; No. 3, large black pieces of wood. Enough of a sample is taken so that the dry weight will be between 8 and 12 grams. The sample is dried and weighed and the number of each kind of dirt is divided by the weight of the sample taken. These three figures are then reported as Dirt.

Criticisms.

Beating—In the beating of various kinds of pulp, we have found one or two kinds which will not disintegrate in the ball mill. I think that the pulps are first disintegrated and then are rolled up in knots in much the same manner as is sometimes obtained in certain stuff-chests in paper mills. Accompanying this peculiarity is another which is noticed in the making up of the sheet. These sheets are very nearly transparent. Of course, due to the knotting of the pulp, they are also very light. This difficulty has at tims been so pronounced that it was impossible to make a sheet from the pulp coming from the ball mill. Cars of pulp from which such samples have been taken were traced through the mill and it was found that the pulp was working no differently than usual so far as could be seen. We have never been able to explain this except that these grades of pulp generally did not work as well as pulps which were not liable to this phenomenon. It was then tried to parchmentize this pulp for parchmentized papers, but it was found to work no better for this purpose than pulps which did not show this peculiarity.

Strength Testing—Some work has been done on determining as to whether any instruments could be used other than Ashcroft tested. The difficulty with this instrument is that it is impossible to tell when it is not giving correct readings,and is very difficult to repair. We have recently had experience along these lines. There were two testers kept at our laboratory, one being a new one which was kept in reserve. This tester had been tested out frequently against the one in use during the winter, and nothing peculiar was noticed. This spring, however, the one in regular use was broken, and was immediately shipped away for repairs. About this time warm weather set in and humidity rose in consequence of open windows. This tester failed absolutely at any humidity above 30 per cent. When we finally got back our old tester in a state of repair, we set about to find out at what humidity the old tester would give erroneous readings or not break the sheet at all, as was the case with the substituting machine. During this time we obtained humidity tests for four varieties of pulp, namely, Burgess, Berlin Mills, Mt. Tom, and New York and Penn. soda pulp. These plots are shown. Herewith is a table showing the different tests at the varying humidity.

Strength Tests vs. Relative Humidity.

King.	Old Tester.	Mullen Tester.	Relative. Humidity.
Burgess	78.1	None	33
"	80.1	"	42
"	80.5	228.5	51
"	73.9	255.1	65
"	69.0	196.2	79
Cascade	62.8	None	33
"	64.0	"	43
"	62.7	179.7	51
"	61.0	174.5	65
"	57.9	145.0	79
Mt. Tom	69.0	None	33
" "	71.0	"	43
" "	70.5	197.2	51
" "	65.3	174.4	65
" "	63.0	175.4	79
N. Y. & P.	49.7	None	33
" "	47.2	"	43
" "	46.3	144.2	51
" "	43.7	137.1	65
" "	38.3	134.7	79

The Mullen tester used in this work was one specially made with a ½-in. aperture. It was found, however, that the machine was too delicate and that the test could very easily be varied twenty or forty pounds at the operator's will. It can be seen, however, that the tests made on the old tester varied differently with different pulps, for instance, soda pulp was almost a straight line function with the humidity, while the sulphite pulps have the same general shaped curve but the variation is not the same. Consequently, no single correction factor would be extremely accurate if applied to all pulps. More work should be done on this

subject, and more varieties of pulps tested before any definite conclusions can be drawn.

Color Testing — We are at the present time doing some work on photometers and their value in determining various tints and shades of color. The main difficulty arising from the use of the machine as specified by your committee is that not all grades of bleached sulphite are of the same tint as the standard color disks, for instance, some of them are yellow, and some on the red shade. This makes it extremely difficult to obtain satisfactory results. There are other minor faults such as that there is a hard and fast grading, and too much is left to the personal equation of the operator. We have obtained a few figures with the Howland photometer but are not yet in a position to make any suggestions along these lines.

Dirt—The dirt test as outlined by your committee can only be applied with great difficulty by the users of pulp, the trouble being that it is very difficult to obtain representative samples from the shipment. Also, it is not quite so accurate as is desired by mills making especially high grades of paper. We have, therefore, turned to the method as here outlined, and have found that in most cases, the mills will complain on account of dirt when our figures exceed certain limits.

As intimated by Mr. Rieser, the difference between his report and that of the previous report by Mr. Wolf, is that in the one case (Mr. Rieser's) the investigation was made from the point of view of the consumer of pulp, and in the other that of the manufacturer.

NEWSPRINT PAPER FOR BRAZIL

The Swedish consulate general in Brazil reports:

The prices on nearly all imported products have increased considerably. This is especially the case with paper and paper pulp, the prices of which have been increased to such an extent, that the newspapers repeatedly have proposed measures to be taken against this increase, and urged that something be done in order to utilize the resources of raw material for paper-making in South Brazil. It has also been suggested in the congress that paper imported directly to the news printers should be duty free and only a low tax. required by the chamber of statistics, should be paid. It is also likely, that this change in the import duty on paper will be adopted. This, however, may cause another inconvenience, as a large quantity of paper, which is received by importers without being consigned to any definite newspaper, will probably be subject to duty according to the higher tariff of 100 reis per keg. This is one of the wishes of the national mills, on which these have been working for several years. They point out that a large quantity of the paper, which is now imported in bales as printing paper, are used for other purposes, especially as wrapping paper. This may be true to some extent, but a great part of this paper goes to the smaller newspapers in the country, which on account of their low consumption can not import directly, but have to purchase their paper at second or third hand.—Svensk Pappers Tidning.

The first Swedish plant for manufacture of tanning substance extracted from waste sulphite liquor according to H. Landmarks process has been started up at Boksholm sulphite mill in Smaaland (Sweden).

The plant has the same construction as that which has already been built at Embretsfos (Norway) and is based upon a production of 2,500 tons extract of 20 degree Bé per year.—Papir-Journalen.

THE AMERICAN EMBARGO.

The embargo (issued July 9, by President Wilson), it will be seen, applies to exports from the United States to Canada. Exporters in the United States desiring to consign goods to Canadian customers will apply for license therefor to the Bureau of Foreign and Domestic Commerce, Division of Export Licenses, 1435 K. street, Washington, or to any of the branches of the Bureau at New York, Chicago, St. Louis, New Orleans, San Francisco and Seattle.

In case exporters desire, they may telegraph their applications direct to the Bureau of Foreign and Domestic Commerce, Division of Export Licenses, 1435 K. street, Washington, D.C.

Arrangements are made by which these applications will be attended to with as little delay as possible, and as one of the primary objects of the embargo on exports is to enable the United States to control their direction so as to make it as difficult as possible for exports from the United States to reach enemy countries, it is not expected that the formality of issuing licenses will interfere in any way with the regular exchanges between the United States and Canada. Parties in Canada importing from United States firms or business men may find it useful to correspond with the firms in the United States from whom they are purchasing and remind them of the necessity of prompt application for license to export. Once that is granted the traffic will proceed as usual without confusion or delay at the border.

As regards coal, a permanent license has been issued and all railways and shippers have been so informed.—Trade and Commerce Bulletin.

With regard to wood pulp, in Sweden, Svartvik produces at Svartvik Sulphite Wood Pulp Mill 22,000, and at Torpshammar and Sorfors Mechanical Pulp Mills 18,000 wet and 1,000 tons dry.

This great wood pulp, paper-making, saw mills, iron and steel rolling mills, engineering works, wood spirit distilling works, and mining concern, has increased its net profits of the previous year from 4,608,953 krs. to 12,490,034 krs. for the year just closed. Indeed, the net profits for 1916 have been nearly trebled, or, in other words, more than exceeds the total capital of the company, the profit made on wood pulp and paper for the year being given as 4,052,000 krs.

The company is also constructing a wood spirit distillation plant, to produce 1,000 tons of wood spirit per year, and a large plant for the manufacture of sulphite-coal for supplying fuel at the rate of 8,000 tons per year supplementary to its ordinary fuel supply.

Upwards of 2,000 daily, weekly and other papers in Germany have stopped publication through the war. Many paper mills are closed down for the want of coal, and others through scarcity of paper-making material. Those that are more fortunately placed are making plenty of money.

Norwegian wood pulp ships have suffered badly from the German pirates. It really seems incredible that neutrals like Norway, Denmark, Sweden, Holland and Spain, who have done so much for Germany, should tamely submit to being starved and their mercantile marine destroyed, to say anything of the injury to their industries by the fiendish acts of a nation which inconsistently repeats its vows of undying friendship; and all this they wish us to believe they endure because of their fear of Germany.

Safety and the Human Equation

By S. F. SHATTUCK
Treasurer of the Kimberly-Clark Company, Neenah, Wis.

This address delivered before the Technical Association of the Pulp and Paper Industry at the Annual Spring Meeting in Neenah, Wis., was received with hearty approval. It is typical of the cordial and sympathetic attitude of the far-sighted papermaker.

* * *

To ask an unscientific man to appear before the Technical Association of the Pulp and Paper Industry is indeed a paradox. What your programme committee had in mind in so doing was presumably, to offer an antidote for the solid food of the other part of the programme. I have no new theories to offer—only a little old-fashioned gospel. I believe in plan, in system, and in scientific management, but the few remarks which I will make to-night will deal with something less tangible, which must be in and through any plan or method of dealing with men in order that such plan or method may bring satisfactory results.

I have been told of efficiency engineers who carry efficiency methods into their homes until efficiency becomes the aim and end of family life and the normal warmth of affection and family fellowship is crowded out. Now, I believe in system and method in the home, but unless that system permits of the free play of natural comradeship, family life becomes a cold and barren proposition.

Inanimate materials may be dealt with without love and without feeling, but with human beings it is not so. It is well to have an orderly household, but I am quite convinced that what makes or breaks most family life is the observance or neglect of the many little courtesies and attentions which it is so easy to tread under foot in the pressure of modern life. In this connection, I like to think of the secretary of one of the larger corporations of this country, who, when offered the presidency by his board of directors, refused the honor. Upon being pressed for his reason, he gave this: "I have a boy who will need me during the next five years more than at any other time during his life, and the acceptance of this position will make this fellowship with my boy impossible." The old question is still pressing and poignant—"What profiteth a man, though he gain the whole world and lose his own soul?" Or, to paraphrase it, 'What profiteth a man though he gain the whole world and lose his own boy?"

It was not so long ago, as the business of his company expanded, that the feeling prevailed that the day of personal relationship between management and men had gone, and henceforth men must be dealt with through a superintendent only, and mean little more to the management than numbers on the clock. After some months of this absent treatment, a machine-tender at one of our mills was given a personal compliment by one of the officers of the company, and how well do I remember the reflection of heart-hunger for such personal touch which was evident in his response. Method is important, but that which magnifies method and minimizes the spirit, that which stimulates the mind and paralyzes the heart will eventually turn to ashes where human beings are concerned.

In discussing this point last week with an experienced industrial service worker, she told me that the lack of simple explanation was responsible for fully 75 per cent of the troubles she had been called upon to solve in the past twelve years. I asked her to write a paragraph on this phase of the subject, which she agreed to do. What immediately follows, therefore, is the thought of Miss Nesta C. Erwards, whom some of you may desire to meet at our Kimberly plant to-morrow:

"One of the evils in the industrial world to-day is lack of explanation. This evil should be laid at the door of both employer and employee. Most of the trouble I have had to adjust has arisen through a lack of understanding. When things were explained, it was surprising how promptly the atmosphere of discontent and unrest was cleared in many, many cases.

"True, the policies, changes and plans of a firm must be worked up and worked out by a few, but after policies have been formed and passed on, a reasonable amount of explanation should be given to superintendent and foreman.

"Many a time I have gone through a department and noted a change in procedure. The men and girls seemed restless and objected to change. When the foreman was asked why the change was made, he had replied in a half-hurt, half sarcastic way, 'I don't know—none of my business, I suppose.' I have seen foremen go to John "Go over to Pete for today," Why or what for was never mentioned and John gets the feeling that he is 'pushed around.' Why not explain to John that work is more pressing in Pete's department and that he is going to be there but a short time, or that his department is running out of work and rather than fire John he will give him a chance to work for Pete.

"An employment department that always had trouble in getting boys to stick in a certain department finally decided whenever a boy was placed in that department it would be explained to the boy that he could only get so far in that department, but if he made good and was there for more than six months he would have a chance to get into another department as soon as an opening came. This started the boy in with a better feeling, and when he saw evidence of the fact that boys had been promoted, he worked on with a better spirit.

"One day a boy started to quit a job because he was transferred, and said, 'I was not hired for that work.' The boy and I talked for a while and finally I succeeded in showing him that he was learning a new job and being paid for it. We let him go because of discipline, but later I met the lad and he said, 'I have learned my lesson.'

"Time and again I have gone up to the department after an employee had come to me with a tale of woe, and I invariably would find that a normal amount of explanation on the part of both foreman and employee would have prevented a lot of trouble.

"If the firm does not take pains to explain fully to those who are responsible for production, how can we expect the foreman to explain and train his help?

You let a foreman feel he has been pushed aside and ignored and you produce a spirit of rancor which finds its way down to the end of the line of employees sooner or later.

"A large Milwaukee factory had twenty-eight forewomen and assistants. They were not really much more than straw bosses. They could not get along with the help. They were willing, but did not know what was expected of them. The firm started a forewoman's club. Once a month the girls met from 6 to 8 o'clock p.m., and, in exchange for the time given, a supper was served in the private dining room of a hotel. Some topics of common interest were introduced for discussion and the girls soon began to suggest topics. Among these none was more popular than 'Cost of Production.'"

In our endeavor to bring back into our organization a sense of mutual interest and common fellowship, there have come into being during the past eight years a clubhouse, a Mutual Benefit Association, safety organization, a visiting nurse, children's gardens, the company dentist, a savings and profit sharing plan, and a monthly periodical.

The clubhouse at our Niagara plant is managed by a board of directors elected from the membership of the club, the company paying the salary of the superintendent and furnishing light and water, while the club raises its own budget, pays for its own heat and the salary of three other employees, and, in lieu of rental, makes all necessary repairs and alterations to building and equipment. At present the organization has a surplus of upwards of $3,000.

The safety organization is slowly deepening a sense of responsibility and emphasizing the fact that a man cannot be safe unto himself, but that he is his brother's keeper. We have just entered upon a twelve months' contests, the scoring to be done on large safety clocks in evidence at the entrance of each mill, and the prize to the winning mill to be a suit of overalls for each man and an apron for each girl. It was only a few days after the start of this contest that a man at one of the mills was laid off on account of some obscure injury. One member of the safety committee made two calls within forty-eight hours upon that man, and failing to connect promptly with the company doctor, engaged a doctor on his own initiative to back up his conviction that the case was not due to a mill accident.

I would be remiss in my duty if I should pass this subject without dropping a word of tribute to the service of the National Safety Council. It is easy enough to start a safety campaign, but not so easy to maintain it. The National Safety Council, with its excellent bulletins, does much to keep up the interest. The Paper and Pulp Section of the Council now includes 148 members and should the companies represented by any of you gentlemen be outside the fold, I want, as chairman of the Paper and Pulp Section, to invite you to come on in.

The governing committee of our benefit association is composed of nine men elected from the membership and seven from the directorate of the company, the majority control thus being in the hands of the members. Two clauses in these regulations, are particularly fruitful of better mutual relations—namely, the one under which a member may get half of his annual dental bill paid, and the other which provides for 90 per cent. of his hospital and doctor's fees in case of operation, or serious illness. To benefit under the latter clause, the member must obtain the consent of either the medical examiner or the secretary; and, as many members prefer to come to the secretary, it affords the opportunity for many a personal interview.

The elected committeemen of the benefit association are directors in fact, as well as in name. A carbon copy of every disability notice, every remittance and letter, goes to the respective committeemen. The disability notices are passed on from him to a Sick and Visiting Committee, which works under his direction. These sick and visiting committeemen are privileged to make their calls in company time, provided it is not convenient for them to do so after hours. Recently an attorney approached us, soliciting the handling of all of our compensation matters. We told him that our co-operation system of doing this business had a lawyer beat forty ways. We believe in keeping the door open to any man in case he wishes to come direct to an officer of the company with any grievance or question.

The importance of direct approach to men when they are disabled came out very pointedly this spring in the case of a man at our Niagara plant who suffered from a sprained ankle. The man was under the care of our company doctor at that point for about a week, then suddenly left for his home, about 100 miles distant, without the knowledge or consent of the doctor. In so doing he forfeited his rights under the Mutual Benefit Association plan and laid himself liable to the payment of his own doctor's bill under the Compensation law. He took the first steps toward a hearing before the Industrial Commission, but we met him in a spirit of consideration and understanding which he, apparently, was not expecting, and the matter was satisfactorily adjusted.

We paid him nothing more than he had coming, but, because of the manner of approach, we received this letter from him, indicating that a prospective enemy had been changed into a friend:

"I wish to acknowledge receipt of your letter and check. In reply, I wish to thank you, and through you, the Kimberly-Clark Company, for the kind, prompt, courteous and fair way you have adjusted my claim. I wish it was within my power to let every employee of your company know how your company met me more than half-way."

Someone has said if you increase a man's income, he will promptly forget you, but if you can help him to realize upon the best within himself, he will follow you forever. This is wonderfully true, and is being realized in a certain sense through the work of the company dentist.

In the May issue of Co-operation, our house organ, there is the personal testimony of a man who was rescued from a general breakdown by the service of our Neenah dentist, and there is no question in his mind or ours that many days have been added to his life as a result. Such service does much to cement a feeling of mutuality. Some may call it gratitude, but we hope not—gratitude is dangerous. Unless our service work is productive of independence, mutual interest, and true loyalty, it is not of permanent value.

Thus far nothing has been said of employment problems. In this field we have only gone far enough to see the bigness of their scope and possibilities. No skillful operator would think of throwing away material or by-products which might be worked up for a profit, but how many men there are going out from

us day after day, who, if treated with just the proper tact and understanding, and who, if drawn out by just the right incentive, could be developed into greater usefulness to their employers as well as to themselves.

I have in mind a young man who was recently discharged from one of our mills without any effort on the part of his foreman to correct the fault of which he was accused. I knew him personally and after he had obtained a job in a neighboring city, he wrote me expressing regret at having apparently proved a disappointment. He further expressed regret at having to leave the company with which he had hoped to remain. I asked him to take a day off to come down and talk the matter over. I proposed that he let me try him again at another mill. He has been at work steadily since then and the foreman under whom he is now working told me the other day that he is doing fine and what he likes best about him is his willingness to learn. It will greatly surprise me if this young man does not develop into a thoroughly loyal and dependable employee, whereas if the record as shown on the employment card at the mill where he was first employed were to be the criterion, he would be numbered among those who should not be rehired.

In connection with these problems, I like to think of the apostle Peter, who, at the time of his Lord's extremity, denied him not once, but thrice. How many of us, knowing this of him, would still have had the insight to discern the rock? I like to think, too, of the infinite tact when, in their first subsequent meeting, the situation being too delicate for words, the Master looked at Peter and by that look melted him into unswerving loyalty.

A week ago Sunday, in a neighboring city, I heard a business man of no mean reputation tell of a factory which increased its production nearly 25 per cent following a Billy Sunday campaign, without the expenditure of a dollar for added equipment or machinery. He told the story as one of several illustrations of the fact that righteousness in business pays. How true it is that after all the theories of human efficiency have had their inning, we come back to the Golden Rule and the simplicity of teachings of the Man of Nazareth.

Much so called "welfare work" has been done for public effect, many schemes have been introduced which are mere baits for loyalty, and too often, schemes have been grafted upon an organization which make for dependence rather than self-reliance on the part of the worker. All such efforts are seed sown on stony soil. The intuitive perception of the self-respecting man quickly detects the hidden motive and unless the purpose be sincere, there can be no healthy growth of that co-operative spirit, which, as Mr. Williams, of the Brooklyn Rapid Transit Company, says, is the great profitable asset of a corporation.

In conclusion, permit me to quote from a recent bulletin issued by Roger W. Babson, which, to me, epitomizes the idea we are striving to express:

"During the next forty years the great developments will be along human lines. Of all powers, the human brain is the least developed. Of all forces, faith in God and one's fellows is the most potent.

"It is with these thoughts in mind that the friends of co-operation are so enthusiastic over their work. Profit-sharing is of only temporary value. The ordinary things for which labor and capital fight are superficial. The important thing is the spirit that governs both the stockholders and the employees.

"The fundamental question is this, Are we treating our business as simply a mine to take ore out of as long as the ore lasts and then to be discarded, or are we treating our business as we would treat a garden, to the cultivated and developed until the highest state of production is reached?

"This means, stockholders, are you looking at your employees as members of your family, with the success of the family as the aim of all or are you treating your employees simply as raw material to grind through the mill? This means, employees, are you looking at the stockholders as co-partners whose success is absolutely wrapped up in yours, or as men entirely apart from you, who are trying to get something away from you for their own profit?

"In the one case capital and labor are treated as raw materials; in the other as great undeveloped possibilities. Which of these questions applies in your particular case depends upon how far the spirit of co-operation pervades you all.

"It is because co-operation stirs the soul, awakens the mind, and develops the imagination of both stockholder and employee that I believe in it as the solvent of our troubles."

"GREENHORNS" CANNOT OPERATE MACHINES SAFELY.

The enforcement of the incoming Conscription Bill as it stands at present, will prove another hard blow for the pulp and paper industry, inasmuch as it will rob many of the paper mills of its best and youngest workmen unless some classification is made that provides for paper making being an "essential work for the prosecution of the war."

The taking of men under conscription will have a far reaching effect to the paper trade that will extend beyond the mill, and which will tend to lessen the annual cut of pulpwood. It will also likely to some extent reach the railroads and affect transportation of both pulpwood and paper. Railway workers stand more chance of exemption under the present bill than the papermakers do, as transportation must be maintained to provide for the flow of munitions. Judging from the apparent fatherly care that the Government has taken of the newspapers so far to ensure their supply, it is not improbable that some measure will be introduced to prevent the paper mills from being drained too heavily of their experienced labor.

Questioned as to what effect the enforcement of conscription would have on the lumber industry, Mr. Jackson Booth said, "We will have to close our mill." "You cannot take any kind of a man and put him to work in a sawmill. With this kind of unskilled labor we would have more accidents in half an hour than would justify our operation." This view doubtless also applies to the paper making industry, as the mill employee has at present to operate the various machines, and not only guard against injury to himself, but intelligently operate the paper making machinery so that the employer may not suffer heavy loss through broken machines, repairs, etc.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Every Timber Owner Must Contribute Toward Forest Fire Prevention.—West Coast Lum. Vol. 32, (1917), No. 376, p. 26c. — New law in Washington, U.S.A., gives owners option of joining private agency or providing protection acceptable to state officials. Failure to comply with law will give state forester authority to protect timber at a cost not to exceed five cents per acre per annum.—H.N.L.

Physical Properties of Wood in Relation to Decay.—S. M. Zeller, Ann. Mo. Bot. Gard., Vol. 4, (1917), No. 2., pp. 93-164.—Results of a very extended series of experiments on decay caused by LENZITES SAEPIARIA; one of the most important destroyers of coniferous woods. Fully illustrated by curves and plates.

1. Resin is no safe index of the durabilty of yellow pine. Resin probably does reduce the moisture holding capacity of wood and thus restrict decay. 2. Specific gravity or density of wood does influence decay; the more dense the wood the more durable it is. 3. Sapwood decays easily irrespective of resin content, specific gravity, or rate of growth. 4. Specifications for durability of timbers should be based on specific gravity, number of rings per inch and percentage of sapwood. H.N.L.

Tree Growth and Climate in the United States.—K. W. Woodward, J. of For., Vol. 15, (1917), No. 5, pp. 521-31. — A summary of available information with regard to forest yields and the relation of these yields to climate and soil. — H.N.L.

Laws of Tall-Tree Growth Investigated Mathematically. — R. D. Bohannan, J. of For., Vol. 15, (1917), No. 5, pp. 532-551. — Relation of the height of trees to their radius and to the specific gravity and strength of the wood.—H.N.L.

The Problem of Making Volume Tables. — T. T. Munger, J. of For, Vol. 15, (1917), No. 5, pp. 574-86.—H.N.L.

Jenssen's Concrete Two-Tower System. — Paper Vol. 20, (1917), No. 17; p. 22-23. A specially designed heavy lead fan draws the SO_2 gases through the combustion chamber and cooler, driving them upward through the concrete towers which operate in series. This gives greater efficiency than the old system of sucking gases through the tower. The gas is forced into the first tower where it meets the finished acid trickling down to a grate arranged at from fifteen to twenty feet above the gas inlet. The gas and acid are brought intimately in contact by a wooden checkerwork in the space between the gas inlet and wooden grating. A stronger liquor is obtainable and it allows the SO_2 to be washed out before striking the limestone, thus preventing the deposition of calcium sulphate on the stone. The gases pass from Tower I to the bottom of tower II through tiled pipes connected with the top and bottom of the towers, unabsorbed gases like CO_2, nitrogen and oxygen pass off into the air through a pipe on the top of the towers. The feed wate rdistributed from the top of tower II forms a weak liquor which is pumped into tower I where the finished acid is produced. 92-95 per cent of the gases are absorbed in the first tower, the tower being operated under forced draught and a large volume of water. Cleaning tower I is unnecessary, tower II can be charged with limestone during the operation. The towers are reversed after three days; this occupies less than two minutes, tower II being used as I which allows I to be charged with limestone.—E.K.M.

The Swiss Method of Regulating the Cut in Practice.—C. H. Guise, J. of For., Vol. 15, (1917), No. 5, pp. 564-73. — Results of Swiss method of cutting timber on limited tracts in the U. S.—H.N.L.

Brazilian Woods: Their Utilization for the Manufacture of Wood Pulp. — J. of For., Vol. 15, (1917), No. 5, pp. 624-7. — Reprinted from the London Times. — A general description of the forests, together with the properties of woods best suited for pulp, and table giving the per cent of ash and cellulose of the woods. Estimated costs for producing pulp.—H.N.L.

Statistical Yearbook, Province of Quebec, Section C: Forests; Section D: Forest Industries. — Provincial Secretary's Department, Quebec. 1916. — Description of the forests of Quebec, the manufacture of woodpulp, and statistics.—H.N.L.

Review of the Work of the Commission of Conservation. — Sir C. Sifton, Eighth Annual Report of the Commission of Conservation. — Forest fire protection, B.C. forest resources and waterpower surveys.—H.N.L.

Limestone or Burnt Lime for Sulphite Mills.—By G. D Jenssen. Paper, Vol. 20; (1917), No. 14; p. 12, 18. Sulphite pulp is manufactured today in Norway, Sweden, Austria, Hungary, Germany and France today using limestone for the manufacture of bisulphite liquor allowing only 2 deg. C. for slacking lime, the total rise in temperature, taking for example a raw acid containing 2.4 percent free SO_2, 1.6 per cent combined SO_2 is, with the milk of lime system, 14 deg. C. With the limestone system the elevation due to the heat of reaction amounts to 6 deg. C. which means that the thermal heat produced using burnt lime is 8 deg. C. higher than when using limestone. In the tower system the acid is produced under pressure, whereas in the milk of lime it is produced under vacuum, therefore a big advantage lies in the use of the tower system as far as getting a stronger acid is concerned. The fresh SO_2 gases meet the raw acid trickling over wooden blocks in the tower system. It is difficult in the summer months to keep the acid up to standard strength in the milk of lime system without applying a higher percentage of combined SO_2. In the milk of lime system the lime must be weighed and diluted with water to the right consistency to obtain uniform results at all times. The formation of gypsum is also considerably higher in the case of the milk of lime system. The lime slackers, agitators, lime water pump, as well as acid pumps, and cylinders of the vacuum pump have to be renewed from time to time. The power consumption with the milk of lime system is from two to three times higher than with the tower system. The limestone is a constant factor and to get uniform results it is only necessary to attend to the feed water valve of the towers. Cleaning of the grates with the limestone tower system is not necessary as the operation is reversible and the towers are constantly washed during the making of the acid.—E.K.M.

PATENTS.

(Courtesy of Chemical Abstracts).

Wax emulsions for sizing paper. G. W. Miles. U. S., 1,224,948, May 8. Paraffin 75 and carnauba wax or other similar hard wax 25 parts are melted together and this mixture is then emulsified by heating with 10 per cent of soap and H_2O.

Automatic regulators for pulpwood grinders. Anon. Elec. Age **50**, 51-2(1917).—A new regulator of the Westinghouse type which brings about a reduction in the amount of splinters or shives and in the amount of short fibre carried away in the white water. The regulator can be installed without change in the existing system of piping. Full particulars as to construction and operation are given.—C. G. F.

Separating suspended pulp from sulfite waters. W. Hoskins. U. S., 1,226,333, May 15. Sulfite waste liquor carrying pulp in suspension is passed over a layer of limestone. The CO_2 generated by the action of the acid in the solution upon the $CaCO_3$ carries the pulp to the surface and it is skimmed off and recovered.

Purifying sulfite refuse. B. Gratz. Dan., 21,889, Feb. 5, 1917. Ashes of suitable fuel are added, e.g. from wood, peat, brown coal, or coal.

Treating sulfite refuse. E. L. Rinman. Swed., 42,108. Feb. 28, 1917. Refuse is treated with strong bases, boiled with excess of alkaline solutions, are $Ca(OH)_2$ under pressure, until constituents are converted into a preparation of lignin and $CaSO_3$, and an aqueous solution of organic Ca salts, which latter are subjected to dry distillation with bases such as $Ca(OH)_2$.

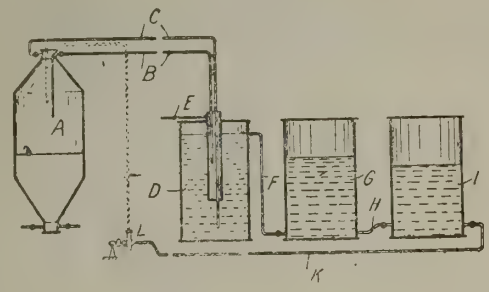
Cleaning fibrous materials. Naamlooze Vennootschap Neo-Cellulose Maatschappij. Brit., 105,055, May 2, 1916. In separating impurities from fibrous materials, particularly in forming clean pulp from waste paper, as described in 24,057, **1912** (C. A. **8**, 1346), the amount of the lighter immiscible liquid which takes up the impurities is reduced, so that after agitation and settling, instead of an upper liquid layer being formed, only a layer of stable foam containing the impurities is formed. In place of the immiscible liquid, a stable foam may be obtained by the use in conjunction o fa material to form a foam, such as potash-soda soap of oleic or stearic acid, and a material to render the soap-foam stable, such as vaseline, animal or vegetable fats or mixtures, such as margarine. The soap used in forming the foam may be used for the preliminary treatment of the fibrous materials in place of sulfides, sulfites, thiosulfates, or thionates.

Washing fibrous materials. Naamlooze Vennootschap Neo-Cellulose Maatschappij. Brit., 104,952, Apr. 25, 1916. In separating impurities from fibrous materials, applicable for preparing a clean pulp from waste paper, the paper is treated with soap, alkali, etc., to set free the coloring matters, etc., and the suspension of fibrous materials is passed into a sieve drum which contains fixed arms or other device to feed the fibrous material along. The central pipe carrying the arms for stirring may be provided with nozzles for the supply of soap solution or washing water. A washing device is arranged above the drum to wash fibres from the meshes. The first part of the drum is formed imperforate to give the fibres a progressive rolling motion and cause them to form coherent masses before the pass on to the sieve.

Composition for removing ink from and for bleaching paper stock. I. J. Wright, U.S., 1,226,735, May 22. A mixture for removing ink and for bleaching paper stock is formed of Na_2CO_3 4 lbs., $Ca(OCl)_2$ 12 oz., kerosene 1 gal., soap 6 lbs., and H_2O 1 bbl.

Coating Paper With Powdered Metals.—W. G. Koch. U. S., 1,223,399, Apr. 24. Paper is coated with varnish and then with powdered bronze or other metal after first applying a coating of gum to the paper to prevent penetration of the varnish.

Apparatus for recovery of cymol or other hydrocarbons produced during the manufacture of sulfite cellulose P. G. Enger. U. S., 1,223,158, Apr. 17. Pipes B and C extend from a sulfite cellulose digester A to a store-tank D connected with settling and separating tanks G and I to treat acid and other vapors from the top release of the digester. A pump L returns acid from the bottom of the tank I to the digester. The raw fluid which collects in the upper part of the se-



parating tank is removed by skimming or siphoning and immediately distilled after adding an excess of a base to eliminate free SO_2. Superheated steam is used for the distillation, yielding a distillate containing H_2O and raw cymol. The latter is separated from the H_2O and rectified. E is a pipe for introducing raw acid into the separating apparatus.

Preparing Paper for Use as a Body Material of Pencils. C. A. Smith. U. S., 1,222,152, Apr. 10. A sheet of wood fiber paper is treated with dilute H_2SO_4 to render it more easily cut when wrapped around a pencil core to form the body of a pencil and secured by adhesive.

Paper size.—J. A. DeSew, U. S., 1,223,480, Apr. 24. A cold size solution for use on paper, textiles or leather, is formed of NH_4 resinate, NH_4OH and H_2O containing no uncombined resin. The solution may be prepared for use by forcing a cold thick size, under pressure, into a body of H_2O or thinning liquid.

Paper-size.—J. A. DeCew, U.S., 1.223,480, Apr. 24. A. 1917. Resin glue is boiled with an amount of alkali insufficient completely to saponify, while tanning materials are added which partly render possible a finer sub-division of the free resin than theretofore effected, and partly cause a larger amount of free resin to be held in solution.

Sizing Paper.—R. Clavel. U. S., 1,211,288, Jan. 2. See Brit., 101,855, 1916 (C. A., 11,540.)

Disintegrating Sulfite Waste Liquor.—A. H. Kiaer & Co., Norw., 27,637, Feb. 5, 1917. Indirect heating is combined with direct heating, so that the temperature of the liquid is first brought, by indirect heating, to a point where disintegration products are precipitated, on highly heated surfaces, whereupon heating is interrupted by the introduction of steam.

Treating, Wood, Jute, Straw, etc.—C. F. Cross. Brit., 104,032, Feb. 23, 1916. Wood, jute, straw, and other lignified vegetable materials and articles made therefrom are treated with hydroxylamine to render them capable of resisting discoloration, or to restore their color when discolored. The materials may be bleached before treatment. A solution of hydroxylamine acetate, which may be obtained by mixing a solution of the sulfate with Na or Ca acetate, is preferably used. In treating paper, the hydroxylamine solution may be mixed with the sizing solution of gelatin or soluble starch. Cf. 20,827, **1899**.

UNITED STATES NOTES

Following the death recently of Superintendent Titus Parker, of the Neenah (Wis.) Paper Co., many applications for the vacancy have been received. It is probable that a selection for the superintendency will not be made until just the right man is found. The Neenah Paper Company has thoroughly up-to-date machinery and is run along strictly modern lines.

To encourage an extension of production of sisal and other hard fibres in the Philippine Islands the Bureau of Plant Industry of the United States Department of Agriculture has sent H. T. Edwards, a fibre-crop expert, to the Islands recently. He will co-operate with the Fibre-Crop Division of the Philippine Bureau of Agriculture in the work.

The present summer slump in newsprint consumption, restricted though it has been, has nevertheless sufficed to enable paper manufacturers to accumulate some stock and, better yet, to make sorely-needed repairs to machinery that in many instances had been driven at high speed for a considerable length of time with no opportunity last year for the usual annual overhaul.

The Great Northern Paper Company faces a shortage of labor in its mills. For many reasons due to war changes and present economic conditions the Great Northern Company has found it a hard problem to get sufficient men to run its mills. Recently the company has had to advertise for men in the principal newspapers of all the large eastern cities. The results have not been up to expectations and the shortage has not been materially relieved. The lack of men has seriously reduced the production at the mills. For some days the tonnage has been reduced by as much as fifty tons per day, which is directly attributable to the acute labor situation.

"There is going to be one very serious drawback in our work next winter, and that will be the matter of getting men for the camps," declared a well known pulp wood harvester while in Appleton, Wis., a couple of days ago. He says there already are signs of the greatest stringency in the lumber labor market in all history.

The London Savannah Naval Stores Company, of Savannah, Ga., will instal at Hammond, Ind. (twenty miles south of Chicago) a concentrating yard for the storage of rosin on a large scale. Rosin buyers located in the above district will be greatly benefited by practically having a "back door" supply of an article that heretofore had to come out of the South direct. The exact date of the opening of the yard can be expected within the next thirty days.

The St. Regis Paper Company at Deferiet, N.Y., which now produces about 150 tons of newsprint paper a day, will be devoted to the manufacture of specialties according to plans now being perfected by the company and the newsprint supply of the country will thereby be lessened to the extent of about 45,000 tons a year. Similar plans are being made by the International Paper Company and a number of other concerns in the country now making print paper.

"In ten years there won't be a mill in this part of the state manufacturing newsprint," said Floyd L. Carlisle, president of the St. Regis Paper Company in discussing the matter. This means that Canada will control the news supply for it is in Canada that the pulp wood supply is now located, the supply in the Adirondacks having been practically used up.

Mr. and Mrs. James A. Kimberly, of Redlands, Cal., the former a pioneer paper manufacturer of this section, were guests of honor at a reception at the Valley Inn about a week ago, given by their son, James Kimberly, of Neenah. It was a gathering of paper mill men of the Fox River valley. Mr. and Mrs. Kimberly have come from the West to spend a few weeks with relatives in Neenah. They expect some time in August to return to Redlands.

Referring to the co-operative mill in Michigan for publishers, a newsprint manager says: "With the possible exception of ministers and school teachers, newspaper publishers in small cities are the most irresponsible lot of folk in the world. I am one and know. I wouldn't want to spend my eternity in heaven if it were conducted by a co-operative organization of publishers.

The Tennessee Paper Company, of Chattanooga, Tenn., which was recently incorporated, has elected the following officers: John Stagmaier, president; A. M. Tomlinson, vice-president; John S. Fletcher, secretary; J. G. Kain, treasurer, and A. M. Shepard, general manager. The company plans to erect a $150,000 plant capable of producing 40 tons of paper daily. The plan will be electrically driven throughout.

WILL OF GEORGE H. PARKS.

Two trust funds, one of $15,000 and one of $10,000, are provided by the will of the late George H. Parks, prominent paper manufacturer, formerly of Glens Falls, for his two children, Harriet A. Parks and Grace M. Parks, in his will admitted to probate in Warren County Surrogate's Court. The widow is to receive the balance of the estate. The actual value of the estate is not given in the petition, aside from the statement that the personal property is in excess of $25,000. The two trusts are to be invested and the incomes used for the education and support of the children during their lifetime.

NEW WOOD COOKING EXPERIMENTS.

At the Forest Products Laboratory, Madison, Wis., an attempt was made to cook the following woods bby the sulphite process: longleaf pine, western larch, and western yellow pine. Five cooks were made on longleaf pine under varying conditions of pressure and strength of liquor, but in each case the chips came out of the digester only partly cooked and very dark. Western larch produced a pulp that was short and dark, and the screenings were rather high. Western yellow pine gave a fairly light colored pulp, but certain portions of the chips remained uncooked, causing the screenings to be high.

PULP AND PAPER NEWS

At a meeting of the Ontario Pulp and Paper Makers' Safety Executive held in Toronto last week, the work for the past six months was reviewed and good progress reported. The future of the campaign in the interest of protecting workmen in pulp and paper plants is, with their hearty co-operation, regarded as very bright. A. P. Costigane, of Toronto, safety engineer, leaves this week for Fort Frances and Dryden, where he will pay his first official visit to the mills in that section of the province.

George S. Harrison. who for the past twelve years has been manager of the Vancouver office of the Merchants Bank of Canada, and was recently appointed comptroller of the Whelan Pulp and Paper Mills, who operate plants at Quatsino, Mill Creek and Swanson Bay, has entered upon his new duties. His headquarters will be in Vancouver.

The Re[illegible]w Printing Co., of Peterborough, Ont., has purchased the plant of the Morning Times of that city which some time ago went into liquidation. The latter was owned and operated for many years by the late W. H. Robertson and was the only morning daily between Toronto and Montreal. Peterborough, which had three daily papers, now has only two, the Review and the Examiner.

The book and job printers of Toronto, Montreal and Ottawa are now all on the same basis so far as the scale of pay is concerned. They have all signed agreements at the rate of twenty-four dollars a week for a two years period ending June 30th, 1919.

A. G. Hinzke, general superintendent of the Port Arthur Pulp and Paper Co., Port Arthur, Ont., who has been seriously ill, is convalescent and will be able to resume his duties in a few weeks.

The fires around Fernie, B.C., mentioned in this Magazine last week have taken a toll of eight lives. Many persons had miraculous escapes. The long dry spell has rendered fire hazards very serious in the Pacific Province.

Price Brothers are making extensive changes in their mills at Kenogami and Jonquiere. G. B. Mitchell of Montreal has about 75 men on the job yet. At Kenogami the concrete additions to the machine room and digester house are built and the roof is now going on the addition to the grinder room. At Jonguiere new concrete grinder and beater rooms are being built to replace the present wooden structure. The work is planned so that production will not be interrupted. The new steel and concrete penstock will soon be complete.

The Weekly World of Chatham, N.B. says: "The new timber regulations, which double the stumpage to provide for the big increase this Government has made in the provincial expenditure, authorize the Government to require lessees of Crown land to cut at least 10,000 superficial feet for each square mile held by them. Every lease holder who has land that he does not require to lumber on to keep his mills supplied is authorized by law to set it aside as a preserve for the future. The Legislature made that law, and it cannot be repealed by Order-in-Council."

Bernard Simonson, son of Mr. Edw. Simonson of the Dominion Pulp Co., who graduated recently at Buffalo, N.Y., as an electric engineer and has been visiting his parents, returned to Buffalo on Thursday.

Samuel Berger, assistant superintendent of the soda mill of the Canada Paper Co. and a graduate of the University of Maine, was drawn in the first draft. He has enlisted n the medical corps and will go to Fort Slocum, N.Y.

The National Paper Goods Co., Hamilton, Ont, have let the contract for a $10,000 addition to their factory. Tenders have also been called by the Canadian Shovel and Tool Company for a $35,000 addition to its factory on Imperial Street, and the Canadian Drawn Steel Company plans the erection of a $5,000 office building.

OTTAWA NOTES.

The coal situation locally has shown a little improvement during the past week a few scattered shipments of single cars having arrived. The Corporation of Ottawa has let a contract with a local coal firm for its supply at $9.25 per ton for 1,000 tons for delivery before September 15th. The J. R. Booth plant has lately been able to secure a few scattered shipments of coal, but have not secured anywhere near enough to put away a storage or reserve supply for the winter. The Booth plant, however, is better situated than a great number of other Canadian paper making mills, inasmuch as it has much refuse from its lumber mills which it converts into fuel thereby conserving supplies of coal and saving money.

The E. B. Eddy Company is managing to get along on its sparing shipments of coal and though nothing definite can be stated as to what amount of coal this company has ordered, it is presumed that it will be sufficiently supplied before the winter sets in to warrant midwinter and spring operations.

The first paper manufacturing firm to undertake the manufacture of paper cartons in Ottawa is the Continental Bag and Paper Company, which has recently installed a thoroughly modern nest of machines for creasing, cutting, and forming cartons. Actual manufacturing work on the new machines will be commenced shortly and there is every hope of success. If the carton business is as successful as expected the company will very likely undertake the manufacture or paper cans or containers, leaving this trade to the Continental Bag and Paper Company is beginning to show a considerable increase in volume over the past month.

The paper trade situation in Ottawa during the past week has shown little change over the preceding week. Prices in all lines continue firm with the principal demand being for newsprint.

The Ottawa Paper Box Company is experiencing a good season, according to the report of its manager. This company is having no difficulty in securing suitable stocks, and the demand for its product is good. During the last few weeks there has been nothing out of the ordinary routine to affect the business. Labor has been ample to meet demands and orders have kept up well, even during the midsummer lull. This company will not undertake the manufacture of cartons or paper can or containers, leaving this trade to the specialty field.

Exceptionally high water in the Ottawa River this year is greatly facilitating the transportation of the big pulpwood and lumber booms from the Upper Ottawa to the John R. Booth plant. The water at present is over four feet higher than it was at a corresponding period last year. This increased head of power at the Chaudiere falls will greatly help the Booth plant in manufacturing its own power for newsprint production, and will mean a saving of coal, and warrant a late season's operation of the mills. With the steamers G. B. Green and the Alex. Fraser in operation thousands of pulpwood logs are coming down every week in booms.

Work on the new sulphite plant being built at the Chaudiere by John R. Booth, is proceeding steadily. When completed this new mill will increase the output of sulphite by about fifty-five tons daily.

Of late the newspaper propaganda attempting to show huge profits being made on sales of sulphite and paper, which was based on figures given at the newsprint inquiry, has shown a falling off. Wonder if it is the lull before the storm? A general election is coming sometime in October and Mr. Pringle's judgment is coming sometime ———, we don't even know the month. The Country's decision, and the Commissioner's decision, are the two most vital judgments that the publishers want to know. Previous information is first day of May in each year, and also the quantity the newspapers like the paper manufacturers and public, have to wait their turn.

It is not likely that the report of Commissioner Pringle, K.C., could be ready and presented to Parliament at its present session. There is already talk in Ottawa that the session will conclude in about three weeks.

Lawyers and auditors appear to be the principal money making individuals in the newsprint probe.

TWO THIRDS OF CANADA FOR TIMBER CROPS.

One of the surprises to those visiting Europe in peace times is the method by which all lands are carefully examined and put to work according to their capacity. No farmer is permitted to locate on non-agricultural soil, and at the same time, good farming soil cannot be retained under such a crop as timber. Canada has only made a beginning at applying such a policy of business efficiency in the use of the nation's natural resources. Thousands of farmers are today tied to farms that produce only a few dollars an acre, their efforts and ambitions practically wasted in a time when man-power is at a high premium. Taking the whole of Canada's area, more than two thirds will never produce field crops, and the bulk of the two-thirds will prove profitable under only one crop,

TWO STRIKES AT MERRITTON.

The advancing cost of living appears to have stru a number of Merritton workmen. On Monday la about 25 carpenters employed by contractor J. Tremble on the work at the new sulphite plant of th Lincoln Paper Co. demanded an increase to sixty cen an hour. All but one lone man went out.

The same day the machine-tenders and beater-m employed in the Lybster mill walked out because th company refused to cede to their demands for an i crease in pay and eight hours shift, they being abo the only company in this district who have not y established the three tours. An offer of the eig hour shift with the same rate per hour, was given th men, which they refused. As a consequence the m chines of the mills are closed down.

A TECHNICAL SCHOOL FOR THOROLD.

There was a large and representative meeting of th citizens and High School Board of the Town of Tho old held in the Public Library on Thrusday night th 7th inst., to discuss the question of embodying Manu training in the present curriculum or the advisabili of starting a Technical School. After a lengthy deba the following committee were appointed to meet th High School Board and formally bring before tha body the necessity of technical training. Mr. E. Foley of the Foley-Reiger Pulp Co., Messrs. Daveri and Cushing of the Provincial Paper Mills Co.

This Committee met the High School Board o Tuesday night the 24th inst. A very thorough an interesting discussion took place and it was th opinion of all present that the present High Scho building was not adapted to manual or technic training and that a Technical school building wa needed. With that end in view a committee of thre of the High School Board together with the abov Citizen's Committee were appointed to go into th matter of building, methods and equipment and necessary to visit other institutions of this charact to get all particulars so that the project may be place before the Town Council and Citizens.

It is practically the unanimous opinion of the bus ness and industrial men of the town that there shoul be further development in the education of the Hig School students along the lines refered to above, tha they may be more thoroughly trained to take thei places among the more highly skilled help needed i the ever increasing industries of the town and vicinity

FREIGHT TRAIN RAN AWAY WITH PULP.

QUEBEC, July 24.

A freight train of nine cars, loaded with pulp ra away from the yards at Jonquieres took the main lin and rode down to Chicoutimi West at a rate of 45 mile an hour, crashing into a locomotive and van of th Quebec & Lake St. John Railway, from which th crew barely had time to jump. Each car of pulp ca ried a 45-ton load, and many a team and passer-by ha narrow escapes from death while the train was makin its flying run.

The many friends of Mr. Smeaton White, Presiden of the Montreal Gazette, are congratulating him on hi recent appointment to the Canadian Senate. Mr White is widely known in the publishing and busines world for his integrity and ability.

IS J. R. BOOTH AN INDIVIDUAL OR A COMPANY?

Special Contribution by EVERETT ANDREW.

John R. Booth, lumber king and multi-millionaire ulp and paper manufacturer, will likely be the most ffected individual in the Canadian Paper Trade by eason of the new Income Tax legislation introduced n the House of Commons last week by Sir Thomas Vhite, Minister of Finance. Mr. Booth does not yet now how the new Income legislation is going to affect im. He cannot even approximate what it will mean o him, but the amount will be very considerable and here is just a little doubt as to whether he will pay our per cent. income tax as corporations or companies ill do, or be subject to the graded individual ratio hich will hit him much harder.

Five million dollars or one quarter of the total mount of revenue expected to be derived under Inome taxation is expected to be raised in Ottawa, which ccording to population has more millionaires and resients with large salaries than any other city in the ominion. Even in Ottawa Mr. J. R. Booth is being ated as one of the largest contributors to the new evenue, and among paper manufacturers will likely ead the list with his Income tax contributions. Outide of the paper game Mr. Booth will bear one of the eaviest war tax burdens in the country.

This newest tax will fall heavily on the newsprint nd paper-making industry coming as it does on top f practically six months operation of the two and ne-half cent per pound tariff for newsprint, and the ther burden dating back to 1914—The Business War rofits Tax. Under the Income tax every pulp making, aper producing, sulphite supplier, and paper making achinery manufacturer will be brought into the tariff old to help bear up the country's war burden, that is they make a profit of over $3,000 per annum. If they id not they would not be doing business to-day. The usiness War Profits Tax will take many tens of housands of dollars out of the pockets of Canadian aper manufacturers and dealers. It is to cease at the nd of this year, but the Income tax is to remain in peration for the duration of the war at least, and at he earliest may possibly be removed two years afterards. By it every branch (manufacturer, retailer, obber and consumer) of the paper trade will be afected.

There is one thing about the new Income tax that rovides a ray of hope inasmuch as it provides an alowance for those already subject to the Business War Profits tax. There are to be rebates in certain nstances. For instance, corporations and joint stock ompanies will be required to pay a four per cent tax pon net income exceeding $3,000 per annum, but the ct will provide that the shareholders of such compans (the paper manufacturing companies are among hem—E. B. Eddy, Brompton, Laurentide, Price Bros., bitibi Power and Paper Co., Donnaconna, Riordon ulp and Paper, and others) taxed under the act shall e given a rebate of the amount of such company taxes epresenting their interest in the concern. In other ords, while the tax on corporations and joint stock ompanies will not act as an extra tax upon those aleady paying on incomes it will affect shareholders xempted from the new taxes by reason of small inomes as well as persons living outside the country nd drawing dividends from companies in Canada. The other exemptions apply to persons being heavily taxed already through the Business War Profits tax and other special taxation measures. The new measure will remit income taxation to such tax payers up to the amount as they are paying under the Business War Profits tax and the special war revenue act. Further, persons contributing to the Red Cross and other war funds approved by the government will be entitled to deduct the sums so given from their incomes as reported for taxation. Sir Thomas felt that persons called upon to pay the Business War Profits tax should not have to pay the Income tax unless it chanced to be heavier than the Business War Profit tax.

What the Income tax will mean to the John R. Booth interests will amount to nobody seems to know at the date of writing, but it is sure to be very large as the Booth operations cover a wide area and a tremendous turnover takes place every year. This year, however, the lumber export markets being closed to England will considerably lessen the firms business.

Under the Income tax on one item alone J. R. Booth will pay $260. This item is his salary, around $10,000 per year, which he receives for taking an interest in his plant, as told at the newsprint inquiry.

Readers of this article may wonder why the John R. Booth plant was signed out from among the other paper mills. It is because John R. Booth does business as an individual and not as a company and thus he will very likely come under the regular graded civilian tax on incomes and not under the four per cent tax on incomes of corporations and companies whose shareholders are further assessed a super tax amounting to about two per cent.

Mr. Jackson Booth when interrogated by the representative of the Pulp and Paper Magazine, as to what the new income legislation would mean to his father, or what amount the Booth interests would pay by it to the Crown, said, "We have not had time to estimate it yet."

"But the tax will fall heavily upon you?" asked the representative.

"Yes, it will, but we have not yet had time even to approximate it," said Mr. Booth.

WHO CAN FURNISH THIS ADDRESS.

Information regarding the present address of Walter Howard Blackwell, who is supposed to be connected with the paper trade somewhere in the United States or Canada is greatly desired by his wife, Mrs. Fanny Blackwell, 28 Ash Tree Road, Stirchley, Birmingham, England.

SWEDISH PULP EMBARGO LIFTED.

Sweden has lifted the embargo on pulp shipments to England, according to cable advices from Sweden to local dealers.

Shipments can now be made on the conditions and regulations governing consignments to the United States. Each sale must be licensed, which method while removing the embargo still exercises a strict control over the quantity of pulp allowed to go out.

The embargo on chemical pulp to England was placed in the early months of 1916. At the time of the embargo declaration the trade was exceedingly puzzled over the effect to be produced with regard to the quantity of pulp that would arrive in the United States.

The Markets

CANADIAN MARKETS.

TORONTO, July 30.

There is a seasonal lull in all branches of the trade, which is felt all the more owing to the fact the business last year at this time was running at its highest. The changed conditions would seem to indicate that trade is quieter than it really is. One thing is certain and that is the cost of paper is all the time increasing owing to contributing causes which have been reviewed time and again in these columns. The assurance that all prices are going to advance is just the reason why conditions are holding as securely as they are. Otherwise there would be a slump in quotations.

The cat is now out of the bag so far as the daily newspapers of Toronto are concerned. The columns of garbled reports, which were published in the different issues with regard to the high price of paper and alleged enormous profits which paper makers were piling up, were inserted for a purpose, and that was to prepare the public for an advance in price for their diurnal reading matter. All the papers in Toronto, both morning and evening, now sell for two cents on the streets. The Toronto World, which was established thirty-seven years ago and was the first one cent morning paper in the Dominion, will be two cents henceforth. The newspapers announce that the increase in price has been rendered necessary by war conditions which have boosted the figure for newsprint, labor, ink, metal and other supplies.

Commenting upon the action of the publishers in raising their rates, a leading paper manufacturer stated this week that it looked as if the papers did not expect a continuance of the two and a half cent rate for newsprint. He felt confident that the Commission would fix the figures at three cents at mill which would only give the plants a fair profit considering the large amount of capital invested and the fact that until the last year or two paper making had been rather a lean business in Canada. Then again, it would eliminate on the part of the publishers the mad desire to put out so many editions per day when there was really nothing new in them and persons would not buy so many copies to throw away. For intsance, he had been buying the morning and the noon edition of Toronto papers, while the five o'clock issue was delivered at his house, and then he frequently got a sporting extra at two. He would cut down the number of copies to two a day, morning and evening, unless there was something special in the air. Circulation would have a firmer, sounder and more substantial basis, which was what the advertiser required, and there would not be such an unhealthy desire to pile up circulation ranging around the one hundred thousand mark and over, while readers, when the copies cost double to what they have would take more care of their papers and read them thoroughly.

Many superintendents, managing directors and executive heads of paper and pulp companies will, under the income tax bill just introduced in the House of Commons, have to pay certain levies which they have heretofore escaped, but they will do it readily. Th salaries for all responsible officers are large enoug to bring the recipients under the provision of the ne act. There is no complaint heard regarding the a sessment although some papermen think the tax migh be made a little heavier on those who are receivin incomes of twenty-five thousand and over.

Col. John A. Currie, who is the Conservative mem ber for North Simcoe, is now getting after the new papers, and will move in the House this week tha the existing statutes be amended, under which a newspapers will be required to make public the name of those who own or control their stock or direct thei policy. Col. Currie is suspicious of the controllin influences in some big newspapers of the Dominio and what he alleges to be a newspaper effort stampede Parliament in the formation of a coalitio government.

More pulp and paper companies are listing thei securities on the stock exchanges, there being nin in all at the present time. With two exceptions, ther has been little doing in the bidding line for the pas few weeks, and it is not expected there will be muc life in any of the group until it is seen what trend th market will take in th fall and what the decision o the newsprint commission is with regard to prices

Transportation difficulties are still unsatisfactor although much improved over what they were a fe months ago. There are yet vexatious delays in placin cars, and labor shortage is growing keener all th time as many young men are not waiting for conscrip tion to join the colors.

Book and writing mills are fairly well employe in spite of the efforts of American concerns to com into Canada and get business at a cut figure in orde to keep their plants going. There are no longer an uncertain dates with respect to deliveries and pape makers are content to take matters as they come dur ing the present hot spell without worrying too muc about the future, confident that there will be a re awakening this fall which will keep machines operat ing to the utmost.

Chemical pulp is still weak, and the foreign importa tions are averaging only about five thousand tons pe week at American ports whereas, before the submarin campaign, they often ran ten and twelve times thi amount and more. Lord Robert Cecil, the English Minister of Blockade, stated in an interview the othe day the vital importance of the Allies in stopping th trade in wood pulp which the Scandinavian countrie are now carrying on with Germany. He thought that the United States was justified in threatening these countries with a stoppage of food supplies unless the practice ceased. It would certainly be a great mis take to neglect any step which might put a halt to a traffic which means, every ton of it, the loss of allied lives.

There is not much activity in ground wood at the present time. The amount used is increasing all the while owing to the added production of newsprint,

and the use of lower grade paper is increasing weekly because of the advance in prices. Mechanical pulp is also employed instead of chemical wherever it will answer the purpose. Water conditions have on the whole continued good owing to the amount of rain, but if the present dry spell continues there may be a different tale to tell.

Although the Canadian Press Association brought up the matter some time ago of expelling the members of the trade and class section, and consideration of the question was deferred until a later date, it is thought now that the move will not be successful on the part of the big dailies. The support of the rural weeklies is being won by the trade and class periodicals due to the campaign which a number of them are conducting in urging the merchants to advertise in the local press as the best means of promoting the general trade of the country. It is pointed out also that the policy of using the local journal is the best means of counteracting the competition of department and mail order houses who are able through their huge announcements in the city papers to create the trade to which they are entitled. The trade journals are proving their sympathy and hearty interest in the country weekly by driving home the fact that the most successful men in business to-day are those who have built up their trade through local advertising.

The shortage of pulpwood is more than ever directing attention to forestry associations and their work in conserving the timber of the various provinces. A western authority, speaking of the pulpwood areas of Canada and particularly those of British Columbia, stated this week to the Pulp and Paper Magazine, that pulp woods have become as valuable as mines during the war, and after the war they are likely to increase in value. New sources of pulp production are one of the surest and best revenue makers. There is tremendous business latent in local timbers if science can be brought to bear on their development. Already what has hitherto been regarded as waste products have been turned to profitable use by science.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $9.00
xBook papers (carload), No. 2	$9.35
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.50
xBook papers (ton lots), No. 1	$9.75 to $10.25
Ledgers	15c up
Sulphite bonds	13c up
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $11.50
Glazed kraft	$9.00 to $11.50

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CHEMICAL AND ACID PLANTS AND REFINERIES.

A long experience in filling the requirements of industrial plants for TANKS, LARGE AND SMALL, has won us wide-spread recognition as specialists in this line.

WE HAVE THE MATERIAL,—the organization and the facilities to meet YOUR requirements. Send us your specifications for prompt shipments.

The TORONTO IRON WORKS, LIMITED

TORONTO, ONTARIO—Head Office: ROYAL BANK BLDG. Works: FOOT CHERRY ST.

Tissues, bleached	$1.60 to $2.30
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 21c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 23c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 15c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$75.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Sulphite, easy bleaching	$85.00 to $90.00
Sulphite, news grade	$70.00 to $80.00
Sulphite (bleached)	$125.00 to $130.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

White blanks have dropped in price and the market is quiet in this line. Because of the newsprint investigation certain kinds of stock are affected. All grades of paper goods except soft white shavings are in active requisition and it is expected prices will go up shortly.

No. 1 hard white shavings	$4.25
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.75
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.25
Folded news	65c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	55c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.50
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.50
Flock and satinettes	$1.75
Tailor rags	$1.65

NEW YORK MARKETS.

NEW YORK, N.Y., July 28.

While sulphite pulp has not yet taken on any more interest, so far as buying was concerned, it was the center of all attention during the week when word was received that Sweden had lifted its export embargo on pulp going to England. According to the advices, the Swedish government will still continue to use the license plan that is in vogue with stock that is going to this country. To local importers, the matter appears somewhat complex. They do not question that England will be glad to renew buying her sulphite from Sweden as before. The Swedish mills, on the other hand, will be glad to take up old relations for they will be able to carry on trade with the English under much more favorable conditions than is possible with this country.

Of course, should England find that it does not pay to continue buying from Canada—everyone knows this is being done at heavy expense, with the present rate of ocean freight and other such items—then, of course, it will mean that Canada will have to unload considerable stock in this country—and that a bearish market must follow. As a matter of fact, the latter view has been taken by several large paper maunfacturers with the result that they have decided to "sit tight" and wait for the "drop." Just now, the chemical pulp market is easy in tone. Domestic manufacturers are offering out pulp at surprisingly low figures and this will naturally have an effect of causing buyers to hold out of the market as much as possible in the belief that quotations will go still lower. Foreign pulp is being almost ignored for the moment, except as a matter of conversation, and importers find themselves in a rather embarrassing position.

The market for ground wood rules steady although demand from the paper mills is restricted. It is said that news print manufacturers are well engaged and are consuming considerable quantities of pulp, yet generally find their contracts sufficient to provide for their present needs and only in scattered instances are they forced to seek pulp in open market. Quotations during the week averaged, for the East, $41 to $45 per ton at the pulp plant; for the West, $43 to $47 per ton, also at the pulp plant.

The movement in roofing rags has improved beyond that reported in our last issue. It is understood that the felt mills are busy, but it is thought that they are not only buying for present needs, but are also storing ahead, figuring on a higher market in the fall. The various army camps—and there are a large number of them—together with other construction plans of the nation that are already in progress—all will need considerable roofing paper. Especially in the lower grades, the situation in roofing is being strongly reflected, for prices are firm and seem to be tending upward. Dealers say that they are having increasing difficulty in buying mixed satinets at below 1.80 cents and that most packers are asking 1.85c and higher. On the other hand, the mills are paying as high as 2¼c for these stocks, delivered to the plants. No. 1 roofing stock is commanding 2½ cents to the mill. Predictions of 3 cent roofing are numerous and it would not be surprising to see them fulfilled. Thirds and blues are up to 3 cents and over, while No. 1 old whites are at about 4½ cents and over. Black stockings are in good demand and are going at 2½ cents delivered at the mill. Street soiled and No. 2 whites are available in better quantities, but are being firmly held by the

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WOOD PULP

of every description

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dealers are about 3 cents and 3¾ cents respectively.

In new cotton rags, buying is moderate. The finer grades of rag papers have not been very active and the fact is directly reflected in the market. However, manufacturers, while limiting their buying to rags for which they have immediate need, are placing a fair number of orders and most dealers are well engaged filling these. New light silesias are in fair demand, going at considerably over six cents. No. 1 white shirt cuttings are bringing over 9 cents, but are not reported as very active.

Practically in all baggings but mixed and scrap baggings there is an active demand. In these, the situation is reported as being somewhat quiet. Bright bagging is quoted at about 3¼ cents; sound bagging, at a little less; mixed bagging at 2⅞ cents the most. In scrap, the only real demand is for roofing bagging, which is eagerly sought and finds quotations tending upward. Sales to mills go at over 1.80 cents f.o.b. New York. Gunny is quoted at about 3¾ cents.

Old manila rope is fairly firm, with a little interest being shown. Manufacturers, as a rule are restricting their buying to supplies immediately needed. Dealers themselves are paying 6¼ cents for No. 1 domestic manila rope, while mills are quoted at 6⅛ and 6¾ cents—and it is not at all unlikely that the '7 cent mark will soon be recorded.

Fair activity is in progress in waste papers. The lower grades, which have been featuring all along, have received added incentive during the past week, by the fact that several board mills came into the market for large quantities of stocks and are reported to have bought fairly liberally. Considerable reference is heard to the new reclaiming processes that have recently been announced and it is the general belief that these will aid matters materially. Just now it is said that the demand for mixed papers is so urgent that many packers are not grading stock in usual order and are throwing many kinds of paper which are ordinarily packed separately into mixed papers. This is true particularly of low grade manilas and krafts and light book stock. Mixed stock is quoted at 65 to 70 cents per hundred pounds. Folded news, over-issue news, box board cuttings and similar grades are being freely sought by both dealers and consumers and the new business reported developing is of substantial volume. Folded news is going at 90 cents per hundred pounds and over; over-issues are quoted at about 1¼ cents; manilas about over 1 cent; krafts up to about 3⅛ cents. Judging from the reports that are being received, it appears evident that the paper industry has not responded to the call for better business as quickly as have the other large industries of the country. However, it is argued that even normally, it takes a little time before the tide has worked its way to the paper makers. One no longer hears of the eager seeking for news print. As a matter of fact, the market was given a severe set back by stories in circulation that large quantities of news are being offered at big concessions. This seemed to be an "eye-opener" and it was realized that the majority of large publishers had been overstocking themselves through the fear that they might get left. To say that the draft question is having some effect on conditions in general is not taking any chance.

The announcement yesterday that the publishers' association had succeeded in making arrangements for getting large supplies from the Northcliffe mills, at prices considerably below those being asked by the other news print mills, has already reflected on the market—and is expected to have a more pointed effect before very long. Tissues have not shown any improvement, but continue weak, with very little interest by purchasers. Wrappings are selling, but at concessions and in quantities considerably less than is expected at this season of the yaer. In krafts, a number of the mills are working on old orders—and the same is true of manilas. Book paper is held fairly firm, with a limited interest being shown in the market. Operation has been resumed by the plant of the Champion Coated Paper Co., at Dayton, Ohio. Boards are working up stock for the fall, but are in fair demand at the present.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b., mill	$41.00 to $47.00
Foreign bleached sulphite, ex-dock, N.Y.	9¼c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	6c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b. pulp mill	3½c*
Kraft, pulp, f.o.b., pulp mill	5½c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6c*
Bleached soda pulp, f.o.b., pulp mill	5¼c*
Foreign unbleached soda pulp, ex-dock, N.Y.	5½c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6c*
Mitscherlich unbleached	5½c*
Bond papers, sulphite	10c*
Best grade writings	21c*
Regular superfine	18c*
Ledger papers	10c*
News contracts, f.o.b., mill	3c to 3¾c*
News, spot lots	3¾c*
News, side runs	4½c*
Book, super	7½c*
Book, coated	8¼c*
Books, machine finish	8¼c*
Tissues, good sulphite, bleached, per ream	$1.15*
Tissues ground wood, manila, per ream	$1.10*

(*)—And higher. Rowland W. Jolly.

NEW STUMPAGE LAW IN NEW BRUNSWICK.

An act to falicitate the collection of stumpage, which is of special interest to the lumber, pulp wood and paper industries, has been agreed to in the New Brunswick Parliament. The new measure provides:

All licensees of crown lands in the Province shall annually, not later than the first day of October in each year, furnish the Minister of Lands and Mines with a sworn statement of all operations upon timber berths held by such licensees, stating the quantity, number, and superficial contents and kinds of logs, lumber, or other timber cut or made, upon each of such timber berths during the 12 months previous to the first day of Bay in each year, and also the quantity cut or made upon granted lands during the same 12 months.

All licensees exporting pulp wood, rossed or otherwise, shall furnish a sworn statement to the Minister of Lands and Mines at the close of the shipping season showing the number of cords shipped.

Should any licensee fail to comply with the provisions of this act, or should the statement furnished be found to be willfully inaccurate, the licensee furnishing the same shall forfeit all right to his license, and the berths and limits shall become vacant.

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Province of Quebec

DEPARTMENT OF LANDS AND FORESTS

QUEBEC, June 2nd, 1917.

Public notice is hereby given that in conformity with the law, on the 21st August next, at 11 o'clock a.m., at the office the Minister of Lands and Forests Department, Quebec, there will be offered permits to cut timber on lands belonging to the Crown in the Upper-Ottawa, Lower-Ottawa, St. Maurice, Lake St. John, East and West, Saguenay, Rimouski West and Bonaventure West agencies comprising several large blocks in the Abitibi Upper-Ottawa and head waters of the St. Maurice and Gatineau and on River Chamouchouan.

Permits will be adjudged to the highest bidder.

The price of adjudication is payable in 3 equal instalments.

The permit to cut will be subject to the ordinary conditions of the Law and Regulation and the grantees of any of the aforesaid territory must, within a delay of three years, manufacture, in the province of Quebec, with the timber cut in said territory, either pulp or paper in the proportion of ten tons per day, or sawn lumber in the proportion of ten thousand feet board measure per day, per hundred square miles.

Further informations may be had by applying to the Department of Lands and Forests.

ELZ.-MIVILLE DECHENE,
Deputy-Minister, Department of Lands and Forests.

Interlake Tissue Mills
Limited

MANUFACTURERS OF A FULL LINE OF WHITE AND COLORED M. G. TISSUES, BROWN AND COLORED LIGHT WEIGHT M. G. KRAFT, WHITE AND COLORED DRUG WRAP, ALL GRADES OF FRUIT WRAPS, DRY PROOF PAPER. A FULL LINE OF TOILET PAPER, PAPER TOWELS, PAPER NAPKINS, DECORATIVE CREPE ROLLS, LUNCH AND OUTING SETS.

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THE SWEDISH SULPHITE SITUATION.

According to confidential advices received by the Pulp and Paper Magazine, we are able to state that Sweden is now granting licenses for good sized quantities of pulp to be shipped to England. This lifting of the embargo is likely to affect the prices of Swedish pulp in the United States, but not until the supply of ocean-going tonnage shows an increase.

That the chemical pulp situation in Scandinavia is not in an overly satisfactory condition is shown from the fact that on June 1st the curtailment in the production of sulphite mills was 40% and in sulphate mills 30%. On that date six mills were completely shut down owing to lack of sulphur, coal and other raw materials. As coal in Norway is selling at $90.00 per ton, and the wood necessary to produce a ton of sulphite costs them $57.00 a ton, it is not greatly to be wondered at the shutting down of mills. Advices further states that by September a number of Swedish mills will be forced to shut down owing to the same difficulty in securing coal and other supplies.

The fact that the United States have put sulphur on the prohibitive list, will also make it necessary that any sulphur shipped from United States to Scandinavia, be under license from United States Government, and this may cause some diminution in the quantity of sulphur which will reach Scandinavia from United States sources.

The question arises, whether Germany who uses a large quantity of Swedish sulphite, will allow cargoes of chemical pulp to pass from Sweden to England, as it has to pass through the Baltic, Germany is largely in control of navigation in those waters.

Under the above circumstances, the difficulty to manufacture chemical pulp in Norway and Sweden are becoming greater and difficulties of shipping it are becoming greater, and very little is expected after the first of the year, to cross the ocean.

THE PURIFICATION OF PAPER FIBRES.

The purification of vegetable fibres (cotton, flax) to be used in the study of absorption in general and that of coloring matters in particular, may be effected as follows, according to an abstract of an article in a Russian journal published in the "Journal of the Society of Chemical Industry" for March 15:

The fibre is boiled with water. which is changed each day after boiling for eight hours, this procedure being followed until 250 Cc. of the filtered water after use leaves no residue on evaporation. The extracted fibre is left for three days covered with alcohol, which is then replaced by a fresh quantity. After another period of three days, the fibre is removed from the alcohol and washed with ether, alcohol, and water successively. The complete displacement of the alcohol by water is effected only very slowly at the ordinary temperatures, since even after eight months a fresh quantity of water was found to contain alcohol after being in contact with the fibre fora few days. The process takes place far more rapidly when the fibre is boiled with successive quantities of water.

In normal times about 80 per cent. of the printing paper used in Holland was made in that country, and 20 per cent. imported from Germany. Now the import from Germany is only 5 to 10 per cent. of the total consumption, the rest being made locally. There is no present scarcity of paper in Holland, and no prospect of any unless the shortage of fuel reduces the production of it.

RESIDUAL LIQUORS FROM SULPHITE CELLULOSE.

A contribution by Herr Z. Kertész on "Volatil Organic Compounds, especially Essential Oils, for ed in the Manufacture of Sulphite Cellulose," whi recently appeared in "Chemiker Zeitung," showe that the residual liquors from the manufacture of s phite cellulose were prepared for fermentation by th following methods; 10 litres were mixed (1) wit powdered chalk and aerated for 1 hour; (2) with grms. of ammonium sulphate and aerated for 2 hours (3) with 1 grm. of manganese sulphate and aerate for 3 hours. After neutralisation (in the case of 2 an 3) the liquids were filtered, mixed with 19 grms. o yeast, and fermented for 5 days, with frequent shak ing at 20 degrees to 25 degrees C. On the sixth da they were made slightly alkaline with lime and distil ed. The following yields of alcohol (including methy alcohol, acetone, and acetaldehyde) per litre were ob tained:—(1) 8.94 cc.; (2) 8.74 cc.; (3) 8.68 cc. B distilling the first sample in a column still without pre vious neutralisation, the resulting "sulphite spirit" contained formic and acetic acids and acetates, whils sulphur (reduced from the sulphur dioxide by acetal dehyde and formic acid) separated in the still. Th presence of these reducing substances may also caus a loss of sulphur dioxide during the boiling of the cel lulose. On diluting sulphite spirit with water a emulsion is formed.

With sulphuric acid it gives a red colouration (cy mene, terpenes), and it shows the furfural reaction with aniline and acetic anhydride. From 1,000 litre of liquid (obtained from the treatment of 100 kilos. o air-dried cellulose) the following constituents wer separated:— Acetaldehyde, 0.06 kilo.; acetone, 0.2 kilo.; methyl alcohol, 0.53 kilo.; and alcohol, 6.32 kilos The cymene and the terpenes are insoluble in water while the furfural dissolves in the proportion of 11 100 at 13 deg. C. This solubility of furfural account for the fact that the crude oil which collects on th surface of the liquid in the mixing reservoirs is fre from furfural, while the oil obtained in the manu facture of sulphite spirit contains it. A sesquiterpene $C_{15}H_{24}$, boiling at 250 deg. to 260 deg. C. and having sp. gr. of 0.925 at 21 deg. C., and diterpene, $C_{20}H_{32}$ boiling above 300 deg. C. and with sp. gr. 0.950 at 2 deg. C., were isolated.

PREVENTION OF BOILER SCALE.

The specification of the standard boiler compound issued to contractors by the United States Navy De partment stipulates for the provision of a compound composed of sodium carbonate, trisodium phosphate starch, and cutch. These materials are to be intimately united by thorough digestion, dried, and finely powdered, the product to be readily soluble in water and uniform in composition. The compound must show on analysis at least 76 per cent. of anhydrous so dium carbonate, 10 per cent. of trisodium phosphate 1 per cent. of starch, and sufficient cutch to yield 2 per cent. of tannic acid. The remainder to consist of water and only such impurities as are common to the ingredients. According to a paper by Mr. A. H. Bab cock, read before the American Society of Mechanical Engineers, the compound can be used for all boilers under any conditions of steaming without a material change in the formula, but the boilers must be treated individually. The cost is given as about one-half the cost of the ordinary boiler compounds.

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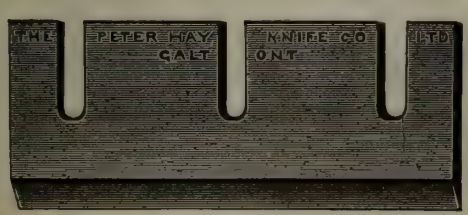
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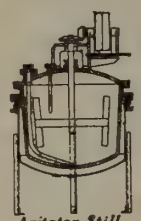
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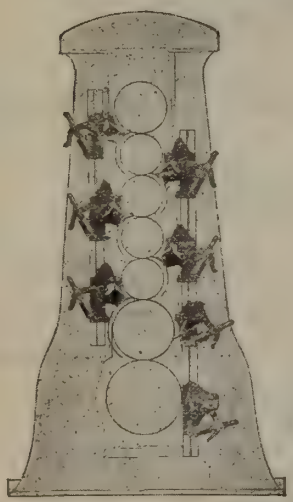

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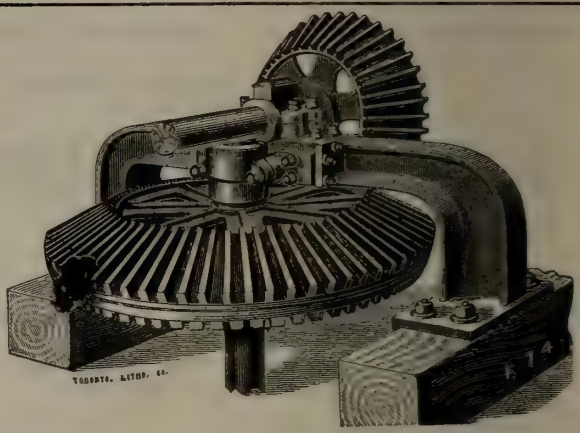
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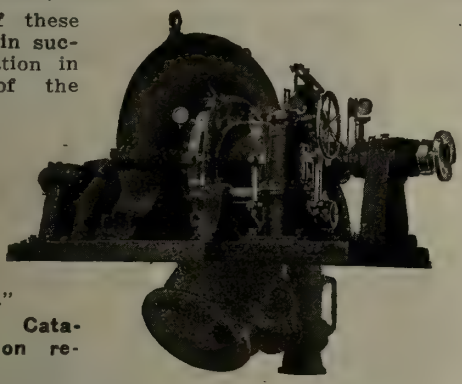
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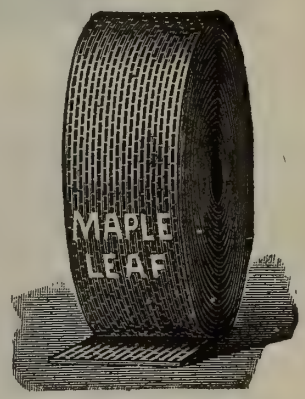
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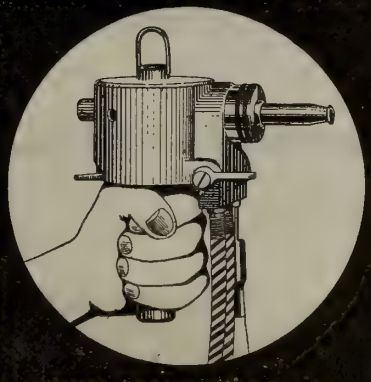
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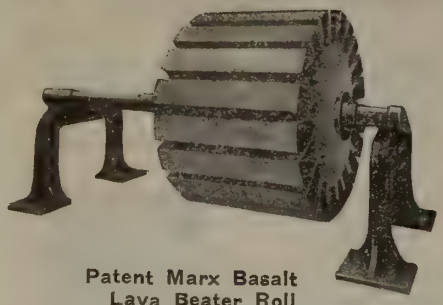
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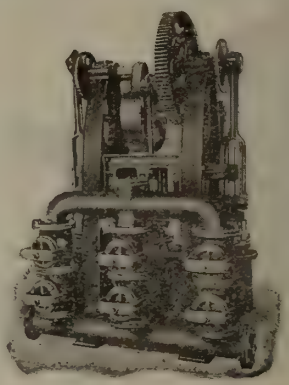
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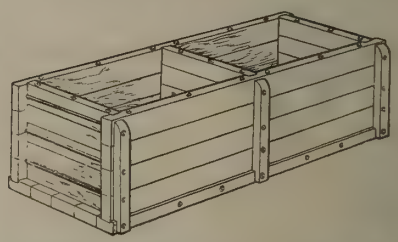
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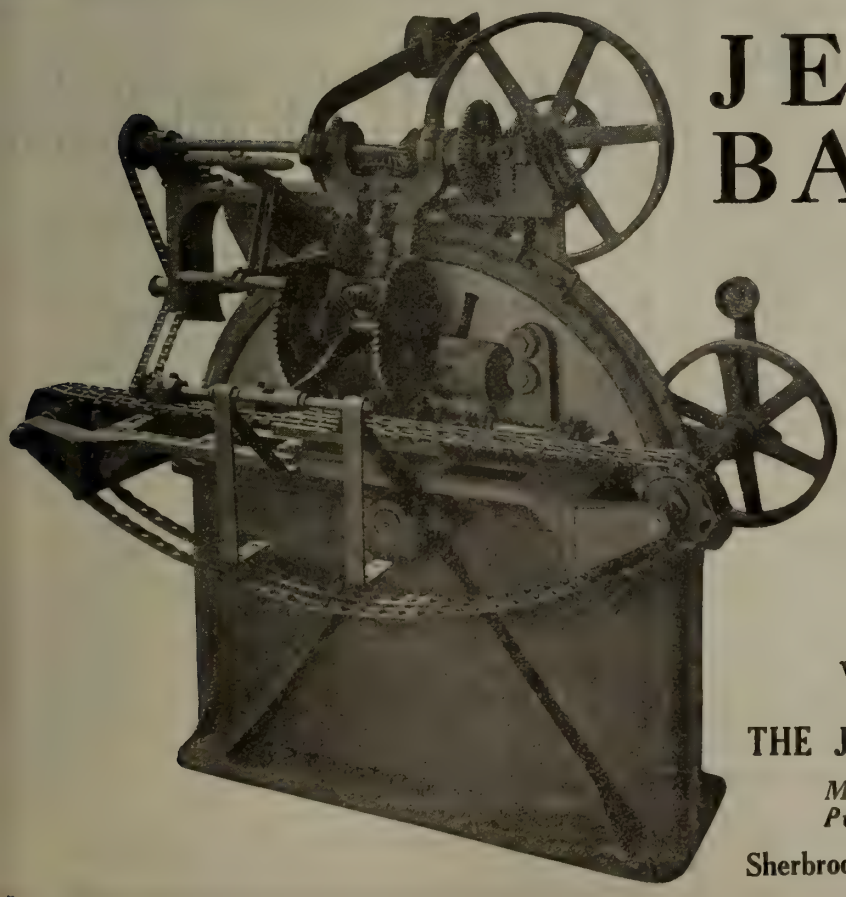
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EDITORIAL

RECONSTRUCTIVE THINKING.

Everybody dreads moving day. It is so hard to get settled. Yet one looks over the new house and in imagination sees where the piano will go and the sideboard will fit, there is a place for the bed and a corner for the bookcase. So the stove and the china, the rugs and the furniture are loaded on the van and away we go to place them where we planned.

If it is hard to move household things, it is often more difficult to transplant people, especially if they will not fit the ordinary niches. Three years ago Canada began sending her men and boys to France. In many cases they were square pegs and round holes, so they had to be whittled and sandpapered. They fitted the holes, though, and the world knows with what courage and efficiency they have played their part in the struggle for the permanent liberty of the race. These brave Canadians will be coming back, some who can fight no more have come back. Other Britons will doubtless find their way westward. What can we do to prepare for them?

A grateful and more or less sentimental public will not fail to do them honor. The glory of our army will live through the ages, but the army can not live on glory, nor parades, nor public praise and admiration. The primary needs of a man are food, shelter and occupation. Soldiers' pensions will take care of the first two needs, but careful planning is required for the last. Measuring, cutting and fitting will be necessary. We may have to whittle both the peg and the hole.

The pulp and paper industry is proud of the 1,500 men who have gone to the front. We are sad to think of those who will not come back. Their sacrifice should make us the more thoughtful and careful of those who return. Some of these, as the result of wounds or sickness will not be able to resume their old tasks. They present the more difficult phase of the problems. Somewhat easier, but puzzling, nevertheless, is the problem of re-establishing the men whose powers are unimpaired. We must leave out of consideration for the moment any thought of pensions and apply ourselves to finding the right positions for men who are familiar with some phase of the pulp and paper industry.

The men who enlisted from the companies in this business represent all branches of the industry, from the woods to the office. The first problem will be to place those who come back whole. The positions that some of these occupied have been filled. The positions of others have been outgrown by their experience at the front. Army discipline may make a foreman of an intelligent chopper. Men who have served in the forestry units should be continued in lumber operations. Their experience should be of benefit to our forests. There will be no dearth of openings in forestry work, from choppers to rangers.

In the mills the conditions are different. Some operations are being conducted shorthanded and this will leave room for placing some men. In other cases, a change may be made to three shfits and this will accommodate some. Many positions, however, have been filled, so that it would be difficult to put a man back in his old position. Failing this, the next best chance is to get a man a similar job in his old mill. Such opportunities are limited and organization is necessary to handle the situation successfully.

What is needed is a committee of pulp and paper makers to co-operate with the military officers in charge of the disbanding. This committee should have the name of every man enlisted from the industry, the mill he came from and his former position. The mill should state whether his former position is open to him, and if it is not, what chance he has in some other part of the mill. The committee should be advised by the military the probable date of each man's discharge and his physical condition, and whether he wishes to return to his old position or connection. All possible vacancies in each concern should be promptly reported to and filed by the committee, so that if a man did not fit in his old position, a new connection could be found with the least confusion and delay.

The disabled man presents a different proposition. He may be entirely unfitted for any paper mill position. Some incapacities still leave a man able to do certain kinds of work, such as a lame man as a clerk, timekeeper, laboratory assistant or with training, a bookkeeper or tester of material, perhaps a chemist. A one-armed man may be a foreman. If the adjustments of a man to a new position in the industry can be accompanied by an effort to train him for the position, both man and mill will greatly benefit thereby. Good work is being done in Montreal and other places in the re-education of soldiers. The advice of a paper committee in cases of men who are going into the industry should give them valuable direction in their

efforts to fit themselves for a place in the business once more.

Such a committee would be a connecting link between war and peace, between the military and the civil life. It would be a reception committee on behalf of the industry to welcome our friends back to the beater, digester, office or forest and make their return pleasant and easy.

P.S.—This repatriation of our soldiers is one of the biggest problems before the industry. A free discussion of our suggestion will be welcome.

PUBLISHERS TICKLING NORTHCLIFFE.

News again comes from New York that the output of the Harmsworth (Northcliffe) Mills at Grand Falls, Newfoundland, will really be available to American publishers. It is further stated that several cargoes have already arrived and that there is sufficient American and Norwegian shipping to bring the goods to market. The last we heard of this scheme was the announcement that it had fallen through for lack of ships. Commerce in the comparatively safe waters of the western Atlantic is no doubt attractive to merchantmen, but the recent statement that the United States Shipping Board will commandeer all American bottoms will be likely to upset the scheme once more.

If the Newfoundland paper and pulp should reach the American publishers, Canadian mills would be interested in the possible and probable effect on the market, since 89 per cent of Canadian production goes to the States. The rated daily production of the Harmsworth Mills is 205 tons of newsprint daily. Assuming this to consist of 150 tons of mechanical and 55 tons of sulphite pulp, there is an excess pulp production of 90 and 20 tons respectively. Albert E. Reed & Co., can make 240 tons of groundwood daily. At this rate, if it could all be transported to the States, the American market would get in a month, 5,125 tons of news, 8,250 tons of groundwood and 500 tons of sulphite pulp.

Considering first the matter of pulp, it is noted that in February Canada shipped the United States 13,176 tons of mechanical and 12,500 tons of chemical. The customs' figures do not distinguish the varieties. The effect of the sulphite will certainly be negligible. The opening of a 20 ton pulp mill would hardly arouse more than local interest. The groundwood proposition is a little more interesting. The market just now is a bit weak, but does not reflect certain factors that must have an important bearing on the future. First, water conditions have been unusually favorable in most pulp grinding districts, but will certainly be poorer for a few months now. High water has not only kept the power up, but has enabled drivers to bring down all the wood left on streams last winter where water transport is possible. Second, the pulpwood cut last winter was far below normal on the average. Grinders know that pulp will be scarce on this account, so are holding pulp rather than concede to a cut in price. Wise ones will continue to hold it in preference to making a future sacrifice for the questionable present advantage of a few sales. Under such conditions, the Newfoundland pulp could be given away without causing any serious disturbance. The publishers, who have engineered this import scheme are not directly concerned with the pulp business. There is only the possibility here that if newsprint mills get cheap pulp they will sell paper at a lower figure. Now, although pulp is the chief item of paper manufacture it is not the only one and a very considerable and sustained drop in pulp prices must occur before paper prices go down. Besides this, the Newfoundland relief can be no more than temporary at best. The mills in that colony can afford to accumulate considerable reserve stocks, especially of paper. Paper mills in the States that throw down present connections to chase this Will-o'-the-wisp may find themselves in the mire when peace dawns and this material again flows in normal channels to England.

The paper aspect of the deal seems to be more complex. It is stated that the paper received will be available first to small publishers without contracts. What an awful mess this will be! Any paper in stock at Grand Falls will, of course, be the size and weight for English presses. New stocks would, therefore, have to be made to order for an assortment of sizes that would discourage a specialty mill. There is no apparent reason why the Harmsworth machines cannot make any width desired, although some orders may necessitate running an uneconomical deckle. The machines are one each 124, 134 and 164 inches, and two are 156 inches wide. A number of 156 and 164 inch machines are running in American and Canadian mills.

Finally, we must remember that Lord Northcliffe is not operating the mills for fun. The investment in the Grand Falls plant is enormous and it has been run under some difficulties for the past year. While it is highly desirable to keep the mills running, a manager is not anxious to run at a loss or under conditions where he will just break even. It is doubtful if the biggest publisher in England will care to leave himself uncovered as to supplies of paper to the extent intimated in the contract terms mentioned by the American publishers. Furthermore, if tonnage is available for shipping this Newfoundland paper, why was it not employed in taking the product to England instead of shutting down the mills?

We are still skeptical. The bucket leaked before. It's the same old bucket.

THE BIGGEST EVENT IN SEPTEMBER.

Plan to attend the joint meeting of the Technical Section and Technical Association at Holyoke, September 27, 28 and 29.

Safety and Workmen's Compensation

On June 28 and 29 the first general gathering in the interest of safety in pulp and paper mills was held in St. Catharines and Niagara Falls, Ont., by the Ontario Pulp and Paper Makers' Safety Association. The papers presented contain so much of value, and the discussions were so pertinent to the problems of the industry, that the proceedings will be reported in full in this magazine, beginning with this number.

The first meeting was called at the Grand Central Hotel, St. Catharines, on June 28, at 10 a.m.

At the suggestion of Mr. Geo. Carruthers, and unanimously agreed to by the members present, Mr. A. P. Costigane took the chair.

Mr. F. M. H. Cushing was asked to act as secretary for the meeting.

Mr. Daverin, Chairman of the Arrangements Committee, briefly outlined the programme for the day as follows: Visit the Kinleith Paper Company, St. Catharines; lunch at the Grand Central Hotel; visit the Riordon Paper Mlls, Merritton, the Interlake Tissue Mills, the Provincial Paper Mills, Thorold; Public Library, Thorold; the Ontario Paper Company, Thorold; the Beaver Board Company, Thorold, and end up at the Clifton Inn, Niagara Falls, Ontario, for dinner; then adjourn to meet the following morning at the Clifton Hotel, Niagara Falls, Ontario.

The above programme was carried out with the exception of the visit to the Provincial Paper Mills, Thorold, which was omitted due to lack of time.

The stop at the Public Library, Thorold, was a pleasant break in the programme.

The following note from the Thorold Semi-Weekly Post of June 29th, 1917, gives a fair account of the proceedings:

"Last summer we had an important visit from the technical section of the Canadian Pulp and Paper-makers' Association, and yesterday the town was invaded by a goodly contingent of the "Safety First" section of the same organization. There were about twenty of them in all, and they were accompanied by several associates, among them A. W. Wright, a member of the Ontario Compensation Board, who, of course, has a deep interest in all safety first movements or educations.

"The party arrived about 3.30 from St. Catharines, and repaired to the library, where Mayor Battle greeted them, and gave them the freedom of the town in a few happy remarks.

"Mr. Costigane, the secretary, responded, thanking the mayor for his welcome, and following with a brief speech emphasizing the need of technical work and special training in the direction of safety to property and person. He also congratulated Thorold on its successful experiment in conducting industrial night classes last winter, which he said had been far more than a success.

"Short addresses were also delivered by Mr. Carruthers, well known at Thorold, president of the Interlake Tissue Co.; Mr. Challis, representing the Riordon Paper & Pulp Co.; A. W. Wright, Toronto; and by James Battle, chairman of the industrial committee of the Thorold Board of Trade.

"Then, the time of the visitors being very limited, the meeting closed, and the visitors entered the waiting autos and passed on to inspect the $2,000,000 Ontario paper-mill.

Mr. Costigane's reply to the Address of Welcome from the Mayor of the Town of Thorold, was as follows:

Mr. Mayor and Gentlemen:

On behalf of those attending this Convention, called to further Accident Prevention Work, and education in the Pulp and Paper Industry, I thank you for your very kind welcome to us to-day.

Thorold and district have demonstrated that they are wide awake as to the possibility of technical education, and what education means to both employers and employees. During last winter a beginning was made, and the results were very satisfactory, but last winter was only a beginning, and the results justify going ahead on a much bigger scale. Better equipment will be provided, and profiting by last winter's experience an endeavor will be made to make the classes more attractive and more efficient.

Thorold and district are leading the van in industrial education, and are even now being spoken of in other places as one of the most progressive industrial centres in the Province.

So far the Pulp and Paper Industry has taken the lead in forwarding this movement, but it is necessary that all industries co-operate in this work, as special training is as necessary in all other industries as in the pulp and paper industry.



A. P. COSTIGANE, Safety Engineer.

The educational system prevailing at the present time has faults which are now coming to be fully realized, one of the principle being the absence of any organized effort to note the different talents of the students. At present a boy or girl goes to school till 14 years old, most of the time looking forward to the period of happy release; but ask any of these children what they are going to do, and in most cases a vague reply will be forthcoming, such as, "Oh, I am going to get a job." They do get a job, but no effort is made to see that they enter an industry in which their special talents would find full scope. I know of one instance in which a girl of outstanding mathematical genius, after leaving school, drifted into a job in a five and ten cent store—a job in which her special talents were never developed—and so first class material was uselessly thrown aside. That girl, with further techni-

cal training might have risen to a high position in an industry where talent of high order is required.

Thorold and this district should go far in educational matters, it only requires that the work should be taken hold of by men of vision, animated by a genuine desire to benefit the rising generation. Last winter's experience has proved that you have the men of vision, and it only remains for the general public to back them up to the limit by exerting their influence with the young people to get them to take advantage of the industrial education offered, so that when the opportunity occurs they will be fully equipped to step into a higher position, and to carry out the duties with intelligence and efficiency.

* * *

The visitors then were taken in automobiles to the Ontario Paper Company's mill. Business was resumed at the Clifton Hotel, Niagara Falls, Ont., next morning, when the Chairman opened the meeting as follows:

Before proceeding with the regular business of this meeting, I would like to outline to you what led up to it, and the purposes for which we are met together.

A conversation took place some time ago between some of the Directors of the Pulp and Paper Makers' Safety Association and myself, during which it was suggested that while it was a good thing for the Directors to meet periodically and outline a program of activities, yet this was not going far enough or getting closely enough in touch with the mills. Growing out of this conversation, the suggestion was made that meetings of Safety Engineers and those actively engaged in the safety crusade in the mills, should be called at regular intervals to exchange ideas and discuss methods, as by so doing the experience of each individual would be at the service of the industry as a whole. Acting on the suggestion, all the mills were circularized and their replies were so encouraging that this, our first meeting, was convened. I am sure that the meeting will be so successful that similar meetings will become a recognized institution, and be looked forward to as the clearing house for difficulties and problems that are constantly besetting us in the mills. I am sure, further, that these meetings will generate an enthusiasm for accident prevention, which will result in rapid improvement in existing conditions. I hope all of us will go back to the mills with the determination not only to do all possible to prevent accidents ourselves, to so enthuse all those we come in contact with, that every man or woman employed will accept "Safety First" as one of the most important guiding principles in life.

Yesterday we spent a most interesting and instructive day in visiting the various mills, and I hope each of us has collected enough material to make the discussions which will follow in due time, a lively and productive one.

There is an aspect of this meeting, which I would like to say a few words. We have with us to-day, Mr. A. W. Wright, Vice-Chairman of the Workmen's Compensation Board, who is going to give us a paper on the Workmen's Compensation Act and Amendments. This is the first meeting of the kind that has taken place at which the Workmen's Compensation Board has been represented, and I personally am much indebted to Mr. Wright for the good natured alacrity with which he responded to my invitation to be here to-day. I am sure that Mr. Wright's presence will have far reaching effects in drawing the Board and the mills closer together; we in the future will view more sympathetically the problems that confront the Board, and they will realize more fully the difficulties we have to contend with and be willing even to further extend the generous treatment they have always meted out to us. I have known Mr. Wright for some little time, and have learned to admire and think affectionately of a man of generous inspirations and broad sympathies. He has been identified with labour interests for many years, and has always striven strenuously and unselfishly to lift labor to a higher and more dignified position.

A few words about our calling might be permissible. We who are actively engaged in Accident Prevention are disciples in a noble cause. At this time when so much unnecessary and useless slaughter is going on in Europe owing to the power-lust of that competitor of the Arch-Fiend himself, we are doing all we can to conserve life and limb, and make the life of the workers happier and more wholesome than ever before. Those of us that conscription will pass over or only lightly touch, when asked by the future generation, "What did you do during the Great War, Daddy?" can truthfully answer, "I was helping to conserve the life and limbs of employees so that the great industries could concentrate all their energies more effectively and efficiently in producing the necessary materials to bring the war to a victorious and glorious finish. Gentlemen, it is a great cause.

THE WORKMEN'S COMPENSATION ACT AND AMENDMENTS.

The Chairman then called on Mr. A. W. Wright, Vice-President of The Workmen's Compensation Board, who responded with the following words:—

Mr. Chairman and Gentlemen: I can only say in beginning, that when The Workmen's Compensation Act was passed—including Section 101—and the Board began to put it into operation, we had some very grave doubts as to the usefulness of that particular section. We had some doubts as to whether it would become a source of friction between the Board and the Prevention Associations if they were formed. That was largely due to the fact that the manufacturers, or rather the various representatives of the manufacturers were not by any means practical men. Had they been so—and I might say I have met several such gentlemen since, and have thought how much they would have helped the Act with their knowledge — I think there would have been suggestions which would have made a better Act than there is now.

Our Act, of course, has this advantage over the Act of any other country. We are able to profit by the experience of others. We have an elastic institution practically—like a British constitution, which can be amended from time to time.

Speaking of the Wisconsin Workmen's Compensation Law, the Supreme Court of that State said, it met "the industrial problems of the twentieth century in the spirit of the twentieth century, and not in the outworn spirit of the eighteenth century." We may, perhaps, be excused for feeling a little pride at the reflection that our Ontario Act does this even a little better than any in force of the Republic, and yet it may be that the Canadians of the twenty-second century may look back upon our attempts at the solution of the industrial problems which confront us pretty much as we now regard those of the people of two hundred years ago. Like political freedom, legislation for the bettering of industrial conditions "broadens slowly down from precedent to precedent," until of recent years

the English Common Law governed us in our settlement of industrial disputes. It was, in its day, a great system of jurisprudence worthy of and entirely creditable to the statesmen and jurists who framed it to meet the conditions of their time. It was human, however, and therefore fallible. Suitable to the conditions then existing, it has become outworn and unsuited to the entirely different conditions of to-day. Labor saving machinery was hardly known then; the factory system as we know it did not exist. Under then existing conditions the doctrines of assumed risk, of contributory negligence, of fellow servant, did not at all involve the palpable injustice we now so clearly recognize in them. Quite properly we congratulate ourselves upon the great advances we have made, but is it so absolutely and so indisputably certain that even now our advanced legislation meets the industrial needs of our day much, if any, better than the laws of our forefathers met those of their time. Does this thought not justify the hope, which for one I admit that I cherish, that the advanced legislation of the present day is but an earnest of what the future may bring?

It is not the laws of the past with which we have to do, however, nor yet will it profit us to indulge in dreams of what the future may hold in store. It is ours to carry out as faithfully as we can, and with such ability as we may possess, the provisions of the present Workmen's Compensation Act. More especially it is the duty of those engaged in accident prevention work to earnestly and painstakingly endeavor to give effect to the provisions of Section 101 of the Act; to that part which has to do with the efforts for the prevention of industrial accidents. It is of great importance that working men who are victims of accidental injury shall receive the compensation which the Act provides, and that dependents of those who may be accidentally killed shall be given the prescribed support, but it is not less important that, as far as may be humanly possible, industrial accidents and the loss and suffering they bring shall be prevented. It is with this that those engaged in the work of the accident prevention associations are concerned, and it is a great and a useful work which may well arouse enthusiasm.

I shall not say much of plans, systems or methods for accident prevention; these have been, are, and will continue to be, the special study of experts in the work. All I need say, and it hardly needs that I shall say this, is that the efforts of accident prevention officials must be of a two-fold kind; first to enlist the sympathy and active support of employers in providing, installing and improving appliances and plans for the lessening and elimination of danger; and second, to educate employees along lines of safety work and secure their active and intelligently directed co-operation. To say that accidents are always due to want of thought or want of care is to utter a truism. It is like saying that sickness is always the result of some neglect or infraction of nature's laws. But the saying of these things gets us nowhere; accomplishes no useful purpose; it does not reduce the sum total of doctors' bills, nor appreciably increase carefulness. Men engaged in the work of systematic accident prevention must work with the material they find at their disposal. "Carefulness among workingmen is the best kind of accident prevention" is another truism, well worth keeping in mind no doubt, but it is just as well to face the truth that in these days of feverish speeding up of industry, of hurried production and dilution of labor made necessary by the increasing relative scarcity of skilled workmen, the proportion of these careful ones is steadily decreasing, and is likely to continue to decrease.

Most people would be prepared to believe that proportionately with the improvement in industrial methods and the increasing use of more perfect machinery the danger of accident would diminish, but unfortunately facts do not warrant such a belief—indeed, they compel an entirely different one. Thirty-five years ago the ratio of accidental deaths among workmen employed in the erection of high buildings—"sky scrapers"—in New York was one to each building; now the records show that the death toll is one to each floor. A Commission appointed by Governor Hughes, of New York, known as the "Wainwright Commission," after two years of careful and intelligently directed investigation, came to the conclusion that the increase in the number of industrial accidents was in almost equal ratio with the increase in the speed with which industry moved and the number of workmen employed, and that, in the more hazardous employments at any rate, the toll in life and limb was so astoundingly certain that the ratio of accidents might be considered as regular and as remorseless as the death rate upon which the tables of life insurance are based. The construction of iron and steel buildings, the Commission found, had a definite cost in human life—each crane and derrick in every so many thousand operations crushing or mangling a worker.

If I dwell upon this it is not for the purpose of discouraging those engaged in accident prevention efforts or to create a belief that their work is in any sense hopeless. On the contrary, I am convinced that such a state of things is neither necessary nor inevitable. I am satisfied and I think experience since the inauguration of a scientifically directed accident prevention movement here and elsewhere justifies the belief that much, very much, is being done, and that more can be and will be done to lessen the awful toll in death and suffering. The time has been too short, and our experience in Ontario insufficient to furnish statistical data upon which to base accurate and dependable conclusions as to the effect of accident prevention work here, but already there is gratifying evidence that employers are becoming impressed with the necessity of providing safety appliances. In this connection I may say that it is most gratifying to note the willingness of employers in general to comply with the requests and adopt the suggestion of the inspectors.

In the work of accident prevention, as in so many of life's activities, it will be found much easier to lead than to drive. If I may be permitted to use a Scottish word for which I know of no exact English equivalent, I would say it is easier to "airt" men into the proper way of accident prevention than to force or drive them into it. Proverbially it requires much less effort to get a horse to the water than it does to force him to drink, and yet any horse may, with judicious management be got to drink if he be really in need of water—that is, if he have horse sense. That accident prevention is needed will hardly be disputed, without dwelling upon its humanitarian aspect—the saving of life and limb and the lessening of human suffering—and for the moment having regard only to considerations of dollars and cents, it may be safely asserted that effort to prevent industrial accidents in any establishment is a paying investment, and

so it may be fairly assumed that employers will be alive to this aspect of the case. So, too, as the suffering and the loss of earning capacity falls upon the workers it seems reasonable to assume that they will be in active sympathy with all efforts to lessen the danger of accident. It may then fairly be taken for granted that if the horses can be got to the water the industrial team can be got to drink—always assuming that they be blessed with horse sense.

Nearly all employers are willing to take and do take precautions for the safety and health of their employees, but of necessity employers, managers and superintendents have only a limited knowledge of what is necessary to ensure the best results. Simple precautions are in consequence frequently overlooked, and on the other hand, unwise though well intentioned, things are done, and expensive and ineffectual appliances installed, resulting in needless and often worse than useless waste of money; for it must be borne in mind that an inefficient safety device is often more likely to become a source of danger than a preventer of accidents. The wise manager will always welcome the advice of skilled experts with experience and training in safety work, always provided the giver of the advice be careful to consider and have proper regard for the conditions obtaining in the plant and the circumstances of the owner, for in the offering of advice as well as in the intelligent acceptance of it there is an excellent field for the display of horse sense.

In one sense the provisions of Section 101 have not much to do with fire prevention, yet loss of life and physical disablement by fire is an ever present danger which inspectors and safety engineers should always keep in mind. I do not know, and have no reason to think that advice by even the most capable and efficient safety engineer could have averted the recent catastrophe at Peterboro, and yet, without suggesting that it was anything other than one of those unfortunate occurrences which neither care nor foresight could have prevented, I may be permitted to refer to it to illustrate the need for careful inspection with a view to guarding against danger of fire or explosion as well as other kinds of industrial accidents. Not only should machines be properly equipped with guards and safely appliances, but everything possible should be done for the prevention of fires, to provide for speedily extinguishing such as do occur and for ready escape by employees.

Without pretending that the figures are more than approximately accurate industrial accidents may be divided almost equally into three classes: those fairly to be catalogued as unpreventable, those readily preventable, and those that might have been prevented had proper but perhaps costly safeguards been provided. Perhaps the first two of these might be added together and again divided into those that with strict regard to accuracy might be called unpreventable, and those rightly chargeable to recklessness and carelessness on the part of the workmen; and these last might again be divided into those caused by mere thoughtlessness and want of care or inability to understand orders, and those rightly chargeable to culpable neglect or refusal to use safeguards provided. For, almost unthinkable as it appears, there are workmen, not a few, who appear to delight in needlessly risking life and limb. Of such we can only say in the words of Carlyle, "Young man, it is a terrible thing to be a fool."

Although the inspectors and engineers of the accident prevention associations are not charged with nor in any way responsible for the administration of the Compensation Act, it is almost a certainty that while visiting industrial establishments in the performance of their duties, questions will be asked by employers and also by workmen regarding the Act and its administration. It is well, therefore, that they should make themselves familiar with at least the principal provisions of the Act, and with the regulations and rulings of the Board in order that their answers to such questions may be accurate. It is, of course, no part of their duties to explain the working of the Act to all who may be disposed to question them, nor are they called upon to defend or to justify the actions of the Board, but they can hardly, without at least seeming to be discourteous, refuse to speak of it when appealed to. As far as possible, however, it will be well to confine themselves to general statements as to the provisions of the Act, avoiding the going over much into detail. For example: It may be quite properly explained to an employer or to a workman who has suffered accidental injury that the compensation provided by the Act is 55 per cent. of the injured man's loss of wages due to the accident, and for permanent disability, loss of limb or eyesight and so on. 55 per cent. of his permanent loss of earning power, but no good purpose would be served by attempting to explain why the Board has awarded to "A," who has lost a finger or a hand a lesser or a greater sum or pension than it has awarded to "B," who has suffered a similar loss, for in making its awards the Board must have regard to many things of which the inspectors can have no knowledge. Commenting on the seemingly self evident fact that figures cannot lie, an American humorist shrewdly remarked, "Not if you have all the figures," and opinions supposedly based upon fact are much more likely to be wrong than right if the propounder of the opinion be not in possession of all the facts. It is not unlikely, too, that employers may ask questions regarding assessment rates, etc., and while endeavoring always to be courteous, inspectors should decline to discuss such matters, but should suggest that the proper course is to write the Board directly. The Board may err in the making of awards or in the levying of assessments, but it has and can have no desire other than to administer the Act justly and with strict impartiality, and it is always ready to rectify any mistakes it may have made.

In order that—should inspectors find it difficult to avoid some discussion upon the question of assessment or ratings—they may be the better ready to place the facts fairly before employers, I may say that any complaints which have been made to the Board have been, almost without exception, caused by the fact that employers, comparing their assessment rates with what they had been in the habit of paying before the enactment of the Compensation Act to Employers' Liability Companies, find that the cost to them is somewhat greater now than then. They leave out of consideration or give too little regard to the compensation the Act provides, and the liability which the companies assured against. Their insurance only covered the liability of employers under the old law. Unless it could be proven that the accident was due to the fault or negligence of the employer there was no liability, nor if it was due wholly or in part to the negligence or fault of the workman, or to that of some fellow employee, nor yet if it was caused by one of the ordinary hazards of the employment in which case it was assumed that, in accepting the employment the

workman assumed the risks of it. Now all injuries must be compensated for, regardless of what may be the cause or whose may be the fault, provided that accidents happen in the course of the employment, and arise out of it, except minor injuries which do not cause serious disablement or death, and which are due solely to the workman's own serious and wilful misconduct. Then the companies only insured up to $1,500, while under the present Act a case might happen which would involve the payment of a yearly pension of $1,100 for life. It is evident that this greatly multiplied liability could not have been met by the liability companies with the premiums which were sufficient to provide against their liabilities under the old law. While it is hardly possible that any fixed and invariable rate of assessment can be arrived at in any of the classes, it may be broadly stated as a definite assurance that as nearly as may be found humanly possible, the rates will be enough and no more than enough to pay the compensation that the law provides, and this without any appreciable part of the cost of the administration of the Act being charged against the assessment fund.

The Medical Aid Amendment passed at the recent session of the Legislature must of necessity have an important bearing upon the duties of those engaged in the work of accident prevention. But, while this may, at the first at any rate, entail some additional work upon the inspectors, it will be found in the end to greatly aid their efforts by making, as it must, the importance of safety work, particularly the educational part of it, more clearly evident to employers. As will be readily seen that as prompt and efficient medical aid will lessen the time during which disability due to accident will continue, it will proportionately lessen the cost of accidents and will tend to reduce the rates of the Board's assessment upon the pay rolls of employers. Consequently it will be more easy to demonstrate to them the financial wisdom of installing safety devices and in other ways working for the prevention of accidents in their own establishments, and also to enlist the active co-operation of all other employers in their classes. I may here mention that the Board is endeavouring to perfect and put in operation a system of merit rating by which it is hoped to make the assessments levied upon the employers, approximately at least, in proportion to the number of accidents in the several plants in each class. The details have not as yet been definitely decided, but it is expected that the plan may be made to apply to the rating of the present year.

Inspectors and Safety Engineers may rest assured that their work has the hearty sympathy of the Board, and will have its cheerful support and assistance. Everything that it is in the Board's power to do to make their work effectual will be done, and done ungrudgingly.

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The discussion of Mr. Wright's interesting paper will appear next week, and the other addresses will also follow.

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Those who attended and took part in the meeting were: A. W. Wright, Vice-President, Workmen's Compensation Board; J. F. Alexander, Metal Trades' Safety Association, Toronto; G. M. Beale and P. J. Murer, Riordon Pulp & Paper Co., Hawkesbury; C. E. Carpenter, V. A. Strand, R. G. Varey, G. E. Bradley and P. Byrne, of Riordon Pulp & Paper Co., Merritton; A. G. Richardson, Laurentide Company; W. R. Morrison, from J. R. Booth; S. Twist, Foundry Safety Association; Geo. Carruthers, J. J. Herb and P. Rausch, of Interlake Tissue Mills; A. P. Costigane, Secretary and Safety Engineer, Ontario Pulp and Paper Makers' Safety Association; Dan Daverin, F. M. H. Cushing, Chas. E. Redmond, Andrew Weldon and R. G. Marshall, Provincial Paper Mills Co.; C. A. Gilkerson, Spanish River Pulp & Paper Mills; H. T. Miller, Canada Box Board Co.; T. Linsey Crossley; J. T. Donald & Co., Montreal, and Chairman, Committee on Technical Education; Ed. P. Foley and W. H. Wilson, Foley-Reiger Paper and Pulp Co.

CURE FOR NEWSPRINT TROUBLES.

North Carolina newspaper publishers who favored the adoption by Congress of the Owen Bill, authorizing the Government to take over the manufacturing and distribution of news print paper, quickly changed their minds at their meetings on June 29 and 30, when W. W. Weaver, publisher of the Durham Sun, outlined the situation to them.

Mr. Weaver, who leads the North Carolina Afternoon Newspaper Association's paper committee, told both that organization and the State Press Association, of whose paper committee he is also a member, many facts concerning the paper situation theretofore unknown to a majority of the publishers. Mr. Weaver has made a comprehensive study of the paper situation. It was this study that placed him in such close touch with the paper situation, and made it possible for him to show the folly of the Owen Bill.

The proposal, Mr. Weaver said, is an appalling one. The paper mills already have a large amount of money invested in their plants, and their business is a highly technical one.

In these days when the business is surrounded with great dangers, owing to the supply of wood, coal, railway facilities and labor, they are in an extremely delicate situation, he declared. Pulp wood is being placed into some of the mills at a rate of $18 and $20 a cord.

In this connection, the speaker pointed out that the Government has no intelligent or competent agencies to manage the mills and direct the manufacturing of a supply of paper. Government interference would consequently mean confusion and trouble as well as complete disorganization of the news print situation. It would also frighten capital out of the field.

An important feature brought out by Mr. Weaver was the fact that no man has had the courage to build up a new paper mill in the United States during recent years. This situation has been brought about mainly by Canadian competition. Government interference will mean the sending of practically all of the news print business to Canada.

The large papers, he told the editors, are more to blame than the manufacturers.

In a recent conference of big publishers, the Federal Trade Commission and manufacturers it was agreed that the big publishers should relinquish 5 per cent of their tonnage to the smaller papers. This agreement, he said, was not carried out. Now the big publishers are bidding on the open market and are causing the high market price of paper.

Mr. Weaver said the cure for the trouble is to encourage the extension of the industry in the United States.

AN INTERESTING BAGASSE VENTURE.

The prominent connection of Hon. Warner Miller with the introduction and development in this country a half-century ago of the wood pulp industry lends decided interest to the announcement of the starting almost immediately at New Iberia, La., by the Sugar Cane By-Products Company, of which Senator Miller was recently elected president, of a plant for the production of pulp from bagasse.

The production of pulp from bagasse for papermaking has from time to time interested numerous persons of more or less substantial standing in the community, but unfortunately all these attempts have not as yet resulted in any process that has been deemed worth while continuing on a large scale. The rewards for the successful utilization of this waste product of the sugar cane industry in the manufacture of paper have always been enticing, but in spite of this attraction no one has seemed sufficiently ingenious to master the problem in a manner to bring success on a commercial scale. The possibility of making paper pulp out of bagasse has of course been recognized for a long time past; but for one reason or another all the geniuses who have interested themselves in this matter have apparently fallen short of success so far as making their processes of any great importance commercially is concerned.

Senator Miller, better than most men, may naturally be expected to be acquainted with all the interesting history of the endeavor to make pulp from bagasse. The outlook for the success of utilizing wood for paper making pulp certainly was not bright when Mr. Miller, as a less experienced man, turned his energies in this direction fifty years ago, and yet in spite of this not encouraging outlook, the industry in a comparatively short period has grown to marvelous proportion. So greatly in fact has the use of wood for various kinds of pulp expanded that the forests which at first furnished unlimited supplies, now in the most available sections of the country at least, have been pretty well denuded and more or less of a famine in pulp would appear to be imminent.

Because of a recently patented process, which inexpensively separates the pith of the bagasse from the fibre, Mr. Miller is convinced that the process employed by his country will be successful where pulp-making experiments with the refuse of sugar cane in the past have failed.

Owing to the inconvenience of getting wood pulp from abroad caused by the war, as well as the stringency in pulp wood because of various reasons in this country and Canada, the Senator apparently could not have selected a more auspicious time to launch his new venture. If the project is as successful as its promoters have confidence it will be, it will have an important bearing on the pulp and paper making industry. Because of this reason the venture will be watched with interest by the pulp and paper trade, and this interest will, of course, tend to be increased by the connection with it of Senator Miller, of wood pulp fame, a full half century after he did so much to make available to the American paper trade another important paper fibre.

"Our estimated cost", says Mr. Miller "is $9.50, including the raw material, overhead, and other expenses, to produce from a ton of bagasse: 550 pounds of paper pulp, conservatively estimated to be worth 5 cents per pound, $27.50; 650 pounds of raw cellulose, conservatively estimated to be worth 3 cents per pound, $19.50; 15 gallons of alcohol, conservatively estimated to be worth 35 cents per gallon, $5.25; 200 pounds fertilizing material, conservatively estimated to be worth one-half cent per pound, $1; total $53.25.

"In other words, one ton of bagasse should produce finished products conservatively estimated to be worth $53.25, and the estimated cost of producing these products is $9.50, which will leave a net profit of $43.75 per ton. Our first mill will ultimately produce 300 tons per day."

The machinery is now being installed and it is expected that the mill will be in operation by September 1. The present equipment includes eight large digesters for the soda process, and five large digesters for the sulphite process. Just at first only 50 tons of pulp per 24 hours will be produced, but ultimately it is planned to turn out 300 tons of pulp per 24 hours.

The officers of the company are Hon. Warner Miller president; George H. Gould, vice-president; William H. Doon, vice-president; John W. Marsden, treasurer; E. W. Shain, secretary.

The company is incorporated in Delaware and is capitalized at $5,000,000, of which $1,000,000 is preferred and $4,000,000 is common stock.—Paper Trade Journal.

PATENT FUEL IN THE UNITED STATES.

The production of fuel briquettes in the United States in 1916 was 295,155 net tons, valued at £289,130, (about $1,400,000), an increase compared with 1915 of 73,618 tons, or 33 per cent., in quantity, and £82,000 (about $400,000), or 40 per cent., in value. The production in 1916 was the greatest recorded, and exceeded that of 1914, the previous high record, by 44,520 tons. The increase in production in 1916 is attributed both to the improvement in trade conditions arising from the unusual demand for coal and to a greater appreciation on the part of users of the value of briquettes for household fuel. Improvements have been made in the process of manufacturing during the last two years, and the product from many of the plants gives off less of the heavy, tarry smoke that has been found objectionable by consumers. This improvement appears to have been largely accomplished by the use of asphaltic pitch in some form as a binder instead of coal-tar pitch.

It should be noted, however, that this apparent advantage of asphaltic pitch as a binder in fuel briquettes may, in the long run, be offset by other advantages of coal-tar pitch as lower cost, ease of manipulation, and, it is claimed, stronger and more waterproof briquettes. Mr. W. H. Childs, of the Barrett Company, states that the advances made in recent years in the art of briquetting have led to a reduction of the amount of binder required, and it is now possible to produce with coal-tar pitch binder a briquette that does not smoke badly, and in many localities where briquettes will compete with bituminous coal the advantage in regard to smoke lies with the briquettes. Furthermore, the development of the coal-tar industry requires that every possible output shall be found for coal-tar pitch, and to aid in the conservation of American timber resources it is necessary that increased markets for coal-tar pitch be developed, so that enough creosote oil can be produced to supply the demands of the wood-preserving industry.

Mark Twain once said: "I would rather be careful a hundred times than get hurt once."

Paper Mills of New Ontario

By A. I. Witness.

You get on the train at Montreal,
Ride all night, and that ain't all;
Next morning you will leave North Bay
By T. & N. O., and ride all day,
Abitibi.
At Smooth Rock Falls, Mattagami,
Another day to there you see;
Jump a freight to leave Cochrane,
A three-mile walk then, in the rain,
Mattagami.
(With apologies to "Tammany.")

* * *

In spite of the above inspired poem the trip to the mills of the Abitibi Power and Paper Co., at Iroquois Falls, and the Mattagami Pulp and Paper Co., at Smooth Rock Falls, was enjoyed for its interest and adventure. Train schedules are fairly accurate and dependable for finding linear distance between stations.

seen from the train, but there are occasional piles of pulpwood along the track. There are several large sawmills in this district. When timber has been cleared or burnt off one sees evidences of farming. In some places the soil looks good and there are good stands of grass or grain. Hardly a cow is visible after leaving North Bay.

Further on is Matheson, and the scene of the big fire of 1916. Hamlets that were burned flat have been rebuilt and are even larger than before. In some places the humus has been entirely burned out of the soil, leaving black stumps in a sea of white sand. Nothing will ever grow there again, unless it be plantings of pine.

If one goes from Toronto, connections are made at Porquis Junction for Iroquois Falls. It was the writer's good fortune that the Branch train made a special trip that night, so he got through. Otherwise it would



Mill of Abitibi Power and Paper Co., at Iriquois Falls, Ontario.

As mentioned above, one leaves North Bay in the morning. The journey north is through rather uninteresting country till the mining town of Cobalt is reached. Here the apparatus for mining, transporting and crushing the valuable ore attracts the eye of the engineer. Haileybury is interesting as the location of a sawmill of the Riordon Pulp and Paper Co., and a town which hopes to be chosen as the site of the new pulp mill which this company is said to be contemplating. Not much in the way of timber is to be

have been necessary to sleep at Timmins, to which the sleeper goes through from Montreal.

Mr. Buncke, who has charge of the groundwood department met the train and escorted me through the mud to Mr. Anson's house, where manager McInnes, temporarily located, dispensed hospitality. The next morning was spent in the rain and the mill. It is certainly a fine mill. It was due to this concrete structure that the population of Iroquois Falls was not exterminated last summer.

The groundwood is made at the lowest level. There are now 29 grinders, and 12 are to be added. The wood is barked with knife barkers now, but a house is being built for an American drum barker. Steel chip lofts are used for the sulphite department. There are two large Manitowoc digesters, and two more are being built. The concrete washing pits are very large. After being screened, in Impco machines, the pulp can be sent in proportions desired to the wet machines or the concentrators. From the many wet machines the laps can be placed directly in the hydraulic presses and a few steps more puts the pulp in the freight cars which are run in between the sulphite and groundwood sides of the wet machine room. Seven cars can be loaded at a time.

From the Sherbrooke concentrators, 4 for sulphite and 7 for groundwood, the two kinds of pulp, each of the same consistency, is run in proper proportions to the mixers, and from there to the machines, through the Jordans if necessary. In the machine room, a wonderfully clean, airy, well lighted place, are two Pusey Jones 160″ machines and two Walmsley's 188″ and 202″. All are running at better than 600 feet. One of the machines is equipped with Sheehan's "mechanical back-tender," and without wishing anybody any hard luck I hoped there would be a break—and there was, just at the last minute. That rope certainly did a stock job of taking the tail over, and there were two sections of dryers, too.

Work seemed to be suspended for the time being on the new addition, where the two 235″ monsters are going. Good progress is being made on the townsite, putting in sewers, sidewalks, paved streets, etc. By fall it will be a regular town.

On the map it is a short journey from Iroquois Falls to Smooth Rock Falls, where the new mill of the Mattagami Pulp and Paper Co. is located. By train it is different. Our train from Porquis Junction to Cochrane, was just late enough to miss the local going west. Mr. Sutcliffe, who was bound for the same place, had been over the route before. With his knowledge of the ropes we got passage on a freight and landed at Smooth Rock Falls junction, at 10.30 p.m., in the rain. The station agent kindly loaned us a lantern with a broken chimney and by its light we negotiated the 3½ miles of spur track to the mill without falling through any trestles.

My companion had telephoned to his partner, who met us on the outskirts of the village. They led the way to the bunk house, where "Scotty," chief constable, and major domo, found me an apartment with a very comfortable cot and well equipped with all the modern inconveniences. There were electric lights anyway. Assistant manager J. G. Mayo, had the adjoining room, but as he did not snore in English I could not understand him. A few hours sound slumber and we were ready for breakfast and so forth. The latter occupied the rest of the day, except for dinner.

We went the rounds, and to go all over a pulp mill under construction is no promenade on the Board Walk. Morrow and Beatty are doing the construction, and are making fine progress. The buildings are probably complete now. Part of the dam, in fact, most of it, was complete and a small turbine in operation; this furnished lights for the town and power for the log elevator, slasher and stacker. Considerable wood was in the pile and there was a lot in the river. Two big turbines are going in now, and a third can be added if necessary. Construction and installation were going on all over the plant in such a way that unless something worse occurs than the ordinary delays, the mill will be making pulp in September. W. S. Haley, the sulphite superintendent, is now on the job.

Dwellings are being rushed and the place begins to look like a village. There has already been a wedding. The townsite is on level ground a little way above the falls.

Just after dinner R. O. Sweezey telephoned down from the station so Mr. Mayo hitched up, that is, he had a coal car hooked up to the company switch engine and we drove up to meet the visitor. (By the way, the big coal pile looked good). Another trip through the mud and over the timbers, a short "smoke talk" in the office, and it was time to leave for the junction again to meet the "National." This time we rode in the parlor car—a flat car with a house built on it, and with **real benches.**

There was a good dinner on the way to Cochrane, where the Quebec sleeper was shifted to the Transcontinental. Mr. Sweezey and his brother, who were doing some timber estimating on the Upper Ottawa, got off at Amos. I went through to Hervey Junction and changed to the C. N. R., arriving in Montreal at 9.30 p.m. The roadbed and service were fine all the way. At Oscalanea the St. Maurice River is first seen, and from there on to La Tuque is almost constantly in view. About 50 miles up the river from Manouan the great La Loutre dam is under construction. The volume of water retained by this reservoir will be greater than any now in existence. It will be of inestimable value to the industries on the St. Maurice, which include five big pulp and paper mills, by serving to regulate and equalize the flow of the river.

Between Parent, a division point on the Canadian Government Railway, and La Tuque, where the sulphate mill of the Brown Corporation is located, there are a number of lumber camps. It is in this district that pulpwood is cut for the Brown Corp., Laurentide Co., Belgo-Canadian Pulp and Paper Co., St. Maurice Paper Co., and the Wayagamack Pulp and Paper Co. The logs are taken down the river in one great drive by the St. Maurice Log Driving Association, which includes the companies just mentioned. This arrangement is working very well, effecting a great saving in equipment, camps, supplies and men.

The land along the railway and river is for the most part rather bare and barren, or grown up to scraggly growth of which much is deciduous. Many steep slopes have been cut clean, inviting erosion and landslide. Some planting has been done and there is occasional evidence of natural seeding, but this vast country has in large part been rendered practically useless by the old methods of lumbering and neglect. Extensive areas have been burned out. The recently formed protective associations may prevent disastrous fires in the future, but the best logging areas on this important river are already bare. Steps should immediately be taken to reforest the banks of the St. Maurice. There are enough rocky ledges to keep the scenery wild and the green tops of a spruce forest are again needed to add beauty and wealth to this part of the province. There is said to be a great deal of timber on the upper stretches of the river and back on the mountains, but new growth must replace what is taken out. If this is done, it would be hard to conceive of a more ideal pulp and paper region than the valley of the St. Maurice.

WITH THE FORESTRY UNIT IN FRANCE.

Within a mile or so of the front I found a Canadian Forestry battalion at work. The noise of the circular saw mixed peculiarly with the constant throbbing of the heavy guns. A short distance from the sawmill were remnants of buildings wrecked by enemy shell fire. This mill of the Canadians runs day and night, and is rapidly eating up the neighboring wood. A thousand feet an hour is the average output of the mill, and it will be doing better than this very shortly, as soon as the new machinery arrives. Machinery already established bears the name of a well known firm of Canadian makers.

Timber operations within range of German guns very naturally has its own peculiar inconveniences. Of course, there is always the risk of the mill and its workers being blown to atoms by shell or by bombs from air craft. Such dangers are part of the ordinary business of the day in these parts.

In these French forests the lumbermen of Canada are working among their own peculiar element in the same manner to which they are accustomed at home, save that they are under military rule. Before the war is over the forestry battalions will have left their mark on France in a double sense.

A NEW IDEA EVOLVED IN PULPWOOD PRODUCTION.

The policy of taking the sawmill to the timber is one that is thoroughly established in lumber manufacture. Even the larger mills are located in fairly close relationship to the timber supply, as a rule, and in country of rough topography where the transportation of logs is more difficult the larger mill is replaced by the small, portable mill which can be taken into the woods for small settings, thus leaving the waste of manufacture in the woods and reducing the volume of waste that has to be taken over the difficult hauls in the form of lumber product.

The same principle has now been introduced in the handling of pulpwood, in the development of a portable plant installed upon three freight cars equipped with the proper machinery. One car is provided with a power plant generating 75 kilowatts of electricity, and the other cars are equipped with slasher saws for cutting pulpwood into two-foot lengths, and with rossers for removing the bark, after which the wood is loaded into storage cars for transportation to the paper plant.

This system avoids the payment of freight upon the bark of pulpwood and also reduces the volume of cars required for the transportation of a given volume of raw material. This is of special importance in paper manufacture inasmuch as a paper mill is a large and cumbrous institution that must have large supplies of water and must, therefore, be located at a convenient central point. It may not be as convenient to sources of pulpwood supply in its initial installation as the average sawmill and, as its period of operation continues, the sources of supply of course become more remote. Any such improvement as that which is here described is, therefore, of special importance in this industry.

When fortune knocks at a shiftless man's door he is usually over at a neighbour's trying to borrow something.

ENGLISH PRODUCTION OF PAPER TEXTILES.

Paper textiles, while somewhat handicapped by war conditions in England, are still receiving attention from the standpoint of experimental and research work as well as commercial use. The possibilities for the future, especially in view of the high prices of wool and cotton, are believed to be good.

A British firm, Textilite Engineering Co. (Ltd.), 36-37 Queen Street, London, E.C., is engaged solely in the manufacture of all classes of machinery for producing paper textiles, and this firm maintains a large demonstration plant where paper fabrics, yarns, and twines are made and exhibited.

Sweden appears to have been one of the pioneers in the matter of paper textiles, probably because it has excellent sources of coniferous wood pulps for the making of sulphite paper such as is used for textiles. Germany has developed the industry to some extent, and uniforms from German prisoners which have been analyzed locally are said in some instances to be made from a union of cotton, shoddy, and paper. Although the British paper-textile industry is established in some branches, experiments and researches bear testimony that a definite effort is being made to emancipate the trade from foreign patents and processes.

Representatives of the wool trade at one time considered the advisability of using a paper lining for wool bags, or even a bale composed entirely of paper, in order to obviate the trouble caused by minute particles of jute or hemp getting into the wool during transit or storage. Such particles are difficult to detect, and often have remained concealed until the dyeing of the cloth, when by reason of vegetable fibres taking different dyes from wool or similar animal fibers, a pronounced line or defect appeared in the fabric. Paper would dissolve in the processes of manufacture, or in some instances paper linings of bright hues could be used and particles therefrom would immediately be discernible in the wool.

Although the advantages were fully recognized, paper was found to be unsuitable for this purpose, in view of the great strain on wool packs, and the constant use of hooks. Nevertheless, it was established that sacks made from paper cloth had their utility, and while they never have been manufactured to an appreciable extent in England, they seem to be capable of standing much strain, if of a uniform character, and may possibly supplant jute and similar coverings in a number of branches of export trade.—U. S. Commerce Reports.

BRITISH BOARD OF TRADE ESTABLISHES A DYES DEPARTMENT.

We have received a communication from the High Commissioner's Office, London, to the effect that in order to promote the further development of the dye-making industry in the United Kingdom, the President of the Board of Trade has decided to establish a special temporary department of the Board of Trade to deal with matters relating to the encouragement, organization and, so far as necessary, the regulation of that industry. The department will be under the direction of Sir Evan Jones, Bart., M.I.C.E., who has placed his services at the disposal of the president, and who will have the official title of Commissioner of Dyes. The Commissioner will act in close consultation with the various dye-making and dye-using interests concerned.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Studies in Sulphite Cooking. By S. E. Lunak. Chemist For. Prod. Lab., Madison, Wis. Paper, Vol. 20, No. 13, p. 13-14. The following factors were studied for their effect on duration of cooking, yield of pulp, yield of screenings, bleach consumption and color of pulp produced; (1.) Effect of varying the combined or the amount of lime in the cooking liquor. (2.) Effect of varying the total sulphur dioxide. (3.) Effect of varying the temperature of cooking. The following factors were kept constant, 74.2 pounds bone dry; condition of chips, air dry; amount of acid 63 gallons; time to reach 100 deg. C., 2 hours, time to reach maximum temperature 3 hours. The cooks in this study were made by indirect steam by means of a lead coil placed in the bottom of the digester and no sulphur dioxide was allowed to escape until the cook was finished. The method selected to determine when the cook was finished was to match up the color of the liquor with a solution made from a coffee extract. Cooks could be duplicated very closely by this method. (1) Amount of lime: Cooks were made using a liquor with a total SO_2 content of 5 per cent and the maximum temperature was kept at 135 deg. C. The amount of SO_2 combined with lime was varied from 0.30 to 2.09 per cent. A decrease in the combined SO_2 has a tendency to shorten the duration of the cooking time. Increasing the amount of combined SO_2 to 1 per cent has a tendency to make the pulp lighter, but the color remains constant when the combined SO_2 is increased over 1 per cent. The yield of screened pulp increases as the combined SO_2 is increased to 1 per cent but beyond this remains constant. The amount of bleaching powder necessary to bring the pulp to a standard white decreases as the combined SO_2 is increased to about 1 per cent but any increase beyond this point does not produce any change in color. (2.) Cooks were made varying the amount to total SO_2 from 3.02 to 6.98 per cent but in each case the ratio of free to combined SO_2 was kept at 4 to 1, temperature at 135 deg. C. After a total of 5 per cent is reached any increase in the total does not produce a lighter pulp but below that point there is a rapid darkening. Any increase in the total SO_2 causes a shortening in the cooking time. The effect on yield of unscreened pulp and screenings shows a decrease as the total SO_2 is increased, which becomes only slight as a total SO_2 of 5 per cent is reached. An increase in the total SO_2 shows a decrease in the amount of bleaching powder necessary to bleach the pulp to a standard white. (3.) The temperature was varied from 110 deg. to 146 deg. C. Little or no effect is produced on the color of the pulp by varying the temperature. The duration of cooking rapidly increases as the temperature is lowered and apparently there would be very little cooking action under 110 deg. C. Lower temperatures with their longer cooks insure a more even cooking and therefore produce less screenings. Decrease in temperature produced a decrease in bleach consumption. The yield of screened pulp increased almost 5 per cent while the bleach decreased from 22 to 11 per cent.—E.K.M.

Sulphurous Acid and Fermentation (in Chemical Combinations in Musts and Wines.)—Laborda, Internat'l Rev. Sci. Agri., Nov., 1916, pp. 1676-1686.—Abstract from Rev. de Viticulture. Experiments on effect of free and combined SO_2 on yeasts are likely to interest those working on fermentation of sulphite liquors.

Mechanical Woodpulp by Friedsam Process. Paper, Vol. 20, (1917) No. 15, p. 14. A process for the production of paper with a high percentage of filling, as well as paper of heavy, colored or glazed paper qualities has been patented by F. Friedsam, of Nagy-Szabos, Hungary, in Sweden. The process provides for the feeding during the grinding process of a mineral such as talc, etc., previously suspended in water between the grinding stone and the wood in the places the grinding water is applied. The fibres of the wood are penetrated by the filler, and take on the color of the filling substance, and to some extent its other qualities such as softness, smoothness and elastic qualities. The elevated temperature generated during grinding with little water and high grinding pressure aids in a quick penetrating or talcumizing of the fibres. With less power consumption the result is increased because the adding filling substance acts as a lubricator to the stone and a disintegrator of the wood.—E.K.M.

Strehlenert's Sulphite Fuel Process, Hydrolysis of Peat. R. W. Strehlenert Papier-J. Vol. 5, (1917), No. 12, p. 101.—About 75 per cent of the dry substances in the waste sulphite liquor are easily decomposed by Strehlenert's process. The remaining 25 per cent. can only be decomposed at considerably higher temperature and by the addition of larger quantities of sulphuric acid. In order to facilitate the removal of water from peat this is heated to 180°C. and 8 atm. pressure whereby the humic acids present in peat serve as hydrolysing agents. By using the liquor from the fuel process, which contains 0.35 per cent sulphuric acid of which 0.2 per cent. is free acid the hydrolysis can be effected at 140°C and 6 atm. pressure within 20 min. At the same time the dry substance remaining in the liquor after the fuel process is precipitated in the peat. With centrifuge, the peat can be dried to 25 per cent and by a following pressing to 50—55 per cent dry substance. The calorific value of the peat obtained in this way was 5260 Calories at a moisture of 6.4 per cent and an ash content of 3.6 per cent. Calculations show that at the same time as one ton of sulphite fuel is produced 1550 kilos peat fuel can be obtained. The heat required for the production of peat fuel amounts to 20 per cent of the heat value produced.—B.J.

Marine Fiber, Possible Source of Paper. Paper, Vol. 20, (1917), No. 18, p. 16. (from J. Soc. Chem. Ind.)—Marine Fiber is the resistant skeleton of the leaf sheath of Posidonia Australis a sea plant growing in the shallow waters of certain parts of the Australian coast. The workable beds of fiber attain an average depth of 7 ft. with a yield of about 6 lb. of fiber per cu. yd., and the deposits aggregate 240 sq. miles, with a total estimated yield of 4,600,000 tons. Marine fiber varies in length of staple from 2 to 8 ins. and the thickness from 0.02 to 0.15 mm. It is a brittle fiber and the coarser elements are stiff, like horsehair. It has been used for insulating purposes with excellent results. For paper making purposes the ultimate fiber would appear to be quite suitable, having a length of 0.02 to 0.05 in., but the chemical properties of the raw fiber are such that the usual processes of treatment have but little effect. It is extraordinarily resistant to rot and chemical hydrolysis, it is a lignocellulose of strongly pronounced type and yields only to the process of chlorination; the percentage of cellulose, 63.6, is relatively low.—E.K.M.

The Physical Testing of Paper as Affected by Humidity. Ross Campbell, J. Ind. Eng. Chem., Vol. 9, p. 658, (July, 1917).—This article is from the research laboratory of the American Writing Paper Co. and the data for it was collected in the summer of 1916. The humidity was controlled by regulating a Comins-Sectional Humidifier head by hand. The humidity was determined by means of a recording wet and dry bulb thermometer and a sling psychrometer. It was found that with this control the humidity did not vary more than two or three points, at most, nor the temperature more than 1 degree. Strips 180 mm. long were tested on the hand operated Schopper tensile-strength test machine. Resistance to folding was determined on a motor driven Schopper folding machine. The time of penetration was determined by floating the samples upon an ink bath. The sheets to be tested were hung in the room at night, about 8.00 the next morning the humidifier was started, and by 1.00 p.m. could be brought to the desired point. The sheets came to constant weight at about the same time and all tests upon the sample were made on the same day. Eleven papers were tested.

	Rag.	Soda.	Sulfite.	Thick-ness.	Folio Weight.
A Bond	25	few	75	.00384	20
B Ledger	85	....	15	.00385	20
C Bond	90	....	10	.00360	20
D Bond	50	....	50	.00320	20
E Fine	trace	25	75	.00362	24
F Bond	15	5	80	.00338	20
G Envelope	few	25	75	.00410	28
H Bond	15	10	75	.00405	20
J Blueprint	50	....	50	.00406	16
K Bond	90	....	10	.00492	19
L Blueprint	50	....	50	.00509	24

Tables and curves are shown for each of the papers indicated. The paper was tested over a range of humidities from 54 to 98. It was found that the results could be plotted against the relative humidity only, except in the case of the penetration tests where the results yielded a curve only when plotted against the absolute humidity. The time of ink penetration decreased 40 to 50 per cent. as the absolute humidity increased from 6 grains per cu. ft. of air (55 per cent. relative humidity at 80 deg. F.) to 11 grains per cu. ft. (100 per cent relative humidity at 80 deg. F.) The magnitude of most of the tests decreased 40 to 50 per cent as the humidity increased from 50 to 98 per cent.

Most of the Mullen tests showed a gradual dropping off above 70 per cent and a rapid dropping off above 80 per cent of relative humidity. The folding tests in the machine direction showed increasing values to about 80 per cent of the relative humidity and then decreased at about the same rate. Samples K and L showed the greatest range of results and F, E and G the least. B and C were exceptions, showing a very rapid increase up to 95 per cent of humidity, and not decreasing at all. No curve could be plotted for C in the cross direction, B showed a steady decrease as marked as the increase in the machine direction. K and L showed a steady marked decrease. F, E and G again showed the least variation. These three were also the weakest papers in all the tests. All the papers showed a decrease with increasing humidity most marked above 80 per cent of relative humidity, when tested for tensile strength in both the machine and the cross direction. In both cases the stretch increased as the humidity increased. B is tub sized and K is not. The results of the tests indicate clearly the advantage of a good tub size.

Another article bearing upon this same subject is: "Some Observations on the Influence of Humidity on the Physical Constants of Paper." Kress and Silverstein, U.S. Forest Products Laboratory, J. Ind. Eng. Chem., Vol. 9, p. 277 (March, 1917), reviewed in Puly and Paper, Vol. 15, p. 493 (May 17).—A.D.C.

Electrical Drive in a Roofing Paper Plant. By William H. Easton, Paper, Vol. 20, (1917), No. 13, pp. 16-17.—An account of a central power installation providing for individual motor drives in the Barrett Company, Elizabeth, N.J. The most interesting features are the following: The use of central station power, individual motor drive for each machine, the setting of beater rolls determined by meters; adjustable speed paper-machine drive with push button control. Individual motor drive imparts flexibility to the plant that is impossible with line shaft drive. All of the motors used in the plant are of the Westinghouse A.C. slip-ring type except the paper-machine motor, which is D.C. The adjustable speed drive of the paper machine provides a speed range of from 25 to 250 feet a minute in over 100 separate steps and on each step the speed is rigidly held constant until the adjustment is changed.—E.K.M.

Paper Yarns.—Paper, Vol. 20, (1917), No. 17, p. 21. Paper yarns spun from parchment paper are used for weaving driving belts for light machines up to about 8 HP; in widths of 30 to 155 mm. and thickness of 5-7.3 mm. Treatment with chemicals: Treatment with 1 per per cent tannin solution gives a soft, pliable feel and increases the strength by 49 percent. Tannin solution fixed with gelatin gives a hard, stringlike feel, increases the strength by 25 percent and reduces the loss of strength on wetting to only 15 percent. A solution of aluminum acetate partially neutralized with sodium carbonate imparts a somewhat harsh feel but causes no cohesion of the threads. Subsequent treatment in soap solution produces a flexible damp feel and prevents the absorption of water, but does not appreciably improve the strength after immersion in water.—E.K. Mansfield.

Fallacies in Colorimetry. William M. Dehn. Univ. Washington, J. Am. Chem. Soc., Vol. 39, p. 1392.—The author who seems most interested in the colorimetric study of solutions gives as a very extended foot note a very considerable bibliography descriptive of a great number of the colorimeters which have been proposed or used.—A.D.C.

PATENTS.

(From Chemical Abstracts.)

Waterproof paper pulp. M. Serebrianyj. Dan., 21,-839, Jan. 29, 1917. Ground birch, wood is mixed with a solution of resin.

Converting cellulose into simpler carbohydrates fermentable to alcohol. K. Peche. Ger., 292,482, Nov. 23, 1917. The cellulose-containing initial materials are subjected to the action of cellulose-dissolving bacteria such as "micrococcus cytophagus,". Micrococcus melan ocyclus", and bacteria grown on decayed radish, and the resulting slime is then further broken down with superheated steam, alkalies, acids, or fermentation, to simple fermentable carbohydrates.

Alcohol from sulfite waste. Aktiebolaget Ethyl., Norw., 27,613. Feb. 5, 1917. The tendency of fermenting viscose to foam in the distilling vessel is overcome, wholly or in part, by freeing it from CO_2 by exposing it in a finely divided state to the action of air.

UNITED STATES NOTES

The examination of the men called by Federal Draft to the colors is going on rapidly. Already many hundreds of men in the different branches of the paper industry have enlisted. The paper stock dealers, the paper dealers, the mills, all have sent their quota to serve in the National Guard and the regular army, not to mention those who have joined the naval forces.

Many thousands of men who are now employed in various capacities in the paper industry will be called to the colors. There will be a natural readjustment. There are signs that point to extensive advertising and mail campaigns by paper men to get business instead of employing salesmen exclusively. The salesmen will be sent to close the business after the customer has been told by letter the proposition the seller has to offer.

The closing of a contract with Lord Northcliffe by the American Newspaper Publishers' Association for the product of his mill at Grand Falls, Newfoundland, has caused much speculation in the paper industry here.

On the whole the paper manufacturers are prone to consider the sale of this news print, sulphite and ground wood a good thing for the American market. According to A. G. McIntyre, special representative of the Paper Committee of the Publishers' Association, two shipments of news print, ground wood and sulphite have already been received in New York, while still another shipment is to start from the mill next Friday.

"There are 15,000 tons of news print, 15,000 tons of ground wood, and 5,000 tons of sulphite for immediate use. That makes a total of 80.000 tons of news print that can be obtained from the Northcliffe mill in a year. We have enough boats flying the American and Norwegian flags to keep this stock moving into American ports. It takes one boat a month to make the round trip, and we can make at least one shipment a week."

According to the Paper Committee of the Publishers, the news print will be sold to the small publishers in less than car load lots, and at a price below 3c. at seaboard.

The American paper makers seem to take two opinions of the Northcliffe contract. One group is of the opinion that the sale of the news print here is really a fine thing for the United States market, because the present shortage of news print has caused the publishers to protest against the so-called high prices. Any new supply of news print thrown on the American market, these men say, will tend to lessen the tension that now exists between the buyers and sellers of news print.

On the other hand many news print manufacturers say that the sale of this news print, ground wood and sulphite will have no effect whatever on the markets here. These men point out that the mill has been closed for a period for lack of supplies, and labor, and that the machines that were used to make the 15,000 tons of news print now available were machines that merely turn out news print in width and weight for use in the English market, and which cannot be used in this market.

"I am certain," a well known paper maker said, "that this news print is useless as far as the publishers here are concerned. It is of weight varying from 31-32, while the machines that can take this particular width of paper—the Cox-Duplex machines—demand a paper weight of at least 34 pound weight.

"As for the sulphite the market condition is such that this amount of pulp cannot be absorbed at present at a price that would pay for the shipment. Concerning the ground wood, it is certain that the lack of labor and wood will mean a decided shortage of ground wood in the fall and winter. Any ground wood that Lord Northcliffe can ship to our market will be welcome.

"I do not believe that the production of the Northcliffe mill is as great as the Paper Committee would have us believe. I am certain that only one of the five machines can make the 73" width paper demanded by publishers here with any practical success. Of course the other four machines can make the required widths, but they can make it only at a great waste. Another thing to consider is the fact that the shipment by boat is a precarious affair. Publishers will be careful about making contracts to get paper which they are not certain of getting."

The rumor that the Riverside Fibre and Paper Company, in Appleton, Wisconsin, is to be sold was denied this week by an official of the company. The fact is that the company plans to erect a two-machine mill, and then the present paper mill will be abandoned to concentrate production under one roof.

Carlton E. Smith, who has been connected for a number of years with the Boyd Coated Paper Company, of Appleton, Wisconsin, has resigned to go with the sales department of the American Envelope Company of Dayton, Ohio.

Thomas G. Smiley, manager of the New York Paper and Pulp Traffic Association of Watertown, New York, wants the shippers of this state to confer with the Public Service Commission to establish an interchange of freight between carriers by rail and water, with through rates and joint routes as permitted in the bill enacted June 9. Previously the railroads not only would not co-operate, but could, if they wished, freeze out the canals by lowering rates temporarily. The New York State Commission lacked authority to investigate the boat-line and railroad situation.

Coarse paper dealers from Western Missouri, Kansas, Oklahoma, Iowa and Nebraska, met at St. Joseph, Mo., this week for the purpose of forming an association. Officers will be elected in the near future.

Philip T. Dodge, president of the International Paper Company, said there was nothing to the suit that was filed in the Supreme Court this week by certain minority common stock holders of the company, in an attempt to have the company distribute the net surplus profits, said to be $16,238,746.

An overheated journal caused a small fire in the Niagara Falls mill of the International Paper Company on Monday. The damage totalled about $200.

The Frank Gilbert Paper Company, which is about to complete its new mill at Cohoes, New York, has just closed a contract with the Forsythe Paper Company, of Chicago, to handle the western sales agency exclusively for the company.

It was decided at the meeting of the stockholders and directors of the Underwood Paper Company, and Plattsburg Wall Paper Company, to transfer the plant from Plattsburg, N.Y., to Glens Falls, N.Y. A dividend of 10 per cent. was declared by the Plattsburg Wall Paper Company, and the Underwood Company showed net earnings of approximately 8 per cent., after charging off $30,000 for extraordinary repairs.

Herbert S. Carruth, father of Henry P. Carruth, president of the Technical Association of the Pulp & Paper Industry, and manager of tests of the American Writing Paper Company, died at Amherst, Mass., on Friday, July 27.

The Remington Paper & Power Company has leased a pulp wood terminal at Ogdensburg, N.Y., and is installing the necessary equipment used in transferring the wood from the barges to the trains that carry the wood to the pulp mills of the company at Norfolk and Norwood, N.Y.

Carl H. Hanna, vice-president and director of the Remington Paper & Power Company, of Watertown, N.Y., has enlisted in the Ohio engineers. He is now winding up his affairs at Watertown, preliminary to joining his regiment, somewhere in Ohio. Mr. Hanna is an heir to the immense fortune left by the late Mark A. Hanna, U. S. Senator and one of the greatest political powers in American history.

The one hundred and twenty-two millwrights and their helpers, who went on strike at the mills of the American Writing Paper Company at Holyoke, Mass., have returned to work. The men wanted the present bonus salary system abolished, and a higher wage scale established in its stead. The intervention of a member of the State Labor Commission brought about a speedy settlement, the men gaining none of the concessions demanded.

The erection of a big pulp and paper mill at Port Wentworth, near Savannah, Ga., is to be accompanied by the establishment of a model town, to be inhabited by the employes of the mill and their families.

The executive committee of the International Brotherhood of Papermakers in session at Albany last Saturday, decided to allow members of the Union to work overtime, or in excess of eight hours a day, but not more than twelve hours, in case of emergencies created by war conditions. The proviso is made, however, that the men shall not work overtime more than two days in succession. After a certain period of time to be fixed by the committee, the question will be put to a vote by the men, and it will be up to them to decide whether they will work overtime for the purpose of maintaining production when their ranks have been depleted by the army drafts.

The announcement that the Government is preparing to commandeer all ships sailing under the American flag has created quite a stir in pulp and paper circles. It is felt that this action will seriously hinder the development of foreign trade by American paper manufacturers. Great progress has been made in the South American markets during the last year, but if the American paper mills cannot obtain bottoms in which to ship their products to foreign consumers, it is doubtful if they can retain the foothold already gained in the Southern Republics.

The Keith Paper Company, of Turners Falls, Mass., has placed the New England agency of its Tisrite products with the Bay State Paper Company, of Boston, Mass.

The addition of a few New York capitalists to the list of stock holders of Smith Paper Company of Lee, Mass., has been accompanied by the announcement that hereafter the company will be known as The Smith Paper Company. Plans are being completed for improvements providing for a marked increase in the producing capacity of the company.

The Cornell Wood Products Co., of Cornell, Wis., has filed a petition with the Interstate Commerce Commission, protesting against the present rates on wood pulp board in official classification territory.

The Interstate Commerce Commission has dismissed the protest filed by the Kimberly-Clark Company, of Neenah, Wis., against the American Express Company. The Commission found that express rates on paper in carloads from Kimberly, Wis., to New York City were not unreasonable.

Charles H. Corp, who for several years was foreman of the paper mill of the Newton Falls Paper Company, of Watertown, N.Y., at Newton Falls, died at the home of his brother-in-law near Evans Mills, Monday night, after an illness which extended over several months. Mr. Corp was 62 years of age.

Major Charles S. Proctor, of the Proctor Paper Company, Boston and Lowell, has just been commissioned by Gov. McCall as Lieutenant Colonel of the 16th Regiment of the State Guard, which organization takes the place of the National Guard, which has been mustered into the U. S. Federal Service.

Leonard Mann, superintendent of the No. 1 Mill, of the Riverside Division of the American Writing Paper Company, has been transferred to the engineering department of the company.

THE GLENS FALLS MACHINE WORKS IN CONSOLIDATION.

The Glens Falls Machine Works who have been making very successful pulp mill machinery at Glens Falls, N.Y., have consolidated with the F. R. Patch Manufacturing Company, Rutland, Vermont. The business of the Glens Falls concern will be carried on under the old name, the offices remaining at Glens Falls except the treasurer's office, which will be at Rutland. The officers are: President F. R. Patch; Vice-President, Newman K. Chaffee; Treasurer, George C. Cobb; Secretary, E. A. Hall; Works Manager, Fred B. Chappell.

Their product consists of the Tromblee & Paull Rotary Sulphur Burner, Moore Rotary Screen, A. D. Wood Pulp Washers, Slushers, Water Filters and Save-alls, Standard Deckers and Washers, Rogers Sulphite Wet Machines, Standard Ground Wood Wet Machines, Wood Pulp Grinders, Rotary Pumps, etc.

In addition to the works at Glens Falls, the consolidation gives the organization a large modern plant in Rutland employing from 250 to 300 men, and increases the producing capacity about three times. This assures prompt delivery especially of the Rotary Sulphur Burners, which are being installed in many sulphuric acid plants, as well as in sulphite pulp mills.

PULP AND PAPER NEWS

G. G. McNicol, son of J. L. McNicol, Vice-President and Managing Director of the Wax and Glassine Paper Co., Limited, Cookshire, Que., is now located at the Houpt Paper Mills, Camden East, Ont., where he is installing one of his father's patent Automatic Weight Regulators on the new paper making machine recently erected at Camden East. G. G. McNicol will remain with the Houpt Paper Co., as one of their permanent staff. He was formerly employed in the paper making department of the Forest Products Laboratories, McGill University, Montreal.

The daily output of pulp at the plant of the Rainy River Pulp and Paper Co. at Port Mellon, B. C., is about twenty tons. Robert Sweeney, President of the Company, has been paying a visit to the West and announces that additional equipment will be installed shortly and the production doubled. The company will also make kraft paper which will be in the market by the end of the month.

Rolph and Clark, lithographers and engravers, Carlaw Ave., Toronto, and Stone, Limited, 461 King street west, Toronto, have merged their businesses into a firm to be known as Rolph, Clark, Stone, Limited. The authorized capital of the company is three million dollars, and the place of operation will be on Carlaw Ave. Frank Rolph is Honorary President; William Stone, President; T. J. Clark, Vice-President; F. A. Rolph, second Vice-President, and Managing Director, and F. W. Stone, General Manager and Secretary.

D. F. Robertson, General Manager of the Northumberland Paper and Electric Co., Campbellford, Ont., and family, have returned from spending a holiday in Picton and Prince Edward County.

The Carter-Crume Co., Toronto, has declared a quarterly dividend of one and three-quarter per cent on the preferred stock. The dividend which is to be paid out of the company's returns from its holdings in the American Sales Book stock is in addition to the seven dollars per share which will be distributed, when the exchange of shares is made, and is quite apart from the twelve and one-quarter per cent of accumulated dividends, which American Sales Book Company. Limited, preference shares will carry at that time.

A federal charter has been granted to the United Publishers of Canada, Limited, with a capital stock of two hundred thousand, and headquarters in Toronto. The company is empowered to carry on the business of publishers, booksellers, printers and lithographers, and to acquire as a going concern the business now being operated by the Manufacturers Press, Limited. The incorporators are Donald L. McDonald, Eldon Moir and others, all of Toronto.

F. N. McCrea, M.P., President of the Brompton Pulp and Paper Co., East Angus, Que., and J. A. Bothwell, General Manager of the Company, were in Toronto last week on business. In an interview, Mr. Bothwell said that the paper trade was facing a serious situation in the matter of coal.

The date has been set for the annual meeting of the Laurentide Co., which will be held in Montreal on Tuesday, September 4th.

Norman E. Wainwright, formerly Montreal manager for Ritchie and Ramsay, Toronto, who is now with the J. W. Butler Paper Co., of Chicago, spent a few days in Montreal and Toronto last week, calling upon a number of old friends in the trade.

The Log Supply Co., Limited, of Montreal, with a capital stock of fifty thousand dollars has been granted a federal charter. The company is authorized to manufacture, buy, sell and export logs, timber, lumber, and articles of all kinds made in whole or in part from wood.

About four hundred men are now employed in the construction of the big pulp mill for the Fraser Co. at Edmonston, and it is to be completed by next March. The company has a $2,000,000 proposition there. One of the contracts calls for the erection of fifty-four dwellings for workmen.

A firm in Rheims, temporarily in Paris, wishes to get in touch with manufacturers of wrapping paper. Further particulars can be obtained from the Department of Trade and Commerce, at Ottawa, by referring to trade inquiry number 1098.

THOROLD ITEMS.

A sad drowning accident occurred at the Montrose Division of the Provincial Paper Mills Co., Ltd., Thorold, on Tuesday last, when a young boy of about seven, while attempting to bathe near the head-race of the mill, lost his foothold and slipped into the stream where he was immediately caught by the current and carried under. The water was immediately drawn off and the body was recovered in less than fifteen minutes. A doctor had arrived by this time, who, with the aid of a pulmotor, worked over the body for an hour and fifteen minutes, but life was found to be extinct. The office staff are to be complimented in the prompt manner in which they affected the recovery of the body and secured the services of the doctor and a pulmotor.

The new sulphite plant at the Ontario Paper Co., Thorold, is now going strong, and good progress is being made with the erection of the wrapping machine being installed there.

Mr. and Mrs. S. F. Duncan, Mr. and Mrs. I. H. Weldon and Mr. J. B. Piper, of Toronto, motored to Thorold, on Saturday, where they paid a visit to the Montrose Division of the Provincial Paper Mills.

The plating room girls of the Montrose Division of the Provincial Paper Mills, Thorold, were given a month's vacation to reconsider their demand for a nine hours day at the same day wage.

Monday, August the 6th, being civic holiday in Thorold, Merritton and St. Catharines, the mills have decided to allow their day workers the half day off to attend the Red Cross celebrations at Thorold.

Contractor J. A. Tremble has a gang of men working around the Montrose Division of the Provincial Paper Mills Co., Ltd., at Thorold, where he has just constructed a jib crane for the handling of coal. The erection of a wall for the extension of the unloading platform, and the cave in on the bank of the raceways are more matters for their attention.

Just one year ago there broke out in Northern Ontario the worst bush fires in the history of the province in which millions of dollars worth of timber was destroyed and nearly two hundred lives wiped out. The loss of pulp wood piled along the tracks was also very heavy.

Many editors and publishers were at the convention held in Toronto recently to consider joining a Win-The-War-Press Union which will carry out its own united propaganda for winning the war. In the notice sent out, it is asserted that the press can combine on higher than party lines to give service to the nation which cannot be rendered in any other way.

H. F. E. Kent, of Toronto, managing director of the Kinleith Paper Mills, St. Catharines, has been appointed Grand Organist of the Grand Lodge, A. F. and A. M., by M. W. Bro. W. H. Wardrope of Hamilton, the newly elected Grand Master.

J. H. Fisher, who for many years has been in the stationery and paper business in Paris, Ont., has been created a Senator. He is an ex-Mayor of his native town, and was selected to the Ontario Legislature in 1905 and as a member of the Federal Parliament in 1911.

The pulp wood shipments from Northern Ontario during a recent month amounted to 12,991 cords revealing a gratifying increase. Pulp shipments totalled 755 tons and paper shipments 6,070, all of these being a far better showing than for some time ago.

Recruiting is still being continued with vigor for men to join the foresty battalions and with the leaving of all the available forestry and construction men from Camp Borden recently, the depot is practically depleted and many others are needed.

F. L. Ratcliff, of the Ratcliff Paper Co., and wife who have been holidaying at Lake Muskoka have returned to Toronto. Mr. Ratcliff is now restored to health.

OTTAWA NOTES.

Regarding the distribution of literature by the Canadian Press Association as to the proceedings at the newsprint inquiry, it is said in some circles that if the findings of the Commissioner gives the paper manufacturer more than two and one-half cents per pound the publishers will appeal direct to the Government or may have the matter directly brought up on the floor of the House of Commons. By the distribution of this literature paraded under the head of news in several of the Canadian dailies the publishers hope to manufacture public sentiment and strengthen their alleged cause for complaint. In Ottawa the public is taking little concern of "stories," and in some quarters comment unfavorable to the publishers has been heard as regards taking up the news space with the propaganda literature.

Lieutenant Forest Millen Pratt, grandson of Mr. George H. Millen, and civil engineer of the E. B. Eddy Company, has been recently wounded in France according to reports reaching his father, Mr. Horace Pratt, at Ottawa. Lieutenant Pratt is with the Canadian Engineers, and some time ago was awarded the Military Cross for bravery on the field. His condition, according to late cable reports is not serious.

A movement to compel Canadian newspaper publishers to make public the names of persons having a financial interest in them has been commenced by Col. John A. Currie, M.P., who states that he is going to move such a resolution in the House of Commons shortly. On Thursday Mr. Currie made the allegation that certain newspapers in Canada were subsidized by individuals or associations unfavorable to the Allies, and he believed the best way to bring this to light would be to compel the publication of parties having financial interest in the newspapers. In Great Britain and the United States a newspaper or periodical is compelled to print this information. Mr. Currie proposes to have similar legislation enacted in Canada.

During the past week John R. Booth has renewed his fight to have the city council grant him permission to use the northern end of Bronson Ave. as a piling ground. If the Council does not grant the required permission Mr. Booth says that it may necessitate the closing down of part of his mill which would throw hundreds of hands out of employment.

The Ottawa paper market, notwithstanding the usual midsummer lull, which last week was attended by the most terrific heat wave of the pear, is experiencing a good reason, and the tendency of business depression which characterized the closing weeks of July is gradually drifting away and business is beginning to pick up. A good fall business is expected by the paper men, though in some grades there are not sufficient stocks to meet the demand.

In this respect one of the biggest job printing houses has had to hold over no less than six fairly big orders on account of not being able to secure suitable stocks. The delay in the fulfilment of the orders, however, is only temporary, as the required stock is expected to be available in from seven to ten days time. Other stocks are holding out well and there is a fairly good demand, with prices remaining firm and tending toward higher levels for fall business.

The Ottawa Paper Box Company is having a very good season and has had little difficulty with the labor situation.

The Beaverboard Company, whose plant is located at Beaverdale, is having a good summer business with good prospects for increased fall operations. This plant secures most of its material from John R. Booth and reports are that the supply up to the present has been adequate to meet demands. The Laurentide and Brompton mills sometimes supply the firm. At present the big mill is operating on the eight hour shift system and only running days, turning out a monthly output of 3,000,000 feet.

The capacity of the plant, including the big addition which was completed some time ago is now between seven and eight million feet of board monthly. The principal part of the output from the local mill is going to be in continued good demand though the price this year is $40 per thousand feet, whereas last year it was but twenty-seven dollars. The increase in the cost of raw material at the paper making mills is given as the reason for the increased cost.

"If we do not have or are not permitted to secure American business and orders the Canadian paper manufacturers will have to close their plants." Such was the statement made by Mr. Jackson Booth, of the John R. Booth firm to the representative of the Pulp

and Paper Magazine last week, when discussing the outlook for the 1917-18 newsprint situation, with an eventual possibility of the Canadian newsprint manufacturers having to sell their product in Canada at two and one-quarter cents per pound. Mr. Booth in the course of the interview, made it plain that the demand of Canadian publishers was not sufficient to take care of the output of the mills. Two mills alone could look after the Canadian business. This means the other fifteen or more mills having expensive plants, worth millions of dollars and vast forestry rights or leases would have to close up. If American business is shut off it spells the doom of the newsprint paper manufacturing industry in Canada.

Mr. J. C. Booth, on reviewing the whole paper situation in Canada, is not altogether too cheerful as to its aspect. "The Government cannot compel us to manufacture newsprint paper at a loss," said Mr. Booth. "But the Government says under the powers of the order-in-Council fixing the price at two and one-half cents that newsprint paper manufacturers in Canada have to supply the Canadian trade," countered the correspondent.

Mr. Booth went on to explain that if the government wanted the publishers supplied that it was its own affair, but that it could not compel the newsprint manufacturer to operate at a loss to himself for the benefit of the publisher. Rather the mills would close. In the event of only two mills remaining and supplying the Canadian trade Mr. Booth pointed out that considerable disagreement would likely arise as to the securing of orders and the supplying of the Canadian field.

"There is not a newsprint manufacturer in Canada to-day who knows where he is at," continued Mr. Booth. "You cannot with certainty gauge the situation. To-day you may have men in the bush and tomorrow somebody else comes along and takes them away at higher wages." Regarding the charges made by Mr. Frank P. Walsh against certain paper makers, Mr. Booth is of the opinion that not one of them can be proved. The publishers propaganda for manufacturing public sentiment and allying it to their cause Mr. Booth thinks will not meet with much success. He thinks some of the publishers are trying to bluff the paper manufacturers and the government and when the time comes will get called.

Work on the new Booth sulphite plant at the Chaudiere is proceeding favorably, but it will be some time before it is completed.

METHOD FOR REMOVING ELECTRICITY.

A pressman, who has studied electricity to some advantage, has caused to be evolved a simple and effective means of eliminating static electricity from paper being fed into a cylinder printing press. To an old electroplate, taken off its base, he attached a copper wire, the other end being wrapped tightly around a steam pipe or fastened to a radiator. He then laid the copper-faced plate between two dampened blotters, and placed it on the feedboard beneath, the papers being fed coppered side uppermost. This furnished a means of conducting the electricity to ground and relieved the peculiar adhesive characteristic so often found in coated and calendered papers, causing trouble in feeding the sheets, and considerable stoppage and spoilage.

CANADIAN MILLS SHOW BIG INCREASE.

In 1913 Canada produced but 350,447 tons of newsprint against 614,226 tons in 1916. In other words, of the total production of 1,655,012 tons in the United States and Canada in 1913 the Canadian mills contributed but 21 per cent. Of the North American 1916 output of 1,988,447 tons the Canadian mills produced 30 per cent. An dthe Canadian percentage will continue to grow.

Another feature of news-print development during the past four years has been the coming to the front of the Great Northern Paper Co. This corporation made 197,533 tons in 1916, against 150,082 tons in 1913. The gain of almost 50,000 tons, or 33 per ecnt, is the only substantial increase by any American mill. In fact the gain for the whole country in this period was only 50,601 tons or 3.8 per cent. During the same time Canada's production increased 264,000 tons, or 75.4 per cent.

The International Paper Company made only 27.0 per cent of American newsprint in 1916 as against 30.8 per cent in 1913.

RAG DEALERS REJECT CONDITIONS.

E. Salomon, chairman of the paper division of the National Association of Waste Material Dealers, denied that the paper division had approved of the rag classification as issued by the felt manufacturers.

"The fact of the matter," Mr. Salomon said, "is that we accepted the trade customs, but did not approve of the rag classification nor of the contract conditions. We are now debating the matter with the felt manufacturers."

"The fact of the matter," another rag dealer said, "is that some of the felt makers are likely to take advantage of the strict regulations that the proposed conditions assume that it is possible to apply to the grading of felt stock. This would be absolutely unfair to the rag dealers. There is no such thing as perfect packing and the felt men know it, but these proposed conditions assume that it is possible to make perfect packings. The mill that wanted to take advantage of the letter of the conditions would take an unfair advantage of us."

THE PAPER MARKET.

Today it is extremely difficult to forecast prices and conditions in the paper business. Increased cost of production, in which are included advances in wages, coal and raw materials, would seem to indicate that it would be almost impossible for the manufacturer to make any reduction in price. The chief factor, however, in price control, is that of supply and demand. Somewhat unsettled conditions in the United States consequent upon their entry into active participation in the war, has in some degree affected the demand, and some American mills have not been so busy as during the past. The Canadian mills, on the other hand, are generally booked many months ahead. It is the general opinion, however, that stocks are not large, and that the next two months will see a considerably increased demand for all lines of paper. It would appear, therefore, that for the present, at least, there is little prospect of any material reduction in the price of paper.—Martin's Papyrus, July.

The Markets

TORONTO, August 6.

There is little new to record in the newsprint situation. Mills are still very busy in Canada. The officials appointed to examine the books of the news mills are still at work, but when their efforts will be over, it is impossible to say. It is understood that the statements when ready will be submitted to the manufacturers and there will be another sitting of the Commission when all parties will be invited to be present.

It has been suggested that G. T. Clarkson, of Toronto, the auditor, confer with the accountants who handled the newsprint investigation for the Federal Trade Commission and usbmit copies of the Canadian accountants report. It is probable that R. A. Pringle, the Canadian Commissioner, will shortly go to Washington to confer with the Federal Trade Commission in that city at a date to be arranged. Mr. Pringle has asked for the use of the figures obtained in the Federal Trade Commission's investigation into costs, etc., in Canada, in order to aid the Canadian officials now at work on the audit. This request will likely be granted. In the meantime there is nothing more which can be said on the subject. The manufacturers are awaiting the outcome of the audit, and are not talking for publication. The Canadian Press Association is not inactive, but it watching developments closely although that body withdrew from the inquiry several weeks ago. What move the members will make in case there is a substantial increase in the price cannot be said. It is likely that the rate of two and half cents will be extended another month, but when a new figure is set it will possibly apply for all the time since the three months probation period which was agreed upon, and the manufacturers be reimbursed for any losses they may have suffered.

Touching upon the recent increase in price from one to two cents per copy, a leading Toronto paper remarks, that the added revenue will not remain in the coffers of the office for the paper makers are taking an additional sixty cents per hundred pounds for white stock. As the absolute limit has been reached, the one cent paper cannot be stretched further. Another morning paper commenting upon the newspaper development makes the following candid observation. "The outbreak of the war accentuated the conditions that made hard the lot of the publisher. The cost of paper increased in spite of the efforts to secure discriminative government action against the mill. Wages and other items that added to the cost of production advanced, including charges for news services. The volume of advertising at paying rates could not be augmented in proportion to the outlay. At a recent meeting of the California Press Association, it was mentioned that in the United States in two years some eight hundred country papers had ceased publication. The conditions that produced such results naturally caused much thought, which in Toronto, as in other cities, has led to an increase in the charges to purchasers of newspapers. Even at two cents a copy most first class papers are sold at less than cost of production. The lesson of the situation is that when a daily paper is maintained at a high standard and gives value for its price, it can command a clientele to assure its success. The general recognition of the fact and action in accord therewith will also operate to make the papers more independent. The paper bought for its value is the one which can afford to think for itself."

"In regard to the outlook for high grade paper and the prospects for the supply of raw material I can only say that one man's opinion is as good as another's," remarked a leading Canadian manufacturer to the Pulp and Paper Magazine this week. "With the shortage of coal and the shortage of labor and the consequent high price of both, I cannot see how prices can do anything but advance. Of course, a great deal depends on the general business situation. If the labor market improves and coal becomes more plentiful, things will no doubt carry on as they are for some time. So far as I can see at present I am afraid that some mills will not be able to run through the winter with their coal, and the way it is coming in from the mines."

"It is wonderful how matters change in the paper situation," declared a sales manager. "To think that in 1916 mills could not promise deliveries within six months, and then a sudden change should come about within six months so that one can scarcely dig up an order shows the rapidity of altering conditions. I am much alarmed about the pulpwood supply more than I am regarding future orders which will take care of themselves after this temporary lull, for I regard it as only temporary. I hear that from thirteen to fifteen dollars is being paid for prompt shipment of pulpwood, that settlers are getting from six to eight dollars per cord and that on the cars at shipping point, twelve dollars for rough wood is being quoted. These figures are simply staggering and one can scarcely comprehend their meaning to the trade."

In the groundwood arena, matters are quiet at present, but one manufacturer, who has piled nearly two thousand tons, stated this week that he felt sure before another month passed there would be an upward trend in prices. He was holding out for forty dollars per ton and would not sell for less although he had a number of bids at thirty-nine. The wood question was being lost sight of at the present time, but would be brought about to an acute issue in the near future. Prices at present are not criterion in the pulp market of what the figure will be this fall and all mills seem confident that they will have no difficulty in disposing of stocks at hand. Buyers are waiting until the military preparations across the border are further advanced and trade assumes a more normal basis. It is true that prices are softer in some spots to tide over the present situation, particularly in news grade sulphite, but in easy bleaching, quotations are holding up pretty firmly. One plant has been exporting a large quantity, and is not worrying any about present conditions.

The most important piece of news during the past week is the lifting of the Swedish embargo on pulp going to England. The embargo was put on some time ago as a retaliation for one on the shipment of coal and other commodities from England to Sweden. It is not expected that any serious effect will follow

the lifting of the restrictions as the weekly imports have been very small from across the water, and there is still a great scarcity of bottoms. One authority thinks that the removal of the embargo will strengthen domestic pulp, but that there will not be any improvement for a few weeks yet until fall business sets in.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $9.00
xBook papers (carload), No. 2	$9.35
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 1	$9.50
xBook papers (ton lots), No. 1	$9.75 to $10.25
Ledgers	15c up
Sulphite bonds	13c up
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75 to $5.50
†Fibre	$7.35 to $8.75
†Manila, No. 1	$7.35 to $8.75
†Manila B	$5.25 to $6.25
Tag manila	$7.50 to $10.00
Unglazed kraft	$9.00 to $11.50
Glazed kraft	$9.00 to $11.50
Tissues, bleached	$1.40 to 2.10
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural, greaseproof	14c to 21c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 23c
Genuine vegetable parchment	26c to 35c
Drug papers, whites and tints	11c to 15c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$75.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish; super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$70.00 to $75.00
Sulphite (bleached)	$120.00 to $130.00
Sulphate	$100.00 to $110.00

Rag and Paper Stock.

In the rag and paper stock market, there is a better demand for hard and soft white shavings. News blanks are dull. There is a very active requisition for mixed papers, over-issues and magazine stock and better prices should prevail shortly. Accumulations are low partly owing to low prices that dealers have been offering and partly due to the recent extreme hot weather and summer vacations which have resulted in little business being done and consequently little waste paper.

In the rag stock market net cotton rags are still quiet, but steady. There is a strong demand for blues and roofing stock, with quotations advancing. Roofing rags seem good for a still further advance and dealers would not be surprised to see them go to fifty dollars a ton before very long.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$3.00
Mixed shavings	70c
White blanks	$1.75
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.25
Folded news	65c
Over issues	$1.00
Kraft	$3.50
No. 1 clean mixed papers	57½c
No. 1 white shirt cuttings	$7.35
No. 1 unbleached cotton cuttings	$7.35
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.50
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City third and blues	$2.85
Flock and satinettes	$2.10
Tailor rags	$2.00

NEW YORK MARKETS.

New York, N.Y., Aug. 4, 1917.—Business was much disturbed this week by the terrible heat, which practically brought things to a stand-still for three days. The heat wave was the hottest that had thus far hit this city—and put a damper on the ambitions of many a paper man hereabouts.

In chemical pulps, the removal of the Swedish embargo on pulp exports to England is still a matter for considerable conversation. One report states that trading has improved a little, indicating that the demand from consumers shows quickening, though there is no heavy demand. Prices are being held fairly firm, though some concessions are occasionally rumored throughout the trade. That importers are firmly of the belief that Swedish quotations will go higher, is evident from the manner in which they are firming up on their prices. One thing is certain, that there will not be any speculation in foreign goods, for there is no longer the privilege of storing free of charge on the docks at Baltimore, Philadelphia, and Newport News. There is much interest in the new pulp mills that are under way in Canada. Provided these mills are able to proceed rapidly in construction, there seems to be a likelihood that an increase in production will find its way on the market in a comparatively short time. This,

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of course, assumes that the difficulties in securing supplies of pulp wood ease up somewhat. Up to date, wood difficulties are as acute as ever. And, what is more, pulp producers do not seem very hopeful about the future. Prices on foreign unbleached have stiffened materially, and it is not likely that stocks can be secured under 5¼ cents. Easy bleaching is practically unobtainable at 5¾ cetns, and quotations on Mitscherlich rule firm at around 6 cents. There still seems to be an easiness about domestic pulp, although the downtrend of quotations is thought to have been definitely checked. There was an increase in demand for soda pulp during the week. It was reported that inquiries in this grade were far more active than they had been in several months, and one authority stated that several large sales were actually consummated. The prices at which these deals were closed could not be found out, but it was hinted that they were a little over 5 cents a pound.

Groundwood prices continue fairly firm, for grinders are of the belief that the demand must assume greater proportions in the near future. Quotations are about $41 to $45 per ton, f.o.b., mill, for the East; about $43 to $47 per ton, f.o.b., mill, for the West.

The activity of roofing stock, in the rag market, is bringing about a situation that has not been calculated with by paper makers, according to local dealers. They assert that the market is to-day apparently facing a shortage in roofing stock, and that it is imminent that this will soon commence to eat up some of the next higher grades of rags. The scouring of the country last year for stock has eliminated many sources of supply for this season, and, this, together with the serious labor problem, is causing collectors to seek other forms of livelihood. With the consumption of roofing rags now above normal, and with little foreign stock coming in, we can see nothing but a steady rise in prices. It is significant that the advance in values is failing miserably to stimulate the production. From this, it is gathered that there is an actual shortage of rags. No. 1 roofing is getting about $50 a ton at the mill. Old whites, No. 1, are quoted at about 5 cents; thirds and blues are going at 3¼ cents; street soiled whites are going at about 3 cents; black cotton stockings are held at about 2¾ cents.

While there was a fair demand for new cotton rags during the early part of the week, it seems to have slowed up considerably. Shirt cuttings are held for as high as 9½ cents. New Silesias are held as high as 6½ cents; washables are quoted up to 5½ cents.

It is difficult to ascertain the exact status of the bagging market. Roofing bagging, however, is eagerly sought with prices tending strongly upwards. Dealers say that if the prevailing condition of the market continues, it is not all unlikely that roofing stock will shortly be worth as much as No. 1 scrap bagging. The quotations now ruling are about as follows: gunny, up to about 4 cents; bright bagging, up to about 3½ cents; sound bagging, to about 2¾ cents; mixed bagging, to about 2½ cents.

Despite comparatively little interest in old manila rope, because of the usual dull summer season, prices are firm, and, it is claimed, there are no prospects that they will weaken, due to a rather acute shortage of stocks. Present quotations are up to 6¾ cents, and likely to stay up.

Low qualities of waste papers are the ones in greatest demand. A good business in news and in mixed papers is reported, and the same is said to be true of similar grades. However, in shavings, krafts, manilas, ledgers, and flat stock, much difficulty is entailed in obtaining orders from the mills. No effort is being made to dispose of the better grades, in the belief that business will become more active within the next month or so. Mixed papers are quoted at as high as 65 cents per hundred pounds; strictly folded up to 90 cents per hundred pounds; strictly over-issue, up to more than 1¼ cents; hard white shavings, up to 4¾ cents; soft white shavings, up to 3¼ cents; magazines, up to 1¾ cents; ledger stock, up to 2¾ cents; krafts have dropped to a top of 3 cents.

It is not going astray to characterize the paper market, as a whole, as being weak. Concessions in the different grades are reported more frequently than ever. It is evident that the manufacturers are doing their best to hold their ground until the early fall, when, they feel confident, business will be stimulated to its old status. It is said that most of the shading of prices is being done by jobbers and others who find themselves with surplus stocks on their hands and are endeavoring to get rid of them at considerably below what one might call the present market—if there is actually such a thing. The statement was made that a number of news mills were running on short time, while others were not running at all. Manufacturers insist that the luil is but temporary, and that the demand will, of necessity, return shortly—and stronger than ever. In tissues, the situation is practically at a standstill—the absence of buying nterest being generally complained of. Dealers in this city state that they are at a loss as to what to do, for they have no hopes for improvement for at least another month or so. In wrappings, a situation, somewhat similar, though materially better, exists. Prices are considerably lower than those prevailing a short time ago. However, a big future is predicted soon, inasmuch as it is stated that the big consumers are now planning to take advantage of the situation while prices are somewhat slow. Then again, it is said that, fearing dire effects on transportation from the government movement of troops and supplies, a scarcity will result in consuming centres, pushing values up higher than was ever yet the case. There is no particular activity in boards. Some mills report a fair demand and are selling at the recently lowered figures. Demand for book papers is fair, considering the summer season and the bearish effects of the other markets. Interest was shown in the announcement during the past week that the Wardlow-Thomas Paper Co., of Dayton, Ohio, had placed its new coating plant in operation.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b. mill	$41 to $47
Foreign bleached sulphite, ex-dock, N.Y.	9½c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b., pulp mill	6c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b. pulp mill	3½c*
Kraft, pulp, f.o.b., pulp mill	6c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	6¼c*
Bleached soda pulp, f.o.b., pulp mill	5¼c*
Foreign unbleached soda pulp, ex-dock, N.Y.	5½c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	6c*
Bond papers, sulphite	10c*
Best grade writings	21c*
Regular superfine	19c*
Ledger papers	10c*
News contracts, f.o.b. mill	$3.00 to $3.75

News, spot lots	$3.25 to $4.50
News, side runs	4½c*
Book, super	7½c*
Books, coated	8½c*
Books, machine finish	7c*
Tissue, good sulphite, bleached, per ream	$1.00
Tissues, ground wood, manila, per ream	$1.00
Kraft, domestic	7½c*
Kraft, foreign	8c*
Wood, Manilas, No. 1	7c*
Wood, Manilas, No. 2	5¾c*
Jute manilas	9c*
Newsboard, per ton, f.o.b., New York	$55.00*
Strawboard, per ton, f.o.b., New York	$50.00*
Chip board, per ton, f.o.b., New York	$50.00*
Binders Board, per ton, f.o.b., New York	$65.00
Wood Pulp Board, per ton, f.o.b., New York	$75.00*

(*)—And higher. (†)—And way up.

NEW YORK CHEMICAL MARKETS.

NEW YORK, N.Y., August 4.

Domestic china clay is enjoying a better demand than normally is the case, as a result of the steady falling off in imports of this material from England, France and other foreign sources of supply. Efforts are being made to improve the domestic product and confidence is expressed that, after the war is over, it will be possible to hold considerable of the trade formerly controlled by the foreign operators. Quotations on foreign clays are strictly nominal, as practically all that is coming in is on contract and importers have little or none to offer for immediate delivery. Prices at the mines for domestic china clay range from $13 to $18 per ton, dependent on the quality and the amount desired. Rosins are steady with business reported fair. Demand for caustic soda is active with spot supplies growing increasingly light, sellers are constantly asking for higher prices. For the 76 per cent article the lower figure is about 7 cents, while it is understood that offers as high as 7¼ cents have been turned down. It is difficult to get prices for next year, as most of the makers have sold their production ahead for some time to come, and are not anxious to bind themselves.

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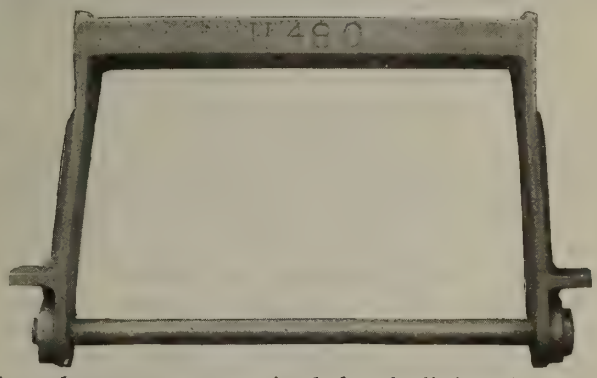
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NORTH MILWAUKEE, WIS., U.S.A. STONEHAM, MASS., U.S.A

A WORD TO SUPERINTENDENTS AND FOREMEN.

Every plan for industrial safety is met with occasional and, at times, discouraging difficulties. Even ideal plans cannot be applied with constantly ideal results, because the human element is largely involved, and the human element is very difficult to control. If accident prevention were wholly a matter of guarding machinery and protection from the hazards of the physical property, then the problem could be perfectly solved by the expenditure of money. The mechanical hazards are comparatively easy to remedy, but the human element hazards remedied today may be absolutely unguarded tomorrow.

Mechanism and working conditions may be made safe, and this work may be supplemented by rules, the obedience to which would further insure protection from injury, after which there would still remain about as many serious hazards as there are workmen in the mill. Good rules may be adopted; good discipline may be maintained; but no power, except the power of the individual workman and wholly within his own control, can prevent violations of the rules. The superintendent or foreman knows ful lwell that infractions of rules by those under him, are sure to occur and that many times these violations are unintentional, not due to malicious disregard, but to that thoughtlessness so common to all.

No agency about the plant has a greater or surer influence on the "man on the job" than the Department superintendent and the foreman directly in charge. The foreman reflects the character and the policies of his superior officers and is strongly influenced by them, but even to a greater extent are his policies and personality impressed upon the men under his direction. Men naturally, and often unconsciously, follow a leader in whom they have faith and confidence, and just such a leader is every efficient superintendent and foreman. The disposition of all men to perform automatically and thoughtlessly work-a-day routine, is the cause of nearly all of the accidents, and no one except the individual himself, can do more to remove this cause, than the superintendent or foreman, with his influence and his constant care and watchfulness while in daily contact with the men whose thoughtfulness is necessary. The workmen rightfully expect this co-operation in fighting against this greatest hazard to their personal safety. Every group of workmen reflect the safety spirit of the foreman, and carry it out to the degree of his interest or indifference.

SPECIAL PAPER COMMITTEE.

The personnel of the Special Paper Committee of the Canadian Publishers' Association at present is as follows: P. D. Ross, Ottawa Journal-Press (Chairman); J. F. MacKay, Toronto Globe; J. E. Atkinson, Toronto Star; John R. Robertson, Toronto Telegram; G. Fred Pearson, Halifax Chronicle; W. R. Givens, Kingston Standard; W. E. Smallfield, Renfrew Mercury; E. H. Macklin, Winnipeg Free Press; R. L. Richardson, Winnipeg Tribune; J. H. Woods, Calgary Herald; F. J. Burd, Vancouver Province; H. B. Donly, Simcoe Reformer; E. Roy Sayles, Port Elgin Times.

The "don't give a damn spirit" is responsible for a lot of accidents.

INTERNATIONAL BUYS MILL SITE IN CANADA

The following information regarding the proposed International mill in Canada is contained in a dispatch from Philadelphia:

When the annual report of the Lake Superior Corporation is made public—and that will be some time this month—it will contain reference to the sale of some 100 acres of abandoned land, adjoining the Algoma Steel Plant, to the International Paper Company. The latter company, it is understood, agreed to pay $250,000 for the plot upon which it proposes to erect a paper pulp plant. The option on the property was closed two months ago with the payment of $50,000 down.

In fact, it is understood, that the Lake Superior plant, which this year will be much more liberal in its elucidation concerning the property than it was last year, will devote considerable space to the pulp-making proposition. The directors are now considering a plan for the development of the company's timber properties represented by approximately 3,000,000 acres of Canadian woodland along the lines of the Algoma Central and the Algoma Eastern Railroads. The plan would provide for the construction of pulp mills at points convenient for shipment along these railroad lines.

Reports from Canadian sources indicate a great boom is taking place in the pulp industry there. This is due to a proclamation issued by the Government prohibiting the exportation of timber from the Canadian woods for pulp manufacturing purposes. Heretofore, the International Paper Company has been exporting great quantities of timber from Canada to its mills in the "States" for paper pulp. Hence their proposed opening of a plant at the Soo.

Paper interests here freely admit that the world's paper supply depends almost entirely upon the Canadian output. Previous to the war large shipments were made from the Russian forests to Scandinavian mills, where the timber was converted into pulp and trans-shipped to this country and elsewhere. This supply has been entirely cut off in the last two years, and consequently the paper mills of this country are facing a strenuous situation at the present time.

Labor conditions in Canada reduced the supply of paper last winter to a serious extent, and United States paper manufacturers are now attempting to splice out their supply by purchase of timber from the eastern Mississippi valley forests. This material is very scarce, and their present supply is being taken from last summer's cutting and that which is being cut now will not reach the mills until next spring.

"IT WAS IN THE PAPER."

"The mills still believe that they are making a good case for 3-cent newsprint, but are suspicious of the widepublicity that is being given in the newspapers to the evidence before the Government commissioner. They view it as preliminary to a concerted attack upon the industry in an effort to secure special privileges for the publishers.

"The discrimination against the industry in trying to force special prices, while other industries are operating under the laws of supply and demand, remains a bitter point with the pulp and paper men. But they are under a handicap when it comes to circulating their views."

E. J. WELCH,
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HENRY W. S. DOWNS,
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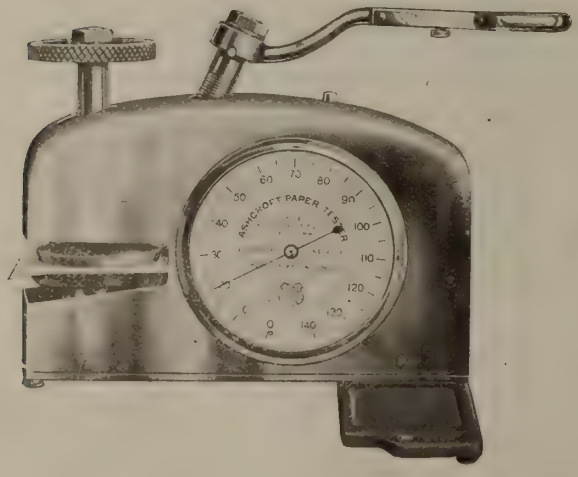
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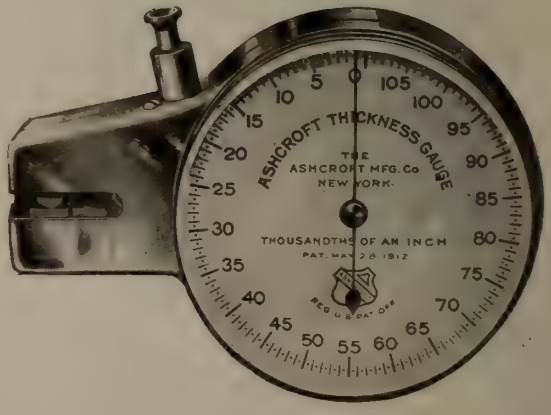
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EDITORIAL

SHOULD PUBLISHERS STORE PAPER?

A probable congestion of freight this fall is anticipated by the United States Chamber of Commerce and the Committee of National Defense. In view of transportation difficulties that are almost certain, these bodies have urged that as far as possible, all products should be stored by the consumer. This, of course, includes the storing of print paper by the publishers. Some of them no doubt have begun to do so. The extent to which they can go in this regard depends on three factors: room to store the paper, sufficient mill production and transportation facilities, and financial arrangements for carrying the surplus.

The Chamber of Commerce has good grounds for anticipating more serious car troubles than occurred last year. They and the Defense Committee can foresee the difficulty of moving grain and troops and war materials. Any inconvenience will have to be borne by other interests.

The paper committee of the Publishers' Association says: "Don't store paper." They urge that if mills shipped out their future commitments at the present time, they must still receive their raw materials, coal, and other supplies during the fall period, but if publishers are filled up with paper, there will come such a congestion that the paper mills will shut down. Supplies coming to the mill make empties to be loaded, particularly for the mills in Canada. They argue that it will be better to keep paper moving regularly, and that storing paper is tying up capital in opposition to the financial plans of the Allies. They want to see no exports of newsprint, ground wood and sulphite pulp. Finally, they regretfully urge, "in the interests of low paper prices, and in the interests of the national defense from our point of view, only carrying such supplies as are needed for proper protection and stocks of not more than a month's supply. Otherwise we will have a distinct and dangerous reaction."

We think it is mighty fine of the paper committee to be so considerate of keeping the mills running normally. The committee's expert on paper has seen enough mills to be aware of the advantage of continuous operation. He should know, however, that paper cannot be shipped in the cars in which the mill receives its coal, pulpwood or limestone. The sensible thing would be to use the shipping facilities while they are available. The matter is largely an individual one with the publisher and his source of supply. If he can get the paper and arrange for its payment it would certainly appear to his advantage to have it "in the cellar."

If paper is not stored by some because of the fear of keeping up the present price, we anticipate that those who do lay in a stock will be fully as well off on that score. Of course, the publisher wants his paper as cheap as possible, and if he thinks the manufacturer advises storing because such action will be solely for the latter's benefit he will naturally do the opposite. But the mills remember last winter's troubles and the Chamber of Commerce foresees a repitition, so they urge storing on that basis alone.

"A bird in the hand is worth two in the bush," especially in the case of paper, which is now so difficult to get out of the "bush."

DIE OR DYE?

An interesting development has been gradually going on in chemical industry of the United States. Since the first shock of the dyestuff famine that was experienced at the beginning of the war, England and America have both devoted time, energy and capital to the development of a dyestuff industry. Part of this development has been in the production of new vegetable dyes and of old ones in greater quantity. The most important growth, however, has been in the field of synthetic colors.

When the war broke out, there were some five plants in the United States that could be called dyestuff factories. They made a few staple colors, getting their raw materials, the so-called intermediates, largely from Europe. Dyestuff plants are numerous to-day and make or can make practically any coloring material desired, and without going out of the country for the necessary intermediates.

The first step was the increase in by-product gas and coke plants, and the more careful recovery of substances that had not been recovered or properly refined. Before the war these recovery processes did not pay and some may be abandoned after the war if the tariff is too unfavorable. Benzol (not petroleum benzine), aniline and anthracene are now recovered in enormous quantities. Not all of it, by any means, goes into dyestuffs. In fact, by far the greater part goes to make explosives. The point is that it hardly pays

to recover one part of the products of coal tar distillation without collecting all.

The manufacture of explosives falls into three general classes; gunpowder, made from charcoal, potassium nitrate and sulphur; gun cotton and dynamite, made by combining nitric acid with cellulose and glycerine, respectively; and the high explosives, which are made from coal tar derivatives, such as picric acid, tri-nitro-toluol, etc. There are no by-products in making the first two classes. In making the more complex high explosives there are by-products all along the line. These begin with the distillation of the tar, which gives among other things, benzol, toluol, anthracene and naphthalene. In converting these by devious chemical means into desired products, other products are made at the same time, just as clippings are left from making a shirt. These shirt clippings make fine paper and the by-products or "clippings" from a chemical process that makes a high explosive may be the starting point for making a dyestuff.

The DuPont people, probably the best known explosive manufacturers on this continent, have gone into the manufacture of dyestuffs. No move could be more sensible. Much of the apparatus required for the one is adaptable to the other, the processes are in general quite similar, and most important of all, the research organization and chemical staff is continually dealing with materials and principles of the dyestuff industry. It will be like canning the left-over fruit and vegetables.

To complete the chemical triumvirate, our explosive friends need only enter the pharmaceutical field and the cycle will be complete. Imagine DuPont face powder, antiseptic gun-cotton, and nitro-glycerine for chapped hands! But the more complete the cycle of chemical processes, the more efficient is the production and the cheaper will be the product.

We are glad to see the DuPonts enter this peaceful field. May their business in explosives for agriculture, mining, and construction work increase and the call for destructive high explosives for military purposes decrease, so they can get busy on the dyestuffs instead of the die-stuffs, thus keeping plant and workmen occupied.

SAME HERE.

"It is very fortunate that we have to-day a representative and active Paper-Makers' Association, which is devoting a painstaking and intelligent interest to the Government Department, who appear to take a particular delight in attempting to teach our paper-makers their business."—Paper Maker and British Paper Trade Journal.

The Paper Mill and Wood Pulp News appeared last week with a new title design on the front page. We hardly recognized it at first, it was like meeting a friend who has shaved his mustache. We knew who it was, though, when found Derb still there.

PUBLISHERS PAPER MILL COMING ALONG.

Announcement was made in our reading columns some weeks ago that the Publishers' Association was backing the Sound Paper Co., at Seattle, Washington, and that 400 tons annually, for fifteen years, have been contracted for. If the optional increase is made, the consumption in fifteen years by these customers will be 850 tons.

The publishers have submitted the names of three different men as general manager, the paper company having the option only in this list of three.

If at any time the contracting publishers are not satisfied with the management of the paper company they may select a board of six of their members who will thereupon and thereafter direct the operations of the paper company.

These are rather strenuous terms for a red-blooded company to accept for a guarantee of $10.00 profit above cost of manufacture, when interest on investment in timber land, coal mine, mill equipment, docks, bonds, stocks and salaries of officers above the general management are not to be counted as mill cost.

The plans which are in the hands of Geo. F. Hardy, of New York, show a fine layout. There will be electric power from the station 16 miles off, coal from the company's mine 30 miles away, a perpetual supply of pulpwood from lands near the mill, and owned by the company in fee, and water transportation from the mill dock on Lake Washington, which is connected with Puget Sound.

The layout is for sixteen newsprint paper machines and one cylinder machine to make wrappers. The first installation will be six 160-inch machines, two 202-inch machines and one wrapping machine, together with the necessary ground wood and sulphite equipment to turn out 430 tons of newsprint paper per day.

It is expected paper will be made early in 1919. The present estimates place the cost of production at $30 or $35 a ton.

Contrary to rumors that "not a spadeful of earth had been turned" on the construction work of the new mill, A. G. McIntyre stated that "construction work has been going on for a couple of months at least and the completion of the project is not too far in the distant future."

MAKE IT FIT FOR YOUR BOY.

George Harvey said at the spring meeting of the Technical Association that sons of paper makers do not learn their father's business because the mill is not considered a fit place to work in and it is the duty of those in the business to make the mill fit for any man's son.

The meeting of the Safety First men last month was a move in that direction. The report of proceedings is continued in this issue.

Handling Logs from Cutting-up Mill to Wood Room, and the Hazards Involved

By G. M. BEALE, Hawkesbury, Ont.

The logs are first floated upon a log haul, which hauls he logs from the river to the saw table, which is also ravelling, and on which there are placed seven (7) ws that cut the logs up into 2-ft. blocks. The table eing portable carries the logs on to the saws, thence the conveyor. It is needless for me to mention the azard that exists around the saw-table due to logs ot being placed perfectly straight on the table, or too any in a pile. This will not only cause bucking of he logs on the saws, but often times there will be hort ends that drop down and, coming in contact with he next saw, are usually thrown forward or backward ith terrific force. For the protection of employees orking on the saw-table there should be a heavy mesh ire screen placed both to the front and back of the w-table and extending its entire width. These screens ould hang from the ceiling, and allow a clear passage f the logs to the saws, as well as a clear discharge after eing cut. The front screen should be placed about or 4 feet ahead of the first saw, and so afford pro- ction to the men straightening the logs on the saw- ble; the rear screen would serve the same purpose that it would protect any employees who might be orking at the back of the saw-table, as well as pro- cting any transmission.

I might state that the above mentioned protection as been taken up by us at our Hawkesbury Mill, and om the dents appearing on the screens at this time roves that the screens have and will continue to serve eir purpose in a very effective manner.

Often times it is necessary for employees to mount he saw-table to straighten logs which have been mis- laced by the sawers, and for their protection there ould be guards installed over each saw. These ards should be in the form of a substantial wooden il held by two drop-arms, said drop-arms being held tact at the ceiling point by thumb screws, which akes possible the adjustment to a convenient posi- on over the saws of each of these guards. Should man slip while working on the saw-table these ards would afford him valuable protection insomuch at in case his "Kant Hook" should slip and throw m, he would have something to grab a hold of instead a running saw.

The logs after passing through the saws are con- rted into 2 ft. blocks, and are conveyed to the block le over a steel trestle elevated to the height of about feet above the ground. From this elevated haul the ocks are discharged through openings provided for is purpose. These openings are made at any desired oint by removing slide doors existing on both sides the conveyor throughout its entire horizontal ngth, which is about 500 feet. This makes possible discharge on either or both sides of the conveyor at e same time.

For protection of yard employees or anyone pass- g near or underneath the elevated block haul con- veyor, large signs should be placed at the foot of the trestle at different points and at a safe distance from the falling blocks reading "DANGER — FALLING MATERIAL." This would warn everybody of the falling blocks.

To further protect any employees whose duties require them to work in close proximity to the falling blocks, a man should be stationed on the trestle, whose duty would be to make safe any blocks which might be piled too high in the conveyor and possibly drop over the side. Should it be beyond him to right any irregular block he should warn any employees working below so that they could take precaution until the block either falls or passes on to the discharge gap.

The blocks are then conveyed from the block pile to the wood room and distributed to the barkers, at which point comes the very great hazard of disc barking. As the hazard of barking with this type of barker c ults in the loss of hands and a great many fingers great care should be exercised by the employees in the right way of barking. Of course, the employee should be educated in the right and wrong way of barking when he is first put on the job. I might state here that our mill has exercised very great care along these lines. First of all we issued a bulletin showing very clearly the right and wrong way of barking, a copy of which I expect most of you gentlemen have seen. These bulletins are placed opposite almost every barker. Aside from this we all personally instruct each new employee along these lines before allowing him to work on a barker.

We now come to the most serious hazard of this type of block pile, which presents itself in the winter, owing to the fact that the blocks are not barked before reaching the pile which causes a lot of refuse, and this, combined with a wet fall renders the block pile a frozen mass when the cold weather sets in. To loosen these blocks it is necessary to resort to dynamite. On account of the pile freezing to a very great depth, in some cases 10 to 12 sticks of dynamite are used in one charge, and at times a second charge is necessary to loosen sufficient blocks. By no means should dynamite be used unless those compelled to use it are thoroughly experienced in the handling and firing of same, and before shots are fired there should be a strict rule that a signal be given the men working below, and so to give them a chance to clear themselves to a safe distance from the falling and flying blocks.

Considerable trouble has been experienced from blocks becoming loose from the force of the charge, but not rolling down until some time after. This also happens should there come a thaw, which renders the pile still more hazardous owing to the number of overhanging blocks, and to minimize the danger from this source there should be men placed on top of the pile whose duty it would be to knock down any loose blocks from above. There should also be a man with a long-handled gaff at the bottom (alongside the cross-

*—Address delivered at the Safety First Meeting Niagara Falls, Ont., June 29, 1917.

conveyor) who could do very effective work by pulling down any of these loose blocks which might be within his reach. By this method the sliding block pile hazard would be very materially minimized.

Now, Gentlemen, I am not stating that the system which I have outlined for the minimizing of accidents on the block pile is without fault. I know improvements can be made and I respectfully invite any suggestions that the gentlemen here present might care to offer.

Discussion of Mr. Beale's Paper.

The Chairman: I might remark that I have here a copy of the bulletin referred to in Mr. Beale's paper, which you may all see. This bulletin has been sent to all the Pulp and Paper Mills in Ontario. I think this bulletin should be framed and hung in the wood room. I might suggest that four of these should be hung around—at the front—the back and the two sides. This hazard of block piling is one of intense interest to every pulp and paper mill, and we have listened to a very instructive paper on this subject.

Mr. Carruthers: I understand that a great many of the men who are engaged in this kind of work do not speak English.

Mr. Beale: Yes, most of them are French. There are a few Polacks. The bulletin is printed in French, Polish and English. It is printed in the three languages, and you could supplement instructions for any other Foreigners you might happen to employ.

The Chairman: In sending out these bulletins as a rule we send them to firms whose employees are—a large percentage of them—foreigners. I make the request that the company make their own translations for the different languages and paste them immediately below the bulletin—where there are four or five languages—making a translation in every language.

Mr. Carpenter: The mill I was formerly at had rather large storage piles and the wood was taken out from the pile by means of a long hook. One man spent his entire time loosening the pile with this long hook. We thought it was dangerous to put a man on top of the pile. The dangerous part is to start the slide and lots of times a man goes with it. We also found it an advantage using a certain type of portable conveyor.

I might say we use cross carriers—but what I would like to know — is there any mechanical device that would be practical for pulling down the block pile?

Mr. Richardson:—Our conditions are somewhat different as to our block pile. Our blocks are all peeled, before they reach the pile, which means they do not freeze as tight as the ordinary type. A year ago last fall we lost a couple of men through block pile accidents—so we went to work and rigged up a portable boiler for a double drum winch; we passed a cable over the block pile and fastened it over two snatch blocks; passed the cable through them, and brought it back to the other drum of the winch; then to this cable we attached an anchor or three prong grapnel, which was pulled back and forth over the pile. The consequence is we haven't been up on the block pile since, and there haven't been any accidents or anything of that kind. It just simply works on the principle of an endless cable with an anchor hanging to it.

Mr. Beale:—Did they seem to freeze any at all to amount to anything?

Mr. Richardson:—Oh, yes. They did freeze to a certain extent. I have seen them work for 15 to 20 minutes. We use return cables.

The Chairman:—Did you ever see that applian applied to a block pile where the sticks had not be barked?

Mr. Richardson:—I cannot say that I have althou when we first started in, we did commence to use o block pile. Then we had a little trouble, but we g through it just the same.

Mr. Gilkerson: Mr. Beale, in shooting your dynami do you shoot electrically or with fuse? Do you use armored cable of some kind that you can pull out?

Mr. Beale:—We shoot electrically and just use ordinary wire right from the box—just wrapped to fuse.

Mr. Gilkerson:—Well, when you pull that out your block it would pull your wire. My theory is th you would have to use new wire each time.

Mr. Beale:—No, we don't. We use the same wi through the whole season.

Mr. Gilkerson:—Of course there is a small armor cable twin wire—which I assume could be used mo effectively.

Mr. Beale:— I would like to have some suggestio from some one as to blasting at night. What wou be your idea for a signal? What is your idea for proper signal to notify anyone that a blast was abo to be fired?

Mr. Carpenter:—I would suggest either light, whistle. I would suggest either one. Why couldn't y ring in a bell with your circuit?

Mr. Bradley:—On the construction of the Welland Canal the form of signal for blasting was a sho whistle—probably 8 or 10 good whistles would be good signal.

Mr. Gilkerson:—I would like to suggest that in add tion to that run a row of lights around the outside about the circumference—just outside—have in th circuit red lights; that would indicate that that w the circumference that you were to keep outside The whistle might not determine just where the char was going to go off.

Mr. Cushing:—You might use the fog horn—su as signallers use on the lake. That would be a distin tive sign.

Mr. Gilkerson:—I am very much in favor of t series of whistles. It is the universal signal for expl sions.

Mr. Beale:—I would like to hear about the handlin of frozen dynamite. I want to know of something th would ensure the igniting of more than one stick. He is a bunch of sticks tied together and the fuse is wra ped around them. Some of the sticks would get froze and would not explode. There might be one or tw sticks that might not explode. I would like to know something that would ensure the explosion of all those sticks? Mr. Bradley, could you tell me anythin about what they did on the Canal?

Mr. Bradley:—I don't know how they handled it o the Canal. I have used it, and have thawed it by usin warm water.

Mr. Beale:—As I said before we simply take a bunc of sticks, wrap the fuse around them. There is a po sibility of some of those sticks not going off if the are frozen a second time, unless there is some othe method of attaching the fuse. I would like to kno of some other method.

Mr. Richardson:—I would suggest that Mr. Beal investigate the subject of fuse detonators and repor at our next meeting.

The Workmen's Compensation Act

The following is the interesting discussion of the per Mr. A. W. Wright read at the Safety First Con- ntion of paper-makers. His address appeared last ek.

e Chairman (Mr. Costigane):—I think, gentlemen, have listened to a splendid paper, which has dealt etty fully with this question, and I am sure it has ared up a number of points which before a number us were not certain of. For my part, there have en things which I have been a little vague about, t Mr. Wright's paper has cleared them away.

Mr. Carruthers:—Mr. Wright, your paper was very teresting indeed. Though the question that I have ask doesn't arise out of this paper, and I neglected take the opportunity to ask you this before, I wish w to ask—will you kindly state to what extent the orkmen's Compensation Act is providing for an ergency accident, for instance, we insure employees ainst any immediate medical attention that they y need. Now it came to me that the Board is con- nplating a provision for that. I would like to hear m you if this is the case?

Mr. Wright:—Well, I may say that we are doing so fast as we can. You will notice in the Medical Aid nendments there is a clearly defined difference be- een First Aid and Medical Aid. First Aid is the st thing to be done which may not require a doctor. great many employers have their First Aid ap- iances in their works, and not a few have men in arge—competent men. Others do not provide any- ing of this kind. The Board is faced with this pro- em: "How can they without injustice to those who provide these things, allow the others to neglect em?" I am not speaking of anything definitely set- ed as yet, but I think we will say that the First Aid, e minor accidents that do not involve any loss of ne will have to be paid for by the Employers them- lves. Those who haven't First Aid appliances will ve to get them. Where they insure or have been in e habit of insuring against accidents to employees, e have this to say—that if they choose, they can con- nue to do this, but nothing must be charged to the orkman to pay for or help to pay for the medical d which the act provides shall be absolutely free; is applies to all ambulance, hospital, skilled nursing, edical and surgical service for one month after the ppening of the accident. If employers and their orkmen can agree on fair and mutually satisfactory ans, by the formation of benefit associations or herwise to provide for medical attendance in case sickness or for continued medical attendance after e expiry of the month, that would be very desirable, it with that the Board have nothing to do. The oard will pay every legitimate doctor's bill to the octor. If you have an arrangement with a doctor hat is so much per man, and he will look after them. ll you have to do is to have him send his bills in. nd what he is paid by the Board can be deducted om his salary. The employer has no business to pay r the medical attendance under the act. He is pay- g for it in his assessment. In some cases you will nd that the assessments rates are lower, others are st the same as they were. This is because the experi- nce has justified us in considering that the assess- ent was high enough to provide for medical aid. There is some difference between the assessment of this year and last year. When I say that every doctor's bill will be paid for by the Board, I mean, for the first month of the injured workman's disability.

Mr. Murer:—If a man is hurt, for instance, he is not working for two or three months. The company do not want to see him lose any money. This man will get from the insurance company 65 or 50 p.c. I would like to know what the Board will say, that is, whether they will send him his cheque, or if they will send his cheque to the company, or if they will stop paying. I know there is an item in the report form asking especially if they get any money from the company.

Mr. Wright:—Well, in answer to that—if a man is injured, it very frequently happens the employer pays his bill. We send the cheque for 55% for the employer. Of course, we notify the man that we have done so. We ascertain, of course, that it is a fact. As to paying the employer for anything else, 55% is all the law allows and that we pay the man. Often the employer has paid that, and we send the cheque to the employer. You are referring to a question in form 9. It is there for two purposes. We want to know what the employer has been paying the man. We also want to know whether he is carried on some benefit association and if so what benefit he receives—and whether the benefits he received added to the 55% is more than his wages would have been, of course, in a sense this is none of our business as it does not affect the compensation we should award, but it is our business to see that no man is malingering. We want to know these things for the protection of the employers, as well as to see whether the man does the fair thing.

Mr. Gilkerson:—We have a man at present who lost the sight of an eye three or four months ago. The doctors say the eye ball should be removed. This man refuses to have the eye ball removed. He tried to work but he laid off after a few days. I put him on another job, but he wasn't satisfied with that. Still the doctor says he will have to have his eye ball removed, else he will lose the sight of the other eye. Under the circumstances—and I might say we have offered to pay for his operation completely—would he receive compensation as outlined, permanently, as the doctor says he is likely to lose the sight of the other eye, which would render him totally and permanently blind? Would he receive compensation permanently?

Mr. Wright:—We would have to deal with that question when we came to it. If there was any danger of the operation causing the loss of the other eye—that would be a question. Of course, the man has the right to refuse the operation, but he does so to a certain extent at his own risk. In the first place his compensation for the loss of one eye will continue for life. If it be clear to the Board that the loss of the other eye was the man's own fault, that it did not arise out of the employment, however reluctantly, we probably would have to refuse to pay it. It is pretty hard sometimes to refuse, particularly so when the employers urge us to pay claims which they think ought to be paid. We have to be absolutely fair. If this man should unfortunately lose his other eye, if it be absolutely clear that he should have an operation, that there was no real danger attached to the operation, then we could refuse compensation for the loss of the second eye. I say could, not would, for without know-

ing all the attendant circumstances I could not speak in advance.

Mr. Gilkerson:—My second question. Dealing with the paragraph which states very clearly that the employee should not pay any proportion of the salary of a doctor. We have in two instances—one in our woods department—one in our factory, a doctor employed. In each case the doctor handles not only the accident cases, but the sickness as well. In the case of our Espanola mill, the agreement includes accidents and attendances on the men and on their families as well. I wrote to the Board and it was suggested that we reduce the amount 25%.

Mr. Wright:—Of what you charge against the men?

Mr. Gilkerson:—Yes. In the case of the single men I believe that would be all right. We are now charging half the amount which we charge married men. It seems to me there should not be that reduction. There is an average of one in the family—only one of the family—exposed to the hazards of the industry. It seems to me that reduction should be less.

Mr. Wright:—Well the employer has no right under the new law to collect from the men any part of the cost of medical attendance for accidents for the first month, but if an arrangement is made with the doctor which covers more than the accident, it is a perfectly fair one if you can strike a proper rate to charge the employees for sickness, for medical aid after the first month, and so on. I know of a number of cases where the doctor is paid directly by the firm, and he does all the work. All we have to pay for is the doctor's bill for the accident. Suppose you have an arrangement with the doctor—you have paid him say $700. He sends his bills to us, and our medical staff carefully go over them and if they approve we will pay them. We notify you. You can deduct all this from his salary. You are entitled to get this back—but the workman mustn't pay it. The act requires that it be paid out of the accident fund. The Board will be perfectly satisfied with any arrangement that you have reason to believe is fair if it doesn't have the effect of making the employes pay for that which the act says should be free.

Mr. Gilkerson:—My third question. Have you had any experience with doctors holding a man off apparently longer than is necessary? For instance, if a man might return to his work in five or six days, and the doctor allows him to remain off the eight days in order to come under the compensation. I have only been three months working under this act. I am not familiar with it as yet. In some cases I am just inclined to believe that a man might be able to go to work on the sixth day, but the doctor allows him to remain away until eight or nine days are up.

Mr. Wright:—As to that I might say we have run across some such cases. I am afraid that with the new amendment we may run across more. The Board, however, hopes to have the co-operation of the medical men, and there will be less temptation to do what you suggest when he knows that for the first month his bill will be paid. It is pretty tough to have to face these problems with some doctors. There have been instances where the doctors have not done what was right in connection with their reports to the Board.

Mr. Carruthers:—It is very evident in the operation of this liberal policy of compensation that great sums of money will be involved. I wish to ask you, Mr. Wright, to what extent have they gone in for procuring the services of experienced statisticians. We should have accurate statistics so that manufacturers may know what to expect in the future with reference to the increase of this tax. You mentioned that in New York a sky-scraper produced the death of one man per story now, whereas formerly it ran one per building. That form of data is very deceiving for the reason that there might have been very great haste in building the large structures with a very large number of men employed, so that you can see this form of information is of no value. To my way of thinking the Board should have correct statistics as to the actual number of employees or the average number of employees engaged in those various industries. Perhaps that would give sufficient basis for all the data required, but we might be obliged to go further, and we might find it an advantage to know what tonnage was handled in dealing with sulphite, steel or other industries. I merely wish to ask if the phase of the problem is being carefully considered by those who are responsible for the formation of the compensation policy.

Mr. Wright:—I may say in reply that when the act first came into force Mr. Hinsdale, who is now in charge in British Columbia Act was employed by Sir William Meredith to collect data and facts. We retained him for very nearly a year. He was succeeded by Mr. Dean, who had a very great experience in Washington and elsewhere, and who is now looking after this part of the work.

The last phase—with regard to tonnage has never come to the attention of the Board. It might be of considerable value. We want to get every item that we can, that would be helpful in making our work satisfactory.

The Chairman: — While Mr. Wright was reading there were things which particularly drew my attention, and I have made notes here. This system of merit rating appeals very very strongly to me. Now this question of merit rating is going to be a very important one to industries — especially from accident prevention point of view. Those companies that are going ahead sincerely in an endeavour to protect the workmen are doing a good work voluntarily. When this merit rating system goes through, will those who have done good work get credit for it, and will those who have not been doing so be penalized?

I think the following few points should be considered when making an equitable basis for this system:

First: Accident Record.—It stands to reason that accident record should be one of the things considered because there are so many things that come in and make up an accident record.

Secondly: The Design and Condition of the Buildings.—Take a factory where the buildings have been designed for the purposes for which it is used. Take an old building—you can never bring that up to the same state of efficiency of a new one—but you can do your best.

Thirdly: Personnel.—I include not only the superintendent and the managers, but everyone in the factory from the head of the house down. If you have a company that is sympathetic towards accident prevention work, and make it known that work of that description is receiving their whole hearted support, the work in the mill will progress much more quickly and satisfactorily. You take a manager who says, "yes,

accident prevention is a very good thing; any suggestion you can make I will be glad of"—then that is the end to it so far as he is concerned—such a statement will never do. There must be co-operation. Manager, foreman and all must co-operate. Unless you can get actual co-operation from the boss down it is a difficult row to hoe.

Fourthly: Organization for Accident Prevention Work.—This is included in my remarks on "personnel."

Fifthly: Turn over of Labor.—Curiously enough, in my office looking over things when I got back from uebec, I figured out that out of 55 accidents 56% had occurred to employees who were three months and under in the employ of the companies. In one instance the percentage rose as high as 75%.

Sixthly: The Percentage of English Speaking People.—You take the company that employs a large percentage of foreign labor. They will have more accidents. I do not care how painstaking a foreman is; he cannot devote all his time teaching these foreigners. A foreman will tell one of these men to do a certain thing and asks if he understands—and as you know the foreigner will say "yes" — he says "yes" to almost everything—but he doesn't understand his instructions He has said "yes" and the foreman goes away with the impression that the man does understand. The foreigner goes to his work and not understanding what he is about, consequently gets injured himself or injures some one else.

Mr. Wright:—It would be a seemingly excellent scheme if we could say here is a factory; fire-proof and everything else, and they have a low rating. Another factory not quite so good we would rate a little higher. But at the end of the year we might find that the first one has more accidents than the other. Well, the general public would say "your rating is wrong". There would be all kinds of influence brought to bear to have us change our rating. The only thing that seems practical and workable is to take the number of accidents themselves. It may not be absolutely just. It may not give proper consideration to the careful employer of the careful staff. We do not at present say that we can say anything more than this. Here are a number of rates: the one who has no accidents has the very lowest rate and the one with the greatest number the highest. This is where the statisticians will come in. We have in Mr. Dean a splendid statistician. He is alive with the work. I think he dreams statistics.

Mr. Gilkerson:—Base the work on the number of accidents—not on one year's accidents, but on the total for 2½ years. I believe most insurance companies base theirs upon a three period. I think based upon a three year period would be better than for a one year period.

Mr. Wright:—We are thinking of applying this system for the distinct object of getting men to be very careful to prevent accident. We want to apply each year. We want to be able to say, "you have had no accidents this year, you will have very little to pay" or "you have had so many accidents this year you will have more to pay." If you spread it over three years I have my doubts about it. I went into a factory in Welland. They were very proud of their system for accident prevention. They were rather complaining about the rates we were charging, and as I said they had an excellent system—nevertheless a man was killed. That was one accident against that company, absolutely due to no fault or carelessness of theirs, but an accident for which compensation had to be paid.

Mr. Gilkerson:—That would be adjusted at the end of each year?

Mr. Wright:—Yes. That will apply, for instance, to the first year. At the first of the next year you will get your rating—it may be that you will get a lower one—practically so much money back, or another employer might have so much more to pay.

Mr. Carruthers:—According to your theory you wait until the accident happens before you make your ratings?

Mr. Wright:—We have made the rating, but will adjust the rating at the end of the year.

Mr. Carruthers:—I think it would be well to make certain requirements. For instance—we were on a freight elevator today. I say that any firm who isn't sufficiently alive to the importance of accident prevention work as to permit an elevator to remain in such a condition should be penalized. Safer conditions should be insisted upon, and until such time as there is some penalty brought to bear upon these people, it will be no better. They will offer the accident inspector a long line of explanation instead of actually bettering the situation. If you are going to make a merit rating system I would make one of the conditions such that would require certain standard protection in the case of elevators, stairways, etc.

Mr. Wright:—You will find in Section 101 that the Accident Prevention Associations have the right to make their own rules and regulations for the factories. For instance, they can say, "you must put a sufficient safe-guard on all your elevators." The association meets. They confirm this. They notify the Board that they have made such a regulation. Then the Board if satisfied that it is a just one can indorse it, and pass it on to the Lieutenant-Governor in Council for indorsement. The Cabinet if satisfied indorses it and the employers must put those safe-guards on. I don't see that we could very well say that regarding the one we were in the other day—that the employers should pay a higher rate than the one who had a good elevator. We would get into endless trouble if we did this. Take a good elevator—suppose they had an accident on this carefully guarded elevator, and the other man whose elevator is not guarded did not have one. How would that jutsify our ratings?

Mr. Carruthers:—We can penalize the man who won't put these safe-guards on, can we not?

Mr. Wright:—It is up to the association to approve of that regulation if they think it a wise one. We may then approve of it on your recommendation, and I think the Lieutenant-Governor would indorse it alright.

Mr. Gilkerson:—What is the fine which may be placed upon a concern for not adhering to rules?

Mr. Wright:—We can fine $50.00 for each offense.

Mr. Gilkerson:—What could he be fined, for instance, if say 100 set screws were left around the place?

Mr. Wright:—$50.00 per set screw—that is each dangerously projecting set screw.

Mr. Gilkerson:—Is that penalty heavy enough? The penalty for not providing a safe-guard is only $25.00. Is that heavy enough?

Mr. Wright:—You think it is not heavy enough to cause an employer to guard his equipment?

Mr. Gilkerson:—No, an employer would not object to paying this small fine. It is not heavy enough. I am greatly in favor of adding an additional penalty under the merit rating system.

Mr. Daverin:—I would like to know if there can be any fines if we have to have these safety appliances thrown out. In regard to elevators. We are supposed to have a splendid appliance on ours, but it does not work very well. In a case of that kind what would you have to do to have that taken out?

Mr. Wright:—As I say, it is up to the association to say what they would like to have done, after carefully considering it—and if you satisfy the Board—which you will be apt to—we certainly will endorse your plan.

A vote of thanks was then tendered Mr. Wright for his excellent address.

CANADIAN NORTHERN BARKS PULPWOOD.

Should the Canadian Government follow out the proposals outlined recently in the House of Commons by Sir Thomas White anent the taking over of the Canadian Northern Railway, the public through the medium of its common head the government will fall heir to a lot of things—eleven thousand miles of telegraph, 5,913 miles of railways, terminals, grain elevators, steamships, subsidiary enterprises, and included in the variety of chattels is a sawmill and a barking plant turning out twenty thousand cords of pulpwood annually.

Twenty thousand cords of pulpwood annually is not a very heavy output it is true, but when the proposal is put through the Government will for the first time, take a hand in the pulpwood supply and perhaps later on have a finger in the paper making game. Very few persons and certainly not the general public knew that the Canadian Northern owned and operated a sawmill in Ontario and that this self-same mill marketed twenty thousand cords of pulpwood annually. This plant is situated at Foleyet, Ont., and it is said to be the first of a series of such plants that the C. N. R. intend to erect to take care of the settlers logs. The Foleyet mill sprang into existence because the C. N. R. was forced to create a rail haul on the new section of line north of Sudbury, and between there and Port Arthur. The plant is utilized for sawing lumber and barking pulp, the possible output being 150 cords per day of twenty-four hours.

The output of the barking plant is being shipped to the mills in the Niagara district which have not received pulp concessions from the Crown such as the Ontario Paper Company and the Beaver Board Company at Thorold. On this delivery the company receives a rail haul of from $4 to $5 per cord between Foleyet and Toronto, the exact amount depending on the weight of the pulpwood and the point beyond the barking plant at which it originates.

The barking plant consists of a Waterous 9-saw pulp slasher. One of the 10 x 30 American barking drums delivering to sorting tables, return conveyors, and a long outside conveyor having shutes for loading ten cars. The design of the latter conveyor also permits of the loading on the return cable of four foot settlers wood or company wood from cars or sleighs.

HEALTH FIRST.

In the "Strathmorean," issued by the Strathmore Paper Co., there appeared the following wise comment by C. W. Deaden:

Looking after one's own health structure is real "Safety First." That slogan might easily read "Health and Safety First." If, however, we will bear in mind the all-inclusive thought of Safety First,—that it applies to health as well as to eye and limb,—we will not need to tamper with the original and very well-known phrase.

Health First comes before and during the period of Safety First, the latter as applied in the limited accidental sense. If you do not have health, the chances are you will not need to heed Safety First. You will very likely be far removed from any possible opportunity for stubbing your toe and breaking your neck.

It is a difficult thing not to tickle one's palate with a tempting morsel, even when we know we have had sufficient, and also when we know the additional morsel will give us the mollygrubs. For instance, only this noon, I had one piece of Duke's famous cream chocolate pie. It was some job not to ask Mrs. Duke to fix up another, as I did a couple of days back. That extra piece, with all due respect to the fine qualities of Duke's pie, was just enough more than I should have eaten to make me feel uncomfortable all the afternoon.

How often have you heard a person say "I know if I eat this, I will hear from it, but it is too good to pass up."

In order to keep ourselves going, to say nothing of being 100 per cent healthy, we must use judgment as to what, how much, and how often we shall eat. A little goes a long way, and a little more is too much.

Our "inards" are each and all delicate, hair-trigger, hard working pieces of machinery. The different pieces stand for a tremendous lot of abuse. We are generally taking chances that we know nothing about, so why add to their work when we know we are going to "hear from it" later?

Our physical health is our working capital. Our bodies our factory buildings. Our hands, feet, head, and the vital organs the equipment and machinery of the building.

It is a poor manager of any mill who does not keep his buildings and equipment in a productive state, and his capital in such a condition that it has maximum earning power.

Our capital, our buildings, and our equipment are of more use to each of us than that of the finest mill that ever was built and run. You can build another mill, buy other machinery, and even secure more capital, but you cannot buy health.

Most of us at the start were furnished with every facility in A No. 1 condition for doing business. If we do not have it now, very few of us have anybody to blame but ourselves.

The reason that many of us have our capital impaired is because we did not know any better, or, if we did, we did not believe there would be any impairment for us.

Being healthy and keeping healthy is a matter of common sense, in combination with a lot of restraint. This consists principally in not eating our heads off from morning until night, and half the night besides.

The Story of a Wire

(As told in "Paper".)

I am a wire, the most costly and delicate material sed on a paper machine in the making of paper. I m composed of numerous small wire threads woven losely together by machinery and men of skill. Each ndividual wire thread used in my makeup is made om a combination of metals, from formulas conceiv- l by brainy men. Often they have experimented with ie and made my threads of widely varying quantities f various metals, but in the end, they have concluded certain mixture is best, and from that mixture I now ppear. Very often many of my threads are not even- drawn and do not have the strength of the others nd when I pine away and die, from no apparent cause n the eyes of the papermaker, it is because of these oorly made and defective units that make me a whole.

Before leaving the shop where I was made, I am retched to perfection and smoothed and carefully in- pected. Every bit of my surface is closely scrutin- ed by expert eyes and if they decide I am right I am arefully wound on perfect rollers, which are now ade of iron, where formerly they were of wood. The ooden rollers were often the cause of strain in tran- it which destroyed my perforation, making the paper- aker swear in despair when he looked on me for the irst time and saw the wrinkle on my surface. The on rollers are smooth and rigid and support me well n my journey from wire shop to paper mill.

After being put on the rollers I am with tender care laced in a strong wooden box and when the cover is ailed in place, they stencil the box with big black etters reading, "Handle With Care", "Fragile" and ther warnings of my delicacy, but despite these warn- ngs, I am slammed and knocked about in all direc- ions by freight and express handlers who curse at my eight and shape. It is a wonder how I stand it all ithout showing bad effects.

I arrive at the paper mill and am laid away for a ime, but eventually my turn for work comes and the irst view I have after I am lifted from my box is of a rowd of men all hustle and bustle. Their one desire in ife seems to be get me placed upon a bottom couch oll and they seem to regard me as if I were of an ex- losive nature. One man is continually yelling at the thers to be careful, whenever they approach me. But ith all his yells and care some clumsy fellow causes ne to strike the edge of the roll and a dreaded little ink appears on my beautiful surface. I know that his kink will shorten my life considerably, because it will receive more contact with the rolls that support ne, than will the rest of my surface, so that it will ventually break through.

It is seldom I find myself placed in perfect condi- ion ready to go to work on a paper machine. I usually ave at least one dent in my surface, and in many in- tances it is left untreated, when a gentle rubbing with smooth glass surface would make me almost as good s perfect. Some men attempt to eliminate these sur- ace imperfections by screwing down a stretch roll which puts a severe strain on every wire thread in me nd causes me to become thinner and less able to with- tand the friction caused by my travel over rolls and uction boxes.

Once in a while I am placed under the care of a nan who seems to realize my fragility and he nurses ne along, far beyond my natural term of life.

They call such a man a wire nurse, and I am always delighted when I am in his hands, since he is forever looking at me and considering my every want. He never allows a big uneven amount of stock to crush me between the couch rolls, and he does not permit the vacuum of the suction boxes to pull the life out of me. He insists that the oiler man keep the bearings of the rolls that support me in my travel clean and well oiled. He insists that all of my supporting rolls be perfectly true and smooth surfaced. He knows that I must be kept perfectly clean and that no chemicals or hard gritty substances from materials used in stock shall lodge in my meshes; consequently, he provides a sufficient number of efficient shower pipes, which continuously dislodge any particles that attempt to stay with me. He even gives me a bath once a week in diluted soda ash water in order to be sure that I am perfectly clean. And once a week he removes the suction boxes and has a carpenter plane them with extraordinary care, so that a beautiful smooth perfectly flat surface is ready for my use. And when finally I begin to show signs of uselessness, he considers well, after examining me carefully, whether or not it will pay to sew up a little crack that has appeared, or whether I should be called dead.

Of course, as I said before, these wire nurses are few of many men engaged in running the likes of me, and often I am placed in their hands in perfect condition only to be short-lived on account of their carelessness and ignorance. I think that these two things are most responsible for most of our permature deaths. Of course in some mills there are conditions beyond control of wires or men. I mean where course gritty fillers are used, which get in our meshes and grind our lives out very quickly. Even with the use of such materials we would live longer if sufficient showers and baths were provided to keep us as clean as we should be.

Then, in other mills, we are subjected to very fast speed and unbelievable friction. Under these conditions, coupled with improper lubrication of rolls and too many rolls, our existence is generally a short and trying one. At times through short-sightedness of some machine designer or those who change the position of wire-carrying rolls, we are made to bend sharply one way and then another in our passage over these rolls, and such bending back and forth greatly reduces our term of life.

There are some papers run upon us that should be used only upon some of our distant relatives. We should be made to fit conditions under which we will have to exist. I am what is termed an eighty (80) mesh wire, I am a little more refined than most of my people and consequently not so strong as the coarser ones, I should, therefore, not be subjected to rough work. Care and constant watchfulness, thorough examination for defects before being used, prolong my life, and I am sure a competent "wire nurse" would more than reimburse any two- or three-machine mill for the wages paid him in these days when my value is at its present point.

In my mind there is no doubt that there are quite a number of mills using a wire of my kind when they might better use a coarser grade at less expense.

Another thing calculated to prolong my life is a complete record of my existence in the mill. Such a record would state my condition on being taken from my box, how I appeared when ready to run paper, my weight, mesh, and general performance; my performance, providing I was free of defects, as compared with the best performance of any wire. These records should be given careful attention by the purchasing agent and he should be guided by them in buying wires.

The following list of "Dos" and "Don'ts" about me would be of great benefit to me if properly carried out, and for my own sake as well as that of my maker and the papermaker, I trust many of my friends will regard them as worth while.

Don'ts.

1—Don't trust the welfare of a wire in the hands of a careless and inexperienced machine tender.

2—Don't oil bearings of wire-carrying rolls with water.

3—Don't allow bearings to become clogged with stock.

4—Don't have a shower pipe discharging water from six holes, when it should discharge from sixty.

5—Don't be stingy with the number of shower pipes used.

6—Don't tighten a wire to overcome some defect that could be remedied in some other way.

7—Don't allow suction box covers to become grooved.

8—Don't ignore position of carrying rolls.

9—Don't force a wire to travel over dead rolls.

10—Don't use an excess weight breast roll.

11—Don't fail to give wire a good bath once a week.

12—Don't hesitate to study conditions surrounding your wire.

Dos.

1—Do all you can to get wires to fit your conditions of manufacture.

2—Do have competent men inspect condition of wire before it is placed on machine.

3—Do insist upon having well kept records of wire's performance.

4—Do get acquainted with wiremakers and learn what you can about the composition and manufacture of wires.

5—Do everything possible to carry out instructions in the don't list. Insist on those things not being done.

WIRE MAN.

PROTECTING PINES.

Work is now under way, in connection with clearing currants and gooseberries, both wild and cultivated, from a strip one mile wide, along the bank of the Niagara river, from Niagara-on-the-Lake to Fort Erie, to form a safety belt which will prevent the disease from passing over the river into New York state. On the New York side of the river, similar work will be done by the state, for the protection of Ontario. Pines in this strip on both sides of the river will be dealt with later if necessary.

In connection with the location of the disease on currants, it is proposed to utilize the services of public school pupils. The currant stage of the disease is rapidly recognized, and the pupils will be able to render a valuable public service by reporting any outbreaks found. Literature and coloured illustrations will be furnished, and instructions given through the teachers.—C.L.

COMMISSIONERS TO CONFER ON NEWSPRINT

The setting of a fair and just price for newsprint is not to be made by Commissioner Robert A. Pringle K.C., but by the Dominion Government after Mr Pringle has made his report on all the evidence submitted at the newsprint inquiry. Of late there has been considerable reference made and the impression has gone abroad that the matter of setting the price was part of the duties of Mr. Pringle as Commissioner. This week Mr. Pringle when asked as to this point stated to the representative of the Pulp and Paper Magazine that the setting of the price was not in his hands, and that he was more or less thankful that it was not. What will be done when the report of Mr. Geoffrey Clarkson is completed and the inquiry resumes is that Mr. Pringle will make a report to the government.

The opinion was expressed by a big Ontario paper manufacturer that there may be sufficient delay caused through the auditing of the books and the inquiry so that no report will be presented to the Government until after the impending general election is held. There is practically no likelihood of a further session of the newsprint or sulphite probes being held this month.

A meeting between Chairman Harris, of the Federal Trade Commission, and Commissioner Pringle is to be held, but no date for the meeting has been set as yet. The Federal Trade Commission has replied that it would be glad to comply with Mr. Pringle's request at some future date. The meeting between Mr. Clarkson and the accountants of the Federal Trade Commission will not take place until the audit of all the Canadian paper mills represented at the inquiry has been made. A comparison of what the Canadian auditors find and what the accountants for the Federal Trade Commission who went through the Canadian records of the Canadian mills found will in all probability be made before Mr. Clarkson brings in his report to the Commissioner.

The newsprint inquiry is almost four months old and the two and one half cent per pound price is a month older, and there appears to be a good healthy period of further waiting until the maturity of each is reached and the newsprint manufacturer finds out where he is going to get off at.

FORESTRY ASSOCIATION ACTIVE.

The Canadian Forestry Association has secured the services of Mr. Avila Bedard, of the Laval Forest School, for a series of twenty-five illustrated French lectures on forest protection, in the timbered sections of Quebec Province. The arrangement was made by kindness of the Minister of Lands and Forests, Quebec. Mr. Bedard commenced the series at Grand'Mere on August 2nd, and will continue until the close of the month. By means of a live address and 150 excellent pictures, the large audiences were greatly interested.

Scores of public lectures have been given by the Forestry Association this year in every province of the Dominion except Nova Scotia and Prince Edward Island.

General Manager J. B. Beveridge, of the Dryden Timber & Power Co., returned to Dryden on Sunday from Toronto and a visit to his family at Muskoka.

DEMAND FOR ELECTRIC HOISTS.

During the past year the Link-Belt Company were obliged to stop the manufacture of electric hoists because of unprecedented business conditions, and the over-crowded condition of their shops. They are in a position now to give good service in shipping Link-Belt electric hoists. These machines are made at the Philadelphia plant where a large additional building is rapidly nearing completion and the already excellent manufacturing facilities are being greatly increased. They can be adapted for either direct or alternating current and fitted with plain hand geared cord operated motor, or a cage operated motor trolley.

There is an unprecedented demand for electric hoists and a great likelihood that the available stock will be exhausted in record breaking time. Practically every industry is working at top-notch capacity and electric hoists are helping to expedite production. Entrance of the United States into the war will serve to increase the use of such labor saving appliances—taking the places of the men who are called to the front.

Some of the features of this hoist are the small amount of head room required, weather and dust-proof construction, accessibility of working parts, simplicity and ruggedness of hoist gearing, automatic oil bath lubrication, renewable bronze bushings throughout and SAFETY FIRST construction. One paper mill is using eight C-1 machine for handling rolls of paper; another employs a cage operated hoist for handling ashes from boiler room to cars; while others are using them for handling cars of wet pulp, casks of clay and miscellaneous materials.

The Link-Belt Company has a new electric hoist catalogue on the press and will be glad to send copies to interested parties.

DUPONTS MAKING DYESTUFFS.

For sometime past the DuPont corporation, who for generations have been leading manufacturers of explosives, have been building up an extensive research department. The result of this and the development of their business is their recent announcement in regard to the manufacture of dyestuffs. Although they will have the handicap of the Canadian tariff preference on British goods, they will no doubt be able to find Canadian paper mills who will be glad to get their colors.

The announcement reads:

"The explosive and coal tar dye industries are closely allied; both require intermediates which we manufacture in a large way; both are highly scientific and thoroughly developed and both require large technical and commercial organizations.

"We start with (1) the necessary raw materials, products of this country, and are therefore not dependent upon Europe; (2) a chemical and engineering organization second to none in magnitude and scientific attainment; (3) unequalled plant and laboratory facilities, and (4) an adequate commercial organization.

"We know the needs of the various consuming industries, that is, cotton, calico printing, wool, silk, leather, paper, paints, printing inks, etc., and plan to meet them in due time.

"Our development will necessarily be progressive, starting with certain products and increasing as rapidly as possible.

"Our technical laboratories, with a competent staff of experts, will be at the disposal of all consumers in all branches. We shall establish, and hold to, the highest standards of quality. Our prices from the start will be based upon our cost of raw materials and labor, with the end in view of establishing at this time, under abnormal conditions, cordial and enduring relations with the consuming industries.

$5,000,000 WORTH OF TIMBER BURNED.

CALGARY, Alta., August 10.

An estimate made to-day by an expert forester who has travelled through the British Columbia region affected by the recent forest fires is that $5,000,000 worth of timber was destroyed in Southern British Columbia alone.

The loss by reason of the forest fires which have turned in the Alberta forest reserves is not nearly so great, in fact, would be covered, perhaps, by an estimate of $200,000, and this loss was principally in the one great fire which swept the slopes of Crow's Nest mountain in the Crow's Nest Pass country.

The timbers lost are mostly fir, with some tamarack and pine and a few cedar trees.

PAPER MAKERS AID JUSTICE.

The Toronto "Saturday Night" says:

"The paper manufacturers of Canada can be a very effective aid to the Department of Justice if they use their powers judicially. There is evidence of a fine Italian hand in the recent experiences of the sanguinary journal published in Montreal by Tancred Marsil. It is now in a state of suspended animation, owing to the fact that its publisher cannot buy white paper, even for cash. Tancred Marsil is neutral; he doesn't care who wins the war so long as the British gain no victories. Sooner than see a French-Canadian shed his blood in behalf of the cause of liberty and humanity, he would have him lay down his life in an attempt to wipe out his neighbors in Ontario. He is not a pacifist opposed to war on general principles. The kind of war he yearns for is one to eliminate English-speaking Canadians, who have encroached on a domain which he would fain have seen preserved as a sanctuary for trappers and **coureurs de bois**. To promulgate his ideas other than by word of mouth it was necessary for Tancred to consume a good deal of white paper. Now there is an unquestioned shortage of white paper in this country and elsewhere. It is a fair question whether it is right that any part of the limited stock in hand should be soiled and abused by the text of appeals for the disruption of Canada, or for the lsander of Great Britain and her Allies. In deciding by some unrevealed or telepathic process that white paper can be put to better uses, and is not for sale to sedition mongers, the paper manufacturers have rendered a useful public service, and may save the Department of Justice the bother of suppressing Tancred Marsil's publication by processes of law.

SODA SCARCITY IN GERMANY AND AUSTRIA.

In Germany the scarcity of soda salts corresponds to the difficulties which countries outside Germany find in obtaining supplies of potash salts. Advertisements regularly appear in the trade Press asking for sodium bicarbonate and soda-lime in any quantity. The prices of soda in Austria have been subjected to control on account, it is stated, of the "shameless profiteering" which has been carried on with hoarded supplies.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Treating cellulosic materials. M. A. Adam, Brit., 17,846, Dec. 21, 1915. In a process of treating cellulosic materials, such as wood, to obtain more or less pure cellulose, either as long fibre suitable for paper-making, or as short fibre which may be used as fuel, and also to obtain a sugary liquid comparatively free from the usual secondary products and suitable for the production of alcohol by fermentation, the materials are, before digestion, reduced to pulp and then digested in apparatus adapted for continuous ingress and egress of pulp, and also, if desired, for regeneration of heat between the treated material and that awaiting treatment. Sawdust is ground in a pulverizer into which it is introduced with an appropriate amount of extremely dilute HCl, H_2SO_4, or H_2SO_3. The pulp from a pit is then forced under pressure through a heater or digester similar to that described in 17,427, **1912** (C. A., **8**, 416), for treating peat. The material returns through a jacket and thus heats the material passing into the digester, passing from thence through a pipe to an endless web over a suction box, and between bands which gradually approach each other and thus exert increased pressure on the material, which is finally discharged and may be led to a gas producer to yield fuel for steam and power raising. The liquid matters from the suction box and the collecting tray are passed by a pipe to a jacket, and the heat utilized. The cooled liquid is then treated in the known way for the production of alcohol by fermentation. The length of the digester is preferably adjusted to provide for maintaining the pulp at temperature of say 150 deg. for 30-40 min., and the flow may be retarded by discharging into a pressure vessel or through a reducing valve or other suitable device. To produce chemical wood pulp, logs are ground wet to produce the longest fibre practicable, preferably by a hot grinding process, and the mechanical pulp is treated with bisulfite or other lye, which may be added during grinding, or after. The formation of deleterious secondary products is minimized by using a temperature as low as possible and by using a greater pressure in the digester. Excess pressure may be obtained by giving artificial viscosity or pastiness to the pulp by prolonged beating and retarding the rate of flow. Where a specially fine product is required, the wood may be ground dry, and where waste wood is of a mixed character, it may be screened and treated in separate units. Specifications 2,018, **1910**, 17,714, **1911** (C. A. **7**, 415), and 20,220, **1911** (C. A. **7**, 890), also are referred to.

Cellulose, glucose, etc. International Cellulose Co. Brit., 104,173, Jan. 31, 1917. Cellulose is dissolved in a mixture of aqueous HCl and another concentrated inorganic acid, such as H_2SO_4 or H_3PO_4. The resulting solutions may be squirted through orifices into suitable coagulating baths, or may be allowed to hydrolyze into glucose, dextrose, etc.; these sugar solutions may be freed from acid and fermented to alcohol. Examples are given of the treatment of cotton and comminuted wood; the process may be applied to oxycellulose, and lignocelluloses.—From Chemical Abstracts.

Couch Press for Paper Machines. Christian Seybold. Norw. 27,579 (1917). Inside the press roll, which is built as a perforated drum, a paddle wheel can be rotated at a different speed, and even in a direction opposite to that of the perforated drum.—B. J.

The Spruce and Balsam Fir Trees of the Rocky Mountain Region.—Sudworth, G. B., U. S. Dep. Agri. Bull. No. 327. Contribution from the Forest Service, pp. 1-43 + Plates I-XXV + Maps 1-10.

A dendrological study of the following forest trees. (1) Spruces: Picea Mariana (Mill). B.S., and P., known as the "black spruce"—Picea canadensis (Mill) B.S. and P., known as the "white spruce," rare in the Rocky Mountains, its main range being Canada and the northeast of the United States—Picea Engelmanni Engelmann, called "Engelmann's spruce"—Picea Parryana (Andre) Gardeners' Chronicle, known as the "blue spruce," or "Colorado Blue Spruce." (2) Balsam Firs: Abies balsamica (Linn.) Miller, known as the "balsam fir"—Abies lasiocarpa (Hook) Neittall, known as the "Alpine fir"—Abies arizonica Merriam, known as the "cork fir"—Abies grandis Lindley, known as the "Grand fir," or "white fir"—Abies concolor (Gord) Parry, known as the "white fir," properly socalled —Abies magnifica shastensis Lemmon, known as the "Shasta red fir."

The distinguishing characters of the above trees are given, together with their geographical distribution, from Mexico to Canada, from the Pacific slope to the Great Plains of North America, and in the forest reserves. It must be remembered that spruces are exceedingly important trees, both from the ornamental standpoint ("blue spruce"), and from the economic point of view. They yield superior saw timber ("white spruce" and "Engelmann's spruce"), and are used for the production of paper pulp ((black spruce" and "white spruce"). The larger species of balsam firs produce excellent saw timber ("white fir"), and wood pulp for paper making, (Abies balsamica); while some of them are important also because they form protection forests on steep slopes at high elevations where few other conifers can live.—Bull. International Inst. Agri.

Difficulties in the Boiler House Caused by Varying Steam Consumption, and How to Avoid Them. Karl Ingerol, Papir J., Vol. 5, (1917), No. 8, p. 60. The great variations in steam requirements in pulp mills especially caused by the varying consumption of steam in the cooking process are the chief causes of serious irregularities in the running of the boiler house. The boilers usually employed in pulp mills are of very low water capacity and therefore unable to accumulate sufficient heat for use in periods of high steam consumption. In most cases it would be of advantage to build an accumulator between the boilers and the steam consumer. In many cases indirect accumulation will prove favorable. This means that in case of low consumption of steam in the cooking process, the cylinders of the drying machine are heated directly from the boilers, and also steam introduced into the accumulator. When much steam is required for the digesters the cylinders are heated from the accumulator.—B. J.

Process of Producing Alcohol from Waste Sulphite Liquor. Aktiebolaget Ethyl (Sweden), Norw. 27,613 (1917). The fermented, viscous liquor is inclined to form foam in the distilling apparatus. This is avoided by removing the carbon-dioxide from the liquor and exposing the liquor in a finely divided state to the action of air.—B. J.

Dry felting for paper manufacture. K. Ferster, Ger., 291,464, July 10, 1914.

Regarding Pulp Wood and its Treatment. G. Lundberg. Svensk Pap. Tid. Vol. 20 (1917) No. 3 p. 28. Lundberg estimates the total felling in Sweden in one year to be approximately 11,035,760 cords, half of which is used for fuel and about 1,614,869 cords as raw material for the pulp industry. The Swedish forest ground is estimated to be 51,891,840 acres, that is a wood felling of 0.2233 cords per acre. The growth in the province of Vaermland, which is well situated, appears to be 0.24893 cord per acre. But some areas must be exploited and cleared and replanted, and there will come a critical interval when the wood felling can not be continued at the present rate. The competition between the wood using industries makes it necessary to undertake measures which better answer to the demands of each industry. The spruce with a higher cellulose content, and which is cooked more easily than the pine should be paid more for by the pulp mills. The larger sizes with lower barking losses and lower labor cost should be higher in price than the smaller sizes. Also the handling of the wood in the forest is important. When barked in the forest, the wood will dry more rapidly and as the wood does not take up water as rapidly after drying the sinking losses will be reduced; the barking losses in the mills will be lower, and the barked wood is easier to transport than unbarked wood. The advantages of whole barking in the forest outweighs more than enough the added cost of barking in the forest. Barked wood in piles represents a 12-15 per cent. higher effective wood percentage than unbarked wood. In replanting care should be taken that the most favourable soil is selected for each species.—B. J.

The Schoop Metal Coating Process in the Paper Industry. Papir J., Vol. 5. (1917), No. 10, p. 86. Attention is paid to the possibilities of this process in the paper industry. Metal coated board could be used for roof cover. Water pipes, bottles, containers, barrels and boats of paper will be largely improved by metal coating. In the German army metal coated paper board is used for shells by smaller guns, and also for shoe soles, water bottles, and beakers; further for spoons, forks and plates. In the paper mills the process could be extensively used by covering cheaper materials with copper, brass, aluminium, etc.—B. J.

Regulator for Wood Grinders. B. Lindeblad and A. N. Wahlund. Norw. 27,610 (1917). Arrangement whereby a gradual change from low to high pressure and vice versa is effected.—B. J.

Process for Effecting a Chemical Decomposition of Waste Sulphite Liquor. R. W. Strehlenert, Norw. 27,637 (1917). The liquor is heated indirectly by steam coils to a temperature at which the decomposition products are not appreciably precipitated on the highly heated coils. The final heating is effected by direct steam.—B. J.

Apparatus for Treatment of Wood Pulp.—Standard Alcohol Co., N.Y., Norw. 27,857 (1917). A rotating digester for transforming cellulose material into fermentable sugar by means of a hydrolysing agent, which is added to the charge under steam pressure. A pipe for steam outlet and an inlet pipe for the hydrolysing agent lead into the steam space of the digester above the charge, and can both be used during the rotation of the digester.—B. J.

Spanish Forests and Paper Manufacture.—Elorrieta O. in Resumen de Agricultura.—The Spanish market uses annually 28,000 tons of paper, of which newspapers account for one half. Spain produces 15,000 tons of mechanical pulp per annum, from which an approximately equal weight of paper is manufactured. Consequently she is obliged to import 3,000 to 4,000 tons of mechanical pulp and 10,000 tons of chemical pulp.

It is asserted that there is sufficient wood in Spain to cover the amount of the imports and that it is the lack of roads which hinders the working of the woods under economic conditions. In Spain the raw material for paper making is not very costly, but no one cares about it and the forests remain practically unused. As an instance may be cited the magnificent fir woods of the Aran valley consisting of Abies pectinata, the species best adapted to paper making. A beginning was made in the management of 37,500 acres, and the yield from these forests reached nearly 16,000 cubic yards (about 3,300 cords). Unfortunately the work was stopped on account of administrative difficulties connected with boundaries and other questions of secondary importance.

In the Pyrenees of Aragon and Catalonia, chiefly in the provinces of Huesca and Lerida, there are 122,500 acres of firwoods capable of providing 39,000 cubic yards (about 8,200 cords) of wood per annum. As the wood has a high moisture content this quantity would make about 15,000 tons of mechanical pulp, or 10,000 of chemical pulp, which is nearly enough to tide over the crisis that the war has caused in the paper trade. It does not seem possible to work these 122,500 acres in an intensive manner all at once, and it is suggested that the working of the Aran valley, mentioned above, should be continued; the 39,000 cubic yards of wood obtained would be equivalent to 6,000 tons of mechanical pulp, or 4,000 tons of chemical pulp.

The remainder could be provided by the pine forests (Pinus sylvestris) of Soria, Burgos, Sierra Carpetana and Cuenca. The Spanish pine wood contains more resin than that from the Baltic and Sweden, and consequently is less suitable for paper manufacture. Nevertheless this species occurs at various altitudes, and it is probable that Pinus sylvestris from the dense woods of the higher parts of the country closely resembles that from Northern Europe.

The conclusion is drawn that the problem of providing raw material for paper making could be solved if the Forest Administration were to take the matter up seriously.

Transportation is a more difficult problem to solve than the preceding one. In practice the freight from Sweden to Spain, to Pasajes (Guipuzcoa province) is lower than the cost of transport from Sierra Guadarama (province of Madrid and Segovia) to Guipzcoa or Biscay, where important Spanish paper factories are situated. The Government may prevail upon the railway companies to concede a lower tariff, but it cannot improvise means of road transport.

The Spanish paper industry has a producing capacity great enough to meet the needs of the country; the Spanish Papermaking Company is responsible for 68 per cent. of the total output. Apparently means are available to produce the whole of the mechanical pulp necessary, but not the chemical pulp, because the manufacturers are not provided with the needful plant. The paper factory at Villalba (Navarra) is an exception to this, as it produces a small quantity of semi-chemical pulp.

Replanting with poplars, especially Canada poplar, is suggested as a means of providing the most rapid solution of the problem, while at the same time it would give a return of 12 to 14 per cent. on the capital outlay.

UNITED STATES NOTES

William S. Culbertson, of the Federal Tariff Commission, it is understood, will shortly start out on a visit to the various chemical factories in connection with an investigation that the commission will make into the chemical industry of the United States. Dyestuffs will be given particular attention, for this is the subject into which the Federal Tariff Commission is going with a vengeance. Mr. Culbertson wants to get in touch with the business—and this is regarded by the trade as a very encouraging sign for the future of the American dyestuffs industry.

The International Paper Co. is receiving just now the first drive of spruce pulp logs of a drive of 8,000 cords at the Webster Mill, near Bangor, Me. They are running their cutting up mill night and day.

Henry Disston & Sons, Inc., of Philadelphia, have inaugurated a monthly house organ for employees of the company, the first issue of which appeared July 2nd. The title of the publication is "Disston Bits," which has a double significance, "bits" being another name for the tooth of inserted tooth saws, one of the company's products.

The American Writing Paper Co. has posted notices to the effect that vacant positions will be filled from men in their own mills. Thus John Johnson and Mr. Fielding have been promoted from head beatermen to superintendents, replacing George Forrester and Mr. Bradburn. The company also announces the opportunity of studying the first principles of mechanical engineering and of chemistry.

President Wilson has issued a proclamation which abolishes the Dakota National Forest and opens this land for settlement entry on September 19th.

The First National Bank of Boston announces the opening of a branch bank at 501 Bartolome Mitre, Buenos Aires, Argentina. This branch, under the management of Mr. Noel F. Tribe, is now doing a general banking business. Inquiries with regard to transacting business between this country and South America, may be addressed to the home office at Boston or to the branch.

That there will be an extraordinarily marked revival in the paper manufacturing industry next fall is the opinion of Howard F. Marston, general manager of the Mercantile Corporation Company and the Middle West Supply Company, Dayton, Ohio, which manufactures all the stamped envelopes and newspaper wrappers used by the Federal Government. And this is no idle sentiment without basis in the form of tangible evidence. Mr. Marston presents facts that would seem sufficiently formidable to carry conviction in the mind of the most skeptical.

Word has reached Chicago that the coal situation is proving very disturbing to the mills of the Middle West. The mill owners believe that coal at the mouth of the mine is too high, and they are therefore backing the movement for federal price control, along with other interests which consume large quantities of coal. On the other hand, the mills wish to get in their coal supply for next winter at the earliest possible moment for they realize that the car shortage may prove even more severe than last fall. The delay is therefore irksome.

Plenty of water in the Black River and no smoke in the air make a combination highly pleasing to paper manufacturers in the Watertown, N.Y., district. In fact, it is an unusual condition in this section at this time of the year, especially in the midst of the third week of dry weather, and one which is being generally commented upon. The flow of the river is sufficient for plants along its bank this year, and no trouble has been experienced. Not a forest fire has been reported thus far, and this gives the paper manufacturer a satisfied feeling that his pulp wood tract is not being devastated. Other years both features have proved disastrous. Many of the local mills have been either forced down or compelled to run on part time because of low water in the river. Acres of timber lands have been swept by flames during a dry spell like the present, with pulp wood even burned after cut.

The Penn Paper & Stock Company, of Philadelphia, packers of all grades of waste paper, has established a New York office at 132 Nassau street.

The Manistique Pulp & Paper Company, of Manistique, Mich., has filed articles of incorporation with the secretary of state at Lansing. The capital stock is placed at $500,000.

The Cheboygan Paper Company, Cheboygan, Mich., has reopened its plant after a three weeks' shutdown for repairs.

Declaring that paper manufacturers at the present time discriminated and have for some time past discriminated against young men of draft age in refusing to give them employment, the executive council of the International Paper Makers at its closing session at Albany, N. Y., last week adopted a resolution condemning such action. J. T. Carey, president of the executive board, supplemented this action by announcing that the union was collecting the facts and would forward them to the proper authorities at Washington and ask that action be taken. The executive council also took steps to prevent what they call the exploitation of labor in the industry.

WYOMING VALLEY PAPER MILL TO START.

The Wyoming Valley Paper Mill on or about October 1st will begin the manufacture of paper towels, toilet paper and crepe specialties at Pittston, Pa. The mill will have offices in New York at 61 Beekman street. The equipment will consist of four 1,000 lb. beaters, two refining engines, one cylinder and one fourdrinier. Steam power will be used. The plant will have a capacity of 24,000 lbs. per 24 hours.

DISCOURAGING SAFETY.

"This seems to be a very dangerous precipice," remarked the tourist. "I wonder that they have not put up a warning-board!"

"Yes," answered the guide, "it is dangerous. They kept a warning-board up for two years, but no one fell over, so it was taken down.

PULP AND PAPER NEWS

The recent heavy rains caused floods in Quebec that ent many cords of pulpwood to the sea. Among eavy losers were the Brown Corporation.

Griffith-McNaughton, of Arnprior, Ont., are putting n addition to their felt mill and will install another et of Cards to add to the production of the paper felts.

The death of Mrs. Mary Gibbard occurred at 1371 ing street west, Toronto, last week. She was the nother of George E. Gibbard, publisher of the Phar- naceutical Journal, Toronto, and had she lived until ext November, she would have been one hundred ears of age.

There have been no serious forest fires in Northern ntario this year, while there has been abundance of ain. Such is the cheering message received from the hief Ranger by the Ontario Department of Lands, orests and Mines. The new system of fire protection nd patrol is working excellently and while a few in- ipient outbreaks have taken place, very little if any amage has been done.

A. P. Costigane, Safety Engineer of the Ontario ulp and Paper Makers' Safety Association, Toronto, paying his first official visit to the plants at Dry- en, Fort Frances and other points in Northwestern ntario.

Donald Henry McLean, of Oakville, Ont., died in ie Toronto General Hospital last week in his sixty- inth year. He was a son of the late Robert McLean f the Canadian Fire Underwriters, and for many ears was associated with his brother, the late R. G. cLean, of R. G. McLean, printers and publishers, 26 ombard street, Toronto.

Louis P. Bouvier, of the firm of Bouvier and Hutch- son, envelope manufacturers, 31 Lombard street, oronto, celebrated his sixty-fourth birthday last week id received the congratulations of many friends. He as been connected with the trade ever since 1870 arning the business in Springfield, Ohio, and coming Toronto in 1879, he was associated with Barber-Ellis r about twenty years and for the last eighteen has en in business for himself.

Allan Browne, sales manager for the Interlake Tissue ills, has returned to Toronto after spending the past ur weeks in Montreal on business.

S. F. Duncan, of Toronto, secretary-treasurer of the ort Arthur Pulp and Paper Co., spent the past few ys in Port Arthur and reports that spendid progress being made on construction work of the new fifty n sulphite plant which is being erected in that city.

J. B. Piper, of the selling staff of the Provincial aper Mills Co., Toronto, has returned after spending pleasant holiday at Cobourg and Rice Lake.

Much of the success of the great Win-the-War athering, which was held recently in Toronto, and at- nded by six thousand persons, is due to Frank Wise, norary secretary of the convention. Mr. Wise is anaging director of the MacMillan Co., of Canada, imited, publishers, Toronto, and is also chairman of the Publishers Section of the Toronto Board of Trade.

The Interlake Tissue Mills, Toronto, will make a representative exhibit of their toilet and tissue papers, paper napkins, towels and specialties at the Canadian National Exhibition, which will be held from August 26 to September 10, and wlll occupy their usual booth under the grandstand.

John M. Imrie, of Toronto, manager of the Canadian Press Association, and Mrs. Imrie, are spending their holidays at Algonquin Park, Ontario, and will be away a month. A. R. Alloway, assistant manager of the Canadian Press Association, has returned from a motor tour of western Ontario.

O. H. Moore, of Toronto, general manager of Hinde and Dauche Paper Co., of Canada, has returned from a business trip to Winnipeg and other points west. He reports that the outlook for fall business is promising.

Another new publication has been launched in Canada known as the Auto Club Journal, which is the official organ of the Vancouver Automobile Club.

Business with board mills is rather quiet at the present time and paper box factories, which have been rather slack for the past few weeks, are beginning to get busy. The approach of the fruit canning season always brings in a large number of orders.

Although a number of newspapers in Ontario some time ago refused to accept liquor advertising of any kind, some have gone back on their original policy and large advertisements from breweries and liquor supply stores are now appearing. A bill has been introduced in the House of Commons, in amendment to the Prohibition Act, prohibiting the circulation of advertising matter for the sale of liquor in such provinces as undertake to stop such advertising. The bill provides that it shall be an offence to circulate such advertising through the mails in such a province.

It is expected that the new sulphite plant of the Lincoln Paper Mills Co., at Merritton, Ont., will be in operation early next month. The finishing touches are now being put on the equipment .

The Ontario Paper Co., Thorold, are getting pulpwood in almost faster than they can handle it. At present they have two boats lying at their dock waiting to be unloaded.

Mr. F. M. H. Cushing, electrical superintendent at the Montrose Division of Provincial Paper Mills Co., Ltd., at Thorold, has left to spend his vacation at Hull, Que. While en route it is his intentions to stop off at the several pulp and paper districts to look over the plants.

Miss R. M. Justice, assistant accountant for the same company is also on vacation, she having chosen Chautauqua, N.Y., as a holiday resort.

Four hundred men are employed in the construction of the Fraser Company's pulp mill at Edmundston, N.B., to be completed next spring. Fifty-four dwellings are to be erected for workmen. The cost of the plant will be about $2,000,000.

The plant of the New Brunswick Sulphate Fibre Company at Millerton, has been completed and now is in operation, with a large crew. The manufacture of sulphate pulp will be carried on for the first few months, after which paper will be turned out. J. D. Volckmann, formerly of the New Brunswick Pulp and Paper Company, is superintendent.

About 20,000 cords of pulpwood is piled up at Chatham, N.B., awaiting shipment to Portland, Me., but the scarcity of tonnage is delaying movement of this freight, only two steamers having been chartered in the last month.

Gold has been discovered four miles south of the Abitibi River and some twelve miles east of Iroquois Falls, Ont., where the immense plant of the Abitibi Power and Paper Company is located. The find was made by two Swedes who were cruising for pulp wood. In all three veins ranging from four to nearly twenty feet in width have been uncovered.

OTTAWA NOTES.

With the Booth interests the prospects for a good year's operation in the newsprint industry are not considered any too bright by themselves and Mr. Jackson Booth predicts that before the winter is over that there is going to be a considerable shortage of pulpwood. This shortage Mr. Booth says, will be brought about by the scarcity of labor, the high cost of camp supplies, and the higher wages that woodsmen are demanding for their labor. "Wait and see what will happen to the newspaper publishers when this shortage asserts itself," said Mr. Booth. "As matters stand at present with our plant I cannot see where the paper manufacturers are going to get off at." The shortage of labor is already beginning to assert itself in the Ottawa district and the Booth interests for the first time in several years frankly state that the labor situation is bad, and they don't know where their men for the bush are coming from. They are offering good money for woodsmen, but the men are apparently not available. Recently the Abitibi Power and Paper Company advertised in local papers calling for lots of fifty men to go into the bush. The application of the conscription law will make the labor even scarcer.

The fuel situation is beginning to get a little easier with the Booth and Eddy plants, and both are now in a position to put away an odd car load for reserve purposes.

That the large loss of logs and pulpwood in the disastrous floods at Beauce will have an effect on the pulpwood market was the opinion of Mr. J. A. Bothwell, general manager of the Brompton Pulp and Paper Company, who was in Ottawa last week. Mr. Bothwell said that he had heard that 30,000,000 feet of logs, and 60,000 cords of pulpwood had been carried down the St. Lawrence. The American interests, Mr. Bothwell said, had suffered most, not only through losing their logs, but that their shipping facilities were tied up as the Valley Junction bridge on the Quebec Central Railway had been carried away. Mr. Bothwell wore a happy smile when he remarked that he was glad the water was not so high in the St. Francis where the Brompton mills are situated.

The following analysis of the British figures shows what the imported chemical pulpwood was worth per ton in 1915, what it was worth during the first five months of 1917, and the percentage of increase per ton:

	Value per ton, 1915.	Value per ton, 1917.	Per ce increas
Chemical Pulpwood.	..$44.77	$190.21	324.86
	Per cwt.	Per cwt.	
Paper imports as above	2.70	6.24	131.11

The imports of wood pulp into Canada increas from $423,331 worth in 1915, to $552,002 in 1916. A this pulp came from the United States, from whi country the importation increased by 74.2 per ce There were no imports from Sweden during 1916 fr which over 100,000 tons came in 1915 nor from Gre Britain which sent 745 tons in the same year.

PUBLISHER'S HOUSE DYNAMITED.

Last Thursday morning the house of Baron Atholst (better known as Sir Hugh Graham) at Cartiervill near Montreal, was dynamited. Considerable dama was done to the beautiful residence, but no one w injured. The act was evidently done by anti-co scriptionists in retaliation for the vigorous backi of the Government's military policy by The Montre Star, of which the Baron is proprietor. Baron Athc stan is also interested in the News Pulp and Pap Co., at St. Raymond, Que.

BRITISH COLUMBIA PAPER MILLS.

Last year 65,000 tons of paper and 15,000 tons pulp were turned out by the mills in British Columbi and the only problem is the obtaining of market Some sixteen years ago the Government commenc granting twenty-one year leases in order to encoura the paper making industry with an annual rent of t cents per cord of wood cut. The lessees were boun to build and operate a paper mill of specified capacit Four companies availed themselves of the provisi and three of these have passed from the hands of t original owners, but all plants are now busy.

Robert Sweeney, president of the Rainy River Pul and Paper Company, whose plant is at Port Mello B.C., spent a few days at Vancouver recently and a nounced that the pulp output of the plant will short be doubled and additional equipment installed. Kra paper is now being made and the outlook for the futu is very bright. Mr. Sweeney said that for some tim there had been a lull in the pulp market, but the i dications were that there was a busy season ahead an the pulp mills in British Columbia would not be abl to cope with the demand. All the pulp being manu factured in the province at the present time was bein shipped to the United States.

ONTARIO POWER IN NEW HANDS.

The plant of the Ontario Power Company at Ni gara Falls, Ont., has been taken over by the Hydr Electric Commission of the province. Upwards o 95 per cent of the stock of the Ontario Power Com pany was handed over, in exchange for which the bond of the Hydro-Electric Power Commission were deli ered to the Bankers Trust Company, of Buffalo, actin as trustees for the power company, and all books, docu ments and properties were delivered to the new com pany. Sir Adam Beck is president of the new com pany; Colonel McNaught is first vice-president, an Hon. I. B. Lucas, Attorney General of Ontario, secon vice-president. W. W. Pope is secretary and W. S Andrews, treasurer.

The Markets

CANADIAN MARKETS.

TORONTO, Aug. 13. — With the advent of cooler weather, the approach of fall trade and the passing of the holiday season, business in all lines of the paper trade is beginning to pick up somewhat. The outlook for autumn is improving and warehouse trade which has been rather quiet is moving upward. The work of the auditors on the books of the news print companies is, like session of the Canadian parliament still going on and no one knows when it will end. It is reported that in some plants it has taken the officials over a week to get the data that they require for the Commission, and it does not look, unless greater haste is made, if the report of Commissioner Pringle will be ready for presentation to the House before its adjournment.

There is a rumor that the publishers are not grieving over the slow progress made as, in the meantime, they are getting their paper at two and a half cents which is a lower figure than they will likely pay when Commissioner Pringle reaches a decision while the politicans, on the other hand, have enough matters of moment on their hands in the way of enforcing the military service act, the purchase of the C. N. R., preparations for an election, etc., without bothering with the news print issue. The members would be glad, it is reported, to shelve the question until after a verdict of the people at the polls on the various political problems of the hour.

The inauguration of the two cent papers in Toronto, has had the effect of reducing the sales perceptibly during the past few days, but buyers of dailies at the news stands and on the street, are coming back slowly and returns each week show a gratifying gain. In a few months it is probable that sales will be nearly as large as ever, as the daily journal has become a necessity and it is doubtful if the one cent paper will ever be heard of again in Toronto. The propaganda, which was carried on by the press in reference to news print has been eliminated for the time being, and publishers and manufacturers are awaiting with interest the resumption of the sitting by the Commission.

In the meantime all eyes are turned to Canada as the future supply country for pulp and paper on the American continent. One of the best indications of the trend in this direction is the purchase by the International Paper Company of one hundred acres of land adjoining the Algoma Steel plant for the erection of a large pulp mill at the Soo, while the Lake Superior Corporation is planning for the development of its timber properties along the Algoma Central and the Algoma Eastern railways and the erection of pulp mills at points convenient for shipment on these lines of steel.

Book and writing plants are fairly active and are now able to make deliveries in reasonable time. Other mills are seasonably quiet. Last summer was an exceptional one and there were abnormal conditions and an abnormal demand during the usually quiet months of July and August. It was felt that such conditions could not last forever as every good thing must come to an end sooner or later. It is confidently predicted that higher prices and much more active demand will set in within the next six weeks. The one thing remarkable is that the level of prices on all lines of paper has held so high in spite of the quietness that has been prevalent for some weeks now. There have been no material changes in quotations for several months.

There are three sources of worry in the trade at present and they are coal, pulp wood and labor supply. The huge piles of pulp wood, which have been seen around many mills in the past, are now noticeable by their absence and the acuteness of this situation is likely to be keenly felt within the next month. Prices for ground wood are bound to go higher and mills, which are piling, are not worrying regarding the outcome. The settlers of Northern Ontario, now that the harvest is about over, are preparing to take more wood than ever from off their clearings and know that they will find a ready market for same, as nineteen and even twenty dollars is being paid for wood delivered at some points in New York and Ontario, and about a year ago ground wood pulp was disposed of at the mills for less than this figure. No man can today tell what is likely to happen in the pulp arena and one person's opinion is as good as another.

The disturbing factors in Canadian trade have been caused by the war conditions across the border and when things settle down there a bit, there is little doubt but that prices will ascend. If conscription goes into effect the labor problem with the mills may be exceptionally hard to overcome. No less than sixteen hundred men have already joined the colors from the various pulp and paper mills in Canada.

Envelope manufacturers report that it is difficult to secure enough female labor and wages are high. "We have to put up with incompetenec and indifference which we would not tolerate for one minute if we could get the proper kind of help," remarked a leading manufacturer this week.

Coating plants are quiet and wrapping mills are only fairly busy. In spite of the rather unsettled state of trade and the many perplexities which beset it on every side, it is expected that all the companies will show a record year's earnings. The annual report of the Laurentide Co., which is expected early next month, will give a key to the earnings of the past year as this concern has always been looked upon as a sort of barometer of conditions generally. Three or four new sulphite plants will be in operation before the end of 1917 and whether this will have any appreciable effect on present prices can not be foretold. An official of the Port Arthur Pulp and Paper Co., reported this week that when this plant is in operation it will be able to reach all its customers by water route and be entirely independent of railway congestion, while the lakes are open.

Very little foreign pulp is arriving in America and it is not expected that the amount of importations

will change until market matters improve. Paper with some concerns are low and buyers evince a disposition to hang back and not enter the market at present, in spite of the fact that advances in wages, coal and raw materials would seem to render it impossible for any mills to come down in price, particularly in Canada.

Paper and Pulp.

There are no changes in pulp quotations to report this week. New prices quoted on papers are as follows:

†Fibre	$7.35
†Grey Browns	$4.75
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Genuine vegetable parchment	23c to 30c
Drug papers, whites and tints	10c to 12c

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

RAG AND PAPER STOCK.

Matters in the rag and paper stock market are rather quiet, but prices show an upward tendency. There is a small demand for new cotton rags from the paper mills who have large stocks on hand. There is an active requisition for roofing stock from Canadian and American plants. The prospects for big fall business in all lines look good, so dealers report.

The only new prices are:

Flock and satinettes	$2.00

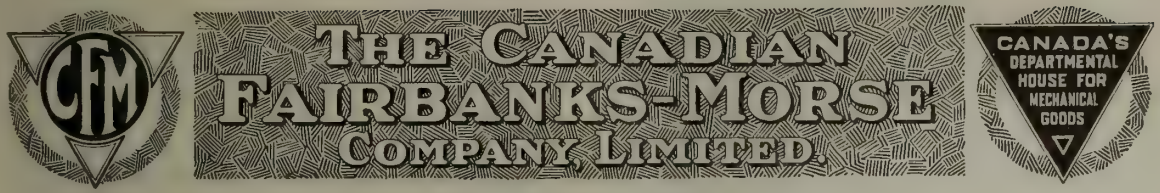
NEW YORK MARKETS.

By R. W. JOLLY.

NEW YORK, Aug. 11. — In chemical pulps, the future of the market seems to be of greatest interest to the trade at present—at least, to those who are following conditions closely. The conclusion by pulp importers seems to be that the improved relations between Sweden and England will have a more important bearing on the domestic market than has thus far been realized. For instance, advices received during the week are to the effect that the Scandinavian pulp producers have found it advisable to curtail their production to an extent still further than that hitherto necessary. This, it is understood by the importers to mean that, despite the removing of the export embargo by Sweden, England will be able to get comparatively little supplies from that source. On the other hand, there have been reports in the local market that the Canadian producers were planning to hold the trade they had built up with the Mother Country. The statement was made that the new situation abroad would make practically no difference in the sulphite exports of Canada to Great Britain—they might increase for that matter. On the other hand, demand is of such a nature that, whatever Sweden can send to England will find a market there—at a big price. The paper mills continue showing comparatively little interest in the chemical pulp market. Business is reported light and actual sales are said to be of a scattered variety and invariably confined to rather small quantities. Consumers are turning most of their attention, at present, to domestic pulp, which is available at appreciably lower prices than imported fiber, yet quotations on the foreign product hold surprisingly steady. Importers declare that, to lower their prices to the relative level of domestic pulp would entail their suffering a very heavy loss on what supplies they have on dock, and naturally none are willing to shoulder this loss with the many intimations that the market will strengthen sufficiently within the next few weeks to enable them to dispose of their current holdings at a profit. Aside from that, market values of pulp on the other side are considerably beyond a parity with prices here, which is one of the big features responsible for the decrease in imports here. The other big factor, of course, is uncertainty of shipping. Maintaining that, instead of being any chance that the foreign product will go down in price, all indications are for a still higher market, the importers feel that all they can do is to wait and bide their turn. Whatever supplies are now arriving are mainly on contract as few importers deem it advisable to absorb offerings of the Scandinavian manufacturers with the local market in its present position. Domestic unbleached sulphite is held at $70 to $75 per ton at the producing plant and, while reports have been heard of sales at lower figures, it is said on excellent authority, that no appreciable tonnage of pulp can be obtained at cheaper values, while numerous sellers are refusing to entertain offers at the bottom quotations. Domestic soda pulp is moving in a moderate way, at steady prices, quotations ranging from 5 to 5¼ cents a pound.

The difficulties attending the shipment of pulp wood from the cutting regions to grinding mills is still the dominent factor in the ground wood industry. Demand from consumers continues restricted, and sales invariably are of limited volume, yet quotations are well upheld and producers claim that there is scant probability of prices going lower while manufacturing costs remain so heavy. The transportation problem in Canada and the Northern sections is said to be very serious. The available stocks of mechanical pulp are gradually dwindling under a steady movement of supplies into consumption and quotations show a resultant tendency towards advancement.

There has been no improvement in the paper market. Conditions continue dull, with buying interest in practically all lines rather inactive. It is generally agreed that, while business is expected to be quiet at this season of the year, the past few months have set a new record for this state of affairs. With the coming of September, it is believed that improvements will be noted and that business will again be in full swing. The news print market, in general, is reported as fairly quiet. It seems apparent that most of the large publishers covered themselves pretty well during the excitement and fear that they would be unable to get supplies. The chief thing of interest is the consideration of what the American Newspaper Publishers' Association will be able to do with regard to its arrangements with the Northcliffe mill. Strange enough, the proposition is not regarded in a very serious light. In tissues, the market remains about the same. The attempts of the manufacturers to keep prices up have proved practically futile for it is impossible to sell without making concessions. Wrappings are quiet, with occasional life reported. It is evident that the nation-wide economy campaign in this direction has been more effective than was first realized. Boards are said to be gaining a little in strength. This is thought to be due to the fact that the busy season for



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the large cloak and suit houses is about to start—these concerns are the heaviest consumers of boxboard. Nothing is new in book. It is said that the report of the Federal Commission on this line has been completed.

There has been no change of any account in the old cotton rag market. Roofing and other grades of stock suitable for felt making are in good demand and dealers are having no difficulty in disposing of all the stock obtainable. The high qualities of rags, on the other hand are moving in restricted volume and usually at values which are unsatisfactory to the sellers.

Miscellaneous whites are available in considerable lots at 4 cents a pound, while No. 2 packing is offered as low as 3 cents. Dealers are getting 2c New York, for roofing. Street soiled whites are quoted at around 3 cents; thirds and blues at about 3 cents; black stockings at about 2¾ cents, No. 1 white shirt cuttings are being held for about 9½ cents; No. 2 white shirt cuttings, for about 6¼ cents; fancy shirt cuttings, for about 5¾ cents; new light silesias, for about 6¼ cents.

Waste papers continue in a more or less uncertain stage—that is,dealers are confident that an improved demand is imminent, but are not able to hold on to their stocks, in all cases, because of the big costs of "holding." Today, the lower grades are in greatest call. No 1 mixed paper continues to be the most active sought description of stock and sales are of large volume. Dealers and brokers are willing to pay between 52½ cents and 55 cents for carload lots of pressed bales. Folded news is moving well and at steady quotations, dealers getting over 90 cents a hundred pounds. Dump mixed paper is sought in fairly large quantity and brokers say they are having much difficulty in securing stock at below 40 cents. The sale to a broker of No. 1 manilas has been noted at 75 cents—and also a car of No. 1 krafts at 2.60. Flat stock is quiet with the low prices mills offer curtailing trade. Shavings are also being sold merely in scattered lots and at rather weak values. No. 1 hard white shavings are quoted at about 4¾ cents; soft white shavings, at about 3½ cents; crumpled book stock at about 1½ cents; ledgers and writings, at about 2½ cents; and solid ledger books at 2¾ cents.

The bagging market is characterized by considerable activity with roofing stock still the most eagerly sought grade. Gunny is held for as high as 4 cents; bright bagging is bringing 3½ cents; sound bagging is held for 2¾ cents; mixed bagging is selling at 2½ cents. Old manila rope is moving in comparatively large quantity toward consuming mills and while much dissatisfaction is expressed by dealers over the rather slow development of new business, it is known that the majority of sellers have a good number of previous orders on hand and are keeping well engaged in filling up these commitments. Few if any dealers are willing to cut their asking prices at present as an attraction to buyers and appear perfectly willing to hold what accumulations they have on hand for the anticipated heavier demand later. Quotations are about 6¾ cents; though dealers are said to have their eye still on the 7 cent mark.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b. mill	$41 to $47
Foreign bleached sulphite ex-dock, N.Y.	9¼c to 10c
Foreign easy bleaching sulphite, ex-dock, N.Y.	6¼c*
Domestic bleached sulphite, f.o.b., pulp mill	6c to 6½c
Foreign unbleached sulphite, ex-dock, N.Y.	
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	
Domestic unbleached sulphite, f.o.b., pulp mill	3½
Easy bleaching f.o.b. pulp mill	
Kraft pulp, f.o.b., pulp mill	
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	
Bleached soda pulp, f.o.b., pulp mill	
Foreign unbleached soda pulp, ex-dock, N.Y.	
Foreign easy bleaching soda pulp, ex-dock, N.Y.	
Bond papers, sulphite	
Best grade writings	
Regular superfine	
Ledger papers	
News, contracts, f.o.b. mill	3c to
News, spot lots	3¼c
News, side runs	
Book, super	
Book, coated	
Tissue, good sulphite, bleached, per ream	
Tissues, ground wood, manila, per ream	
Kraft, domestic	
Manila	
Newsboard, per ton, f.o.b., New York	$55
Strawboard, per ton, f.o.b., New York	$50
Chip board, per ton, f.o.b., New York	$50
Binders Board, per ton, f.o.b., New York	$6
Wood Pulp Board, per ton, f.o.b., New York	$75

(*)—And higher. R. W. JOLL

PAPER ARRIVES FROM NEWFOUNDLAND

The following announcement is made in "Fo Estate": The first cargo of newsprint paper the Harmsworth Mill in Newfoundland for the erican Newspaper Publishers Association's paper mittee arrived in New York on August 9.

The second cargo started loading in Newfound on August 8.

The third cargo will be loading on August 15.

Further loading dates will be announced next w

Publishers of smaller newspapers using sheet n print, as well as larger publishers using roll pa will find it to their advantage to communicate im diately with the Paper Committee of the A.N.P World Building, New York City.

TO MAKE PAPER FROM COTTON STALKS.

A $30,000 corporation has been formed by twe eight prominent business men of Dallas, Texas, acc ing to the News of that city, to manufacture pa from cotton stalks. It is planned to increase capitalization of the company, which had been ch tered, and erect a one-quarter million dollar mill the process. Samples of paper from cotton stalks h been made and the method has been proven satisf tory. The machinery has been made by a Dallas fi

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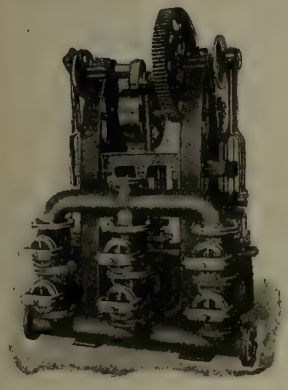
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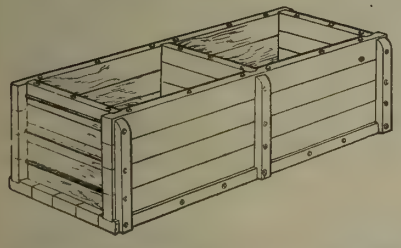
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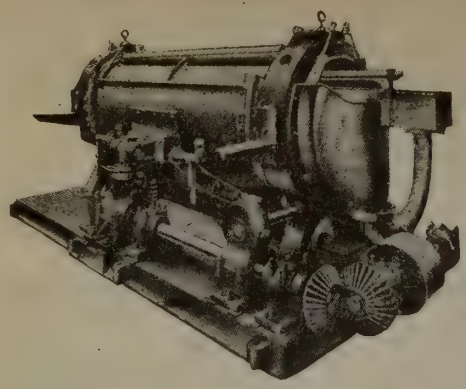
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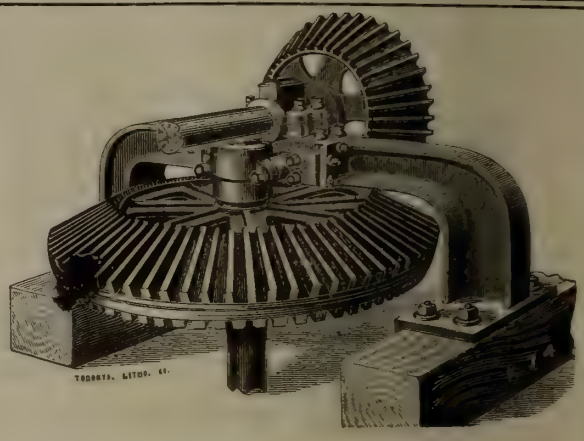


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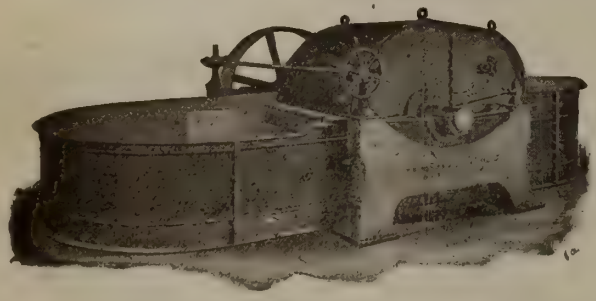
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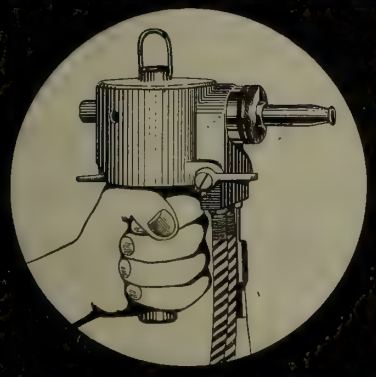
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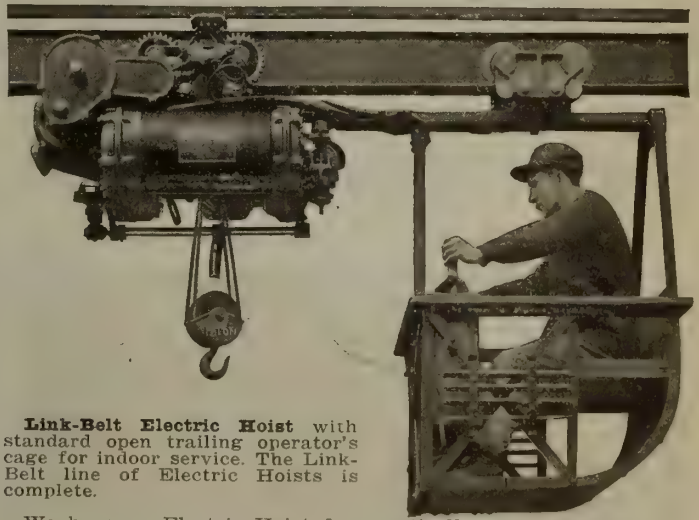
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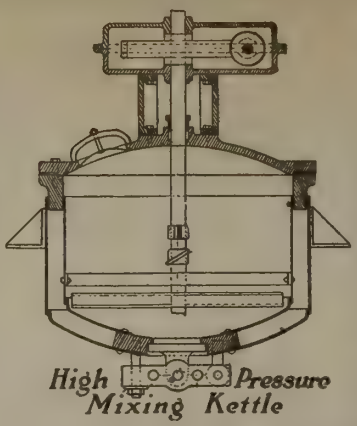
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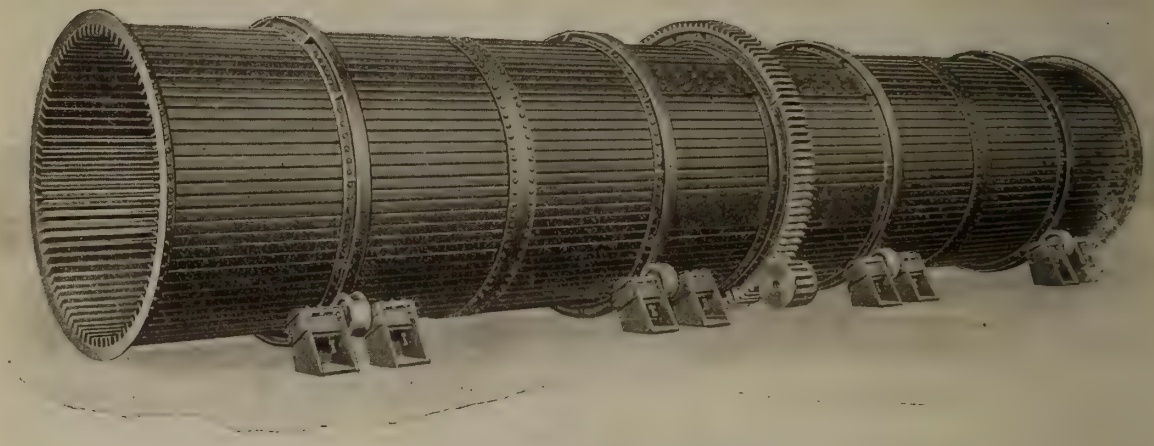


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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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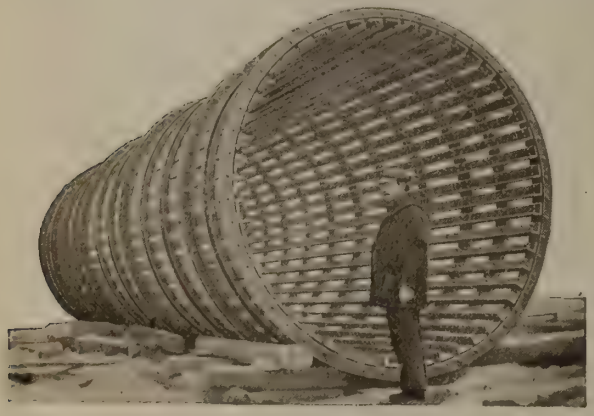
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EDITORIAL

KEEP THE QUALITY UP.

In these days when the paper maker is practically assured of a market for all the paper he can make, there may be a tendency to let down a bit on standards of quality. When dye stuffs became scarce and some grades of paper had to be made in natural color it was found that the product was accepted by the consumer with little or no complaint. Then came the idea that people were so anxious to get paper that most anything would get by.

This is a very unfortunate attitude for paper makers to take, if any have really done so. It not only jeopardizes their export trade, but threatens their hold on even the home market. An instance of this is the story that has reached us in regard to a lot of correspondence envelopes that were practically unsized. The manufacturer claimed that the paper maker was so independent he thought anything would go, but that he would find out differently when other supplies of paper were available.

In the face of such conditions it is very appropriate that the Secretary of the Canadian Pulp and Paper Association should have sent out the following bulletin to Canadian mills and members of the Technical Section. It is printed attractively on heavy coated board, ready to be hung in a conspicuous place:

AN ECHO FROM THE JUNE MEETING OF THE TECHNICAL SECTION, CANADIAN PULP & PAPER ASSOCIATION, 1917.

"If we wish our product, be it paper or pulp, to compete in the world markets, we must make something better than the other fellow, **we must think, talk and produce QUALITY.** We have the wood and the machinery to make the finest paper and pulp in the world; we also have the men to direct these operations; and if we link them with efficiency and co-operation, success will come to our efforts."—C. B. Thorne.

GO TO IT!

There are two places that pulp and paper men ought to visit next month, the Exposition of Chemical Industry in New York, and the meeting of the Technical Association of the Pulp and Paper Industry in Holyoke. The former takes place in the Grand Central Palace during the week of September 24th, and will occupy three floors of this great building. It is a lesson in progress. One sees new apparatus, processes and ideas. Attendance can hardly be unaccompanied by an awakening to new and greater possibilities in any line associated with chemical engineering effort—and what industry is not so associated? Certainly the manufacture of pulp and paper involves many chemical engineering problems.

Wednesday, September 26 will be a sort of "Paper Day," affording an excellent rendezvous for those who can go by way of New York to the Holyoke meeting. The management has placed a booth at the disposal of the Technical Association and any paper men who visit the exposition should register there.

The big event of the month, in fact, what may really be the biggest event of the industry is the first joint meeting of the Association with the Technical Section of Canada. Platitudes on the beauty of co-operation have been expressed for years. We are on the eve of seeing the real thing begin. The ground was broken (or the ice) at a meeting of the executives in Erie last March. In May, a dozen Canadians attended the spring meeting of the Technical Association at Neenah, Wis. In June, a numerous delegation of Americans came up for the summer meeting of the Technical Section here. Cordial friendship and the co-operative spirit has pervaded all these meetings. Plans are being made whereby tangible results may be secured.

To make effective the hard work of committees, the support and backing of the whole industry is needed. It will not do any good to evolve a perfectly satisfactory method of determining the pounds of air dry fibre in a shipment of pulp if some purchasing agent who doesn't know a steam bath from a shower bath is permitted to raise a howl because the pulp doesn't **feel** right. The chemist and engineer should have more to say about the quality of materials than is often the case.

The basis of science is the truth, and this is also the basis of all successful co-operation. The first problem for co-operative attack will be the matter of moisture in pulp. We should prefer to see it stated —the amount of fibre in pulp, that is what is bought and sold. The truth is the same at both ends of the line, that is, the weight of fibre in a bale or roll of pulp is the same when it leaves the pulp mill as when it arrives at the paper mill. But it will not appear the same if the bale is sampled in the freight car or

ship and then allowed to stand in sun a while before it is weighed. The statement that "Figures don't lie," has been well supplemented by the remark, "Not if you have all the figures"—or all the facts. So in the application for the method of determining fibre in pulp, all the facts that bear on the problem must be known.

This is one of the matters to be discussed at the joint meeting. Others will be announced. Do some thinking yourself. Put your thoughts on paper in concise form. Have something constructive to offer. If you have nothing to give, you have much to get.

September 27, 28 and 29; Holyoke, Mass., Hotel Nonotuck; joint meeting Technical Association and Technical Section. See page 805 for details.

Go to it!

PROTECTING BIRD TRAVELLERS.

After two and a half years of friendly dickering, a treaty has been consummated between Great Britain and the United States for the protection of migratory birds. The effective enforcement of its provisions will insure the safety of practically all the migratory birds on this continent. It is thus the most extensive measure ever taken for the protection of birds. The similarity in peoples and their ideas in Canada and the United States has made the drafting and adoption easy.

Many states and some provinces already had carefully drawn laws for bird protection, but it is readily seen that these are inadequate when we consider the range of travel of many birds. From Carolina to Quebec and from Oklahoma to Ontario, the birds come in the spring and seek breeding places in the swamps and marshes of the Dominion. If place of birth settled the matter, most of our migatory birds could be called Canadians. The close season on migratory game birds is from March 10th to September 1st, with one exception, and an open season of three and a half months. The open season may be fixed between September 1 and March 10 to suit local conditions. This may shorten the present open season in some places, but the true sportsman will not object to this. There is to be no open season on insectivorous birds.

In this regard we may refer the reader to W. C. J. Hall's statements on the value of birds to forestry, in the June 14th number of this magazine. Mr. Hall sums up in these words the need of protecting birds that they may do their part in protecting the forests.

"It is the forest that the birds are of most inestimable value, they are the great and only agency which keeps in check the gypsy-moth, the bud-worm, the larch fly, the brown-tail, etc., etc. The parasite does good work too, but cannot compare in efficiency with the birds. Disease will not exterminate injurious insects, nor will the parasite, animals cannot do it, man cannot do it, there is no force in nature which can control the insect world but the birds, they are the most indispensable balancing force of nature."

It should not be any hardship for the man behind the gun to refrain from game birds in the nesting season or insect eaters at any time. If he must practice, let him shoot squirrels and so help protect the birds. The forests form one of Canada's most valuable assets and the birds are by far the cheapest protection. All we have to do is leave them alone. The work they do can be done in no other way. Fire-bugs are about the only insects the birds can't handle. With the birds keeping the bugs down and more efficient organization keeping the fire down, we need yet two things, scientific lumbering and satisfactory reforestration.

The new treaty is another link in the chain that binds together the people of the Dominion with those of the States and it is the stronger because it unites the high purpose of the people in working for a worthy object. There is no political end sought and no military benefit, just a united effort to do good.

LISTED PAPER STOCKS.

Within the past few weeks there has been a slight improvement in the stock market end of the pulp and paper companies listed on the local exchange. At the present time there are eight pulp and paper companies whose securities are listed on the Montreal Exchange, as compared with only three a year ago.

In many respects Laurentide was the pioneer company to have its securities listed, but even as late as fifteen months ago it was the only company paying a dividend on its common stock. To-day six out of the eight listed stocks are paying dividends, with the indications that the remaining two will soon join the majority. The stocks now listed on the local exchange are Laurentide, Riordon, Price Brothers, Brompton, Provincial, Howard Smith, Spanish River and Wayagamack.

There is not the slightest doubt but that the securities of pulp and paper companies would be in an infinitely better condition to-day were it not for the hostile and unfair restrictions placed upon these companies by the federal authorities. It was manifestly unfair for Sir Thomas White to place restrictions upon the prices paper manufacturers could charge, and do nothing to restrict the profits made by pork packers, ($5,000,000!), millers, steel manufacturers and many others who have taken advantage of the war to make enormous profits. The pulp and paper industry is one of our great basic industries. This country possesses the pulpwood, the water power, the labor, and the transportation facilities necessary to make her a great paper manufacturing country. It is most unfortunate that the Government should pick out this one industry as the scapegoat and vent its spleen upon the poor paper manufacturers. In the United States the railroads seem to be the "pet" hobby of the Government investigator; in Canada it is the paper manufacturer. If he would let the industry alone it would soon become our largest and most important manufacturing industry.

The Benefits of Education in Pulp and Paper Industry*

By T. LINSEY CROSSLEY, Chairman Education Committee, Canadian Pulp and Paper Association.

Education is not a matter of reformation, but of information, a question of duty on the part of both state and individual. Now, there are three stages in education—the first stage might be called the "WHAT" stage, when the children learn **what** to do; secondly, the "HOW" stage, when they learn **how** to do it; thirdly, the "WHY" stage, when they learn **why** they do it. The first two can be done by machine, so that it is with the third phase that intelligent human beings ought really to have to do—the knowledge of "why" a thing is done.

As education is a matter of duty, it would be well to study the attitude of the past ages on the question of education or of how education has developed to its present stage. I don't want to run over the whole history of the world, but I want to look into some of the reasons that have led to the present stage with regard to education.

In the earlier history of the world men were divided into two classes, those who made their living by hunting, fishing and so on, and those who made their living by their wits, those who became sorcerers, doctors, etc. So we find there were two lines of common activity, the lines of the "doers" and the lines of the "thinkers." Gradually the thinkers developed into the philosophers, mathematicians, and priests, and the others the hunters and traders. As the hunt and trade increased, and occasioned by them came the tribal wars and the necessity for making weapons, certain grades of technical experts arose; men who made weapons; later builders; then engineers.

The distinction between the classes spread and we had in addition to this distinction now the fact that in the course of war's activities, the domestic side of living, the manufacture of materials for food and clothing, and the making of the houses, got into the hands of one class of men, and the thinking, the direction, the philosophy, and the medical and legal affairs got into the hands of another class of men. That went on until the middle ages. Then with the reformation, the introduction and spread of printing, and the development of books we got perhaps our first start in the direction of a proper attitude towards education. There was first a growth of democracy, but still an antagonism between the two streams of human activity. In the English and American Revolutions, and later, the French Revolution, we had these two human elements getting mixed and a good deal less of class distinction.

About the end of the 18th century the study of chemistry assumed a shape it had not taken before. The earlier chemists studied how to make lotions and potions—usually to assist in love or to take revenge upon one's enemies. We would recall the story of "Romeo and Juliet"—Romeo buying the potion from the decrepit apothecary, the chemist, a man who made a questionable living by selling poisons. Even now a chemist is considered a man of smells and wizardry.

Until the end of the Eighteenth Century the sciences of chemistry and physics took no definite order or form. The numerous effects, results and experiences of many years began to be collated and put into a systematic whole—so that we had the rise of a distinctive science which had not been recognized before.

In the middle ages there was the system of apprenticeship in the guilds. The guilds of London were famous for the system they had of apprenticeship. The German towns at the mouth of the Elbe, such as Hamburg, had guilds where the apprentices were taught. These guilds were formed for the purpose of defending the various industries from the inroads of the rich, and those who went about to make wars, who required loans and increased taxation to pay for the wars. The guilds developed their power under these conditions; they developed also the system of apprenticeship, adding schools wherein the apprentices learned the elements of reading, writing and arithmetic.

While these guilds were developing the colleges were developing along different lines. In the earlier centuries monks formed ascetic communities where they devoted themselves to certain studies. Later these became colleges, and men were trained for the ministry and law. Prior to the 18th Century, the ministry and the law had tabooed chemistry.

As we come into the earlier Victorian period we find that the colleges were taking up law, medicine, arts, engineering, and chemistry, besides divinity; so that the colleges were developing. When Queen Victoria married Albert the Good, who had very pronounced ideas with reference to the advantage of schools, there had been formed in London, schools under the auspices of the Guilds, and Prince Albert had a very powerful influence in spreading the work of these schools, and in the formation of what was known as polytechnics.

That brings us down to pretty nearly the present, time, but we still have that sense that had survived through the ages—that there was some difference between theory and practice. The college man was the theoretical man. The workman was the practical man, and there was an antagonism between theory and practice. The modern technical school is breaking down that bridge between the two lines of activity. It is impossible for any one man to devote himself to the theory of certain industrial applications, and at the same time give sufficient time to the practical side. We should be supplementary and not antagonistic. There should not be that antagonism between these two lines, between the theoretical and the prac-

*An address at the meeting of the Ontario Pulp and Paper Manufacturers Safety Association, held at Niagara Falls, Ont., June 29, 1917. For other addresses see this Magazine for August 2 and 9.

tical side. There must be the proper attitude, team play.

The subject of this paper was announced as "The Benefits of Education in Pulp and Paper Industry." When I came to think of it first of all, I thought of it as axiomatic. It did not seem to require a great deal of discussion. It did not appear that we needed to make any statements beyond this: "Education is beneficial to the Pulp and Paper Industry." In the earliest part of paper making there wasn't a great need for education; it was purely mechanical. Rags were pounded up in a mortar and stirred up with a little glue. It did not appear that there was a great need for education, but as paper mill machinery improved it was seen that behind all this there was considerable science. A man cannot go into the manufacture of paper properly unless he knows something of the principles behind paper making. There is no better place for learning paper making than the paper mill, but there are several fundamental principles in science that are back of the making of paper, and these can form a part of our educational system. The man who has a knowledge of paper making should know something of chemistry, drafting, mathematics—and should know something of machine design and of the prin-



T. LINSEY CROSSLEY.

ciples back of machine design—the conservation of energy; the conservation of material.

Education to-day is not merely a question of reading and writing. We speak of illiteracy in terms of reading and writing. A man is said to be illiterate who can't write his own name. A good deal of our education, at least a good many of our people who consider themselves educated are like this: they do not know the principles that are behind the work they are performing from day to day.

With reference to the direct benefit of education in the mill; there is that question of the attitude of the man himself. If the man has an intelligent knowledge of what he is doing, his attitude to this work will be very much better than if he merely is working at the job to get a certain wage. The man who has not the knowledge behind and simply is working at the job to get so much money out of it, doesn't undertake his work as a problem to be approached and thought out. He merely is at the mill from the time that the whistle blows or as late after that as he can make it. and gets away as early as possible. There is a good deal of that attitude in our mills to-day, and if we could eliminate that attitude and substitute the attitude of the educated man who feels that he is a part of the system producing the material, we would have a great deal better product and a larger outlook, the production would go up; the loss of time from breakage would go down, and the loss of time from accidents would decrease very largely. I suppose we might say that "education is the insurance of safety." The educated man makes mistakes which produce accidents, but the uneducated man frequently gets himself and others into positions of danger that would not be brought about if he were educated.

So coming to the point I have mentioned, you must get the attitude of the men. Once you get their attitude they will take a pride in the production of the mill, it would spread desire for education more than Scotchman had when the American went over to see the Clyde. "This is our Clyde," said he, "Providence gave you your rivers, but we digged this oorsels."

If we had among the men in the mill the feeling that they were making the goods, that they were able to speed up production, and that they were going to do what they could to better the production of their mill, it would spread desire for education more than in any other way. How to get education is perhaps the most difficult question in the whole consideration of this subject. I had a letter from a man in a mill in Quebec. He said it was quite impossible for them to consider anything in the way of education because of the lack of sufficient primary education in the schools. You cannot start a man on the technical end of his work unless he has sufficient primary education to read or write, and to carry on the minor operations of mathematics—division and multiplication. In order to do that we will have to strike for compulsory education and deepen our primary work. I am speaking of Quebec. In the Province of Ontario you have compulsory education. There is still quite a gap between the school and the mill. In considering the question we shall have to drop the school for a while—we are thinking now of the men who are at present employed in the mills, and the way of getting them interested in education. You cannot force education down a man's throat. He has to be brought to a point where he wants it. You must create a demand for education. Dr. Farmer, of Toronto, speaking of education, said it was necessary that we get an educational salesmanship. That the schools and colleges should get to the point where they valued education at something and put it on the market—that the cities should develop a system to increase interest in education, making men, women and children feel there was something inite that was enjoyable.

Our large Public Service Corporations in a good many cases used to feel very independent. If you had a complaint to make there was very little attention paid to it. By and by they began to develop the system of salesmanship. They began to see that it was going to be to their interest to have more telephones, more gas, electric lights and so on—so they had men appointed to propagate new business. I think the same thing should be thought of in connection

with our educational systems. We should realize that it is not sufficient merely that we send the children to school. We have to make it attractive for them. The night school is a very good thing for the man who has a great deal of ambition, but the difficulty is to arouse the interest of the man who is apathetic. This is the difficulty and it will take time to overcome it. One way to secure the interest is to secure an attitude of interest in the local town where the school is to be situated, and an attitude of interest in the mill. I think most of you are familiar with the good work that is being done at Thorold. Mr. Carruthers could speak of this a good deal more to the point than I can. There, first of all, the interest of the teacher was secured, and the interest of the influential men of the town, before the school was formed; then the local press became interested, and this is the attitude that we should have in our work; in small towns especially, an attitude of arousing public interest, and making education seem something really desirable.

Another thing that should be done in connection with educational work is that education should be continuous. The child should not leave the school, and then have a blank of several years before going into an industry. There should be certain training between the school and the mills. There should not be the blank between leaving school and going into the mill. Here is a small town—a manufacturing town, with a large mill. The school should have in mind the fact that that mill is there, and that a goodly number of those children will eventually be employed in that mill. The training of the children should be such that they could anticipate the technology of the mill.

In the European countries, particularly in England the bridging of that gap between leaving school and going to work has received a good deal of attention. When boys and girls leave school they can take particular courses or special work fitting them for technical work later. I think in Halifax something like 60 per cent. leaving school, took special work and fitted themselves for technical life. This point should be taken up in Canada. There should not be that gap between leaving school and going into the mills — where those who are going to study lose so much time, and get out of the habit of study before they get into their mill work.

I feel I must apologize for presenting this matter in this very disjointed way.

The chief point that I wished to bring out here is that in the course of time there had grown up from natural causes a species of antagonism between those who work with their hands and those who work with their heads, and that the present trend of technical education was in the direction of eliminating this conflict, bringing about a co-operation between these two sets of workers.

A second point that I wished to bring out was the necessity of educating men in the mills that they may have a better attitude to their work, and a stronger sense of responsibility toward their employers and fellow-workmen.

DISCUSSION.

The Chairman.—We have all, I am sure, been very much interested in Mr. Crossley's address; interested not only from the point of positions in the mill, but interested from the standpoint of education in the schools. We all want to see our children as well educated as we possibly can have them. Mr. Crossley has given us a paper on education dealing with the subject in a very broad way, in fact, going back to the origin of education.

Now, I would like it if some of you other gentlemen here would give us some further light on education. You have all had your different experiences.

There is always the problem of joining the school period with the business period. It has been my experience that the child when leaving school seems to think that then he has left education, and it usually takes two or three years of business life to make him see differently.

In the Old Country, as Mr. Crossley has said, there is a system for apprenticeship. Of course, you all know that over there we serve an apprenticeship of—for some trades, five years, and for some trades, six years. As a regular thing a boy went into the shop when he was about 16 years of age and would service five years apprenticeship. At the end of that time he was supposed to be a "journeyman."

The impression gained ground that better education was required, there was the need for better educated men in the factories, and some of the firms took the position that they would allow their apprentices to attend a day school or college, and the time so spent to go to make up their apprenticeship period. They would study there in the summer time and in the winter time would go into the shop. The result was that after the summer training at the college they came back to the shop with a great deal more energy, and they took over their practical work with a great deal more intelligence.

Unfortunately in Canada that system of apprenticeship has not developed. I think there is a great want there. You take any one who goes into any industry. He goes into it that he may work at it all his life. If there was some system of apprenticeship whereby young people going into the mill were able to prepare themselves for the mill work, I believe it would make strongly for efficiency and would do away with a great deal of waste.

Mr. Carruthers.—Mr. Chairman, I was quite impressed with what you said with regard to the apprenticeship system being developed in Canada in certain lines of industry. I think this is a very unfortunate position, particularly at this time, that we have not yet established the National System of technical schools.

In speaking with a gentleman from Tokio—this gentleman owns a 4 machine paper mill in Tokio—I asked him how they provided for their school help and executives. He said it was the custom with them to take out two or three eminent young men, young men from good families, and at the expense of the mill give them a course in the technical school of Tokio. He said, "We find that that class of men are familiar with all the mechanical means and mechanisms, so far as general principles are concerned, and make rapid progress indeed. We need two classes of men, we need highly trained men, and then we need a full force of men with good general technical knowledge. Getting these two classes of men is the problem of the industry." I believe Mr. Goto, of Japan, had the right idea so far as the executives are concerned. I believe that any paper mill could easily afford to take two or three of their most promising young men, and pay for their education in a technical school. You then have some nucleus of education in the mill. That problem is not as difficult as the matter of educating the masses in the mill. To my way of thinking the

weakest link is the abominable status of teachers. They pay these worthy men and women a mere pittance, and expect them to be inspired sufficiently to inculate a zeal for education. Will you tell me what inducement there is to a young man to learn to be a teacher when he knows that the teacher himself, the man who is teaching him, is getting the usual low salary?

If we are going to get education we will have to get a higher type of teacher and pay him. We must have efficient teachers and pay them adequately.

When a man, a teacher, gets old he should be pensioned and we should put in young men who want to make careers for themselves as teachers. Some of the eminent men of the past have made great reputations because of the wonderful type of men they turned out from their schools. I have one man in mind, a most remarkable man, Mr. Tassy, of the Galt High School.

We are all going back to our respective communities. Now wouldn't it be absolutely useless for us to come to a convention of this kind, spend our time and money, and then go back giving no contribution whatever to our respective communities as a result of our having been here?

Now, we will take ideas back, and let us take this one with us—that we must see that an efficient staff of teachers is in our schools. Let us go back absolutely determined to use our influence to have a very competent class of teachers in our communities. We have made very ordinary provision in the matter of education, and this is a question that ought to be dealt with at once. The citizens of many places are so deeply engaged in the bread and butter question that they do not pay enough attention to the question of better education. Some communities think that if they have a magnificent school that is quite sufficient. They do not see that their staff of teachers should be more efficient. If they have the magnificent school, then that seems to be quite enough. We must acknowledge that we do practically nothing in the matter of technical education. We have had to draw from the country across the line for industrially educated men. What would we do if we weren't able to draw on such fellows as these? We shouldn't have to do this. I must admit that I never received kinder treatment in my life than I received when I lived in the United States, and we would have these young men who come here know that they are most welcome, but we should have sufficient men of our own. It can be done, we can educate men of our own. Let us take the machinery we already have, and make it suitable to the new conditions.

Now gentlemen, I say this; that every man here should return to his home and think over this whole matter carefully, and get in touch with the best citizens in your community, and get in touch with your school board. Use your influence to bring about a more healthy condition, and let us no longer leave the Canadian educational matters in a condition of dry rot.

In Thorold we have made a good start though there is a great deal still to be done. I would just like to mention one or two things we have learned in connection with this school at Thorold. We have learned this: We shouldn't waste time trying to teach mechanical drawing until we had proper heat, proper light and proper ventilation. It is absolutely impossible to get a boy to concentrate, to study properly otherwise. We must have proper studying conditions. Then, too, you must have appliances to work with. The principles have to be explained and demonstrated. If you write to the head of the Toronto Technical School, Electrical Department, he will give you a list of everything necessary to make a success of studying elementary electricity. It is very tiresome to boys who come in to study electricity and find the whole electrical equipment in a clothes basket. If we have all appliances to work with, and they are properly looked after, and in their proper place, then there is really something of interest to the boy when he comes to school. We all know that the boys who came to study electricity at Thorold wasted much of their time through lack of equipment, and really it was a surprise to see that some of the boys stuck to it to the last.

Now the question of an advisory board: Pick out a man for chairman who has made a success of his business. The man who has made a success of his business is best fitted to tell the other fellow how to make a success of his.

As to the question of chemistry. Do not try to teach chemistry unless you have equipment, and a good teacher.

Then there is the question of reward for students. I believe we should have started out in Thorold by making an offer of a medal for the best student in each subject and certificates of standing for all pupils who reached a certain standard of proficiency.

Gentlemen, every man in this room owes a great deal to the fellow who is following. We all got considerable good through our teachers—the time they took with us and all—but we must be careful to pass on to the next generation something better than we got. I do not think that any man in this country should be satisfied for a moment with the way in which educational matters are being handled at the present time.

The Chairman.—Mr. Richardson you have a technical school at Shawinigan Falls. Can you tell us anything further along this line?

Mr. Richardson.—I might say that we make it a practice for the boys who are old enough to attend the technical school; that in the summer time, during the holidays the management give them work at the plant, where they can get the practical end of what they have been studying through the school months. I don't know that there is anything further I can say.

The Chairman.—I think that school at Shawinigan Falls is a particularly good one. I think you have there the best line of equipment for a small technical school I have ever seen.

Mr. Foley.—I was particularly struck by one phase of Mr. Crossley's paper. That is, we might create a demand for education—the scholar to his work. Why couldn't we portray the technical school before our high school children, by means of lantern slides or moving pictures? I think they would be more enthused if they knew something about the technical schools. A great many of our boys scarcely ever see a technical school. If we can create an attitude that would be one means of doing it; it will give them a glimpse of what it is.

The Chairman.—I think that is a very good idea. It would create an enthusiasm among the young children—not to look forward to a period of release, but to a period when they would move into the higher school.

Mr. Gilkerson.—There were several points which have come up in the paper which particularly interested me.

I will say this—regarding your elementary and, probably technical schools also—they certainly are not what they should be. I have been here three months, but if there is one thing that would make me move back to the States that would be to educate my boys. I am judging the schools in Canada by the Sault Ste. Marie schools, and I believe that the Sault Ste. Marie schools are very much like the average schools through Ontario. One thing I am particularly impressed with is that the teaching itself seems to be several years behind. The subjects are now present in an objective way like when we went to school. We had to study it out, and that is the way the elementary subjects are being presented now. In bridging over the link between the technical school and the industry, I think the question has been met in Cincinnati. There they have a school, and the student spends part of his time in the school, and part in the shop. They have two systems. They will spend a week in school, then a week in the shop. Two boys will just change places—one boys goes to school one week and the other boy will go to the shop that week, then the next week they will just change around. Then there is the other system—a boy will spend half a day, 4 hours, in school, and 4 hours in the shop. They have found in the States that they will complete their course in a very much better way than if they stayed right at school. I think this could be worked out in the three subjects— electrical course, mechanical drawing and chemistry.

In the electrical course the boys spend a week in the school and the next week they could be out helping in the shop looking after the wiring, maintenance and repair.

The mechanical drawing student could spend one week in school and the next could be drawing, working on the technical end.

And the chemist could spend his one week at school, then the next in the laboratory. And I think if some of you would take this up with your schools it would work out. The difficulty seems to be to get the manufacturers and employers to co-operate with the school. They seem to think there would be a break when they change from one to another—when they try it though they find there really is no break.

Then there is another thing. If you can do this you will keep your boys in school longer, for when a boy becomes a certain age, about 17, he feels he wants to be making money. He goes out into the mill, leaving school, and makes from $50 to $80 a month. Under this system he could still continue his course in school, and be making from $35 to $40 a month, which would pay his expenses. So that would encourage your boys to remain in school to the age of 20. I think if you could just try the thing in your own community it would work out.

Regarding the attitude of securing the interest of men who are already in the plant—these men whom we have now. We would have to instill in their minds a greater interest in their work. Our manager, Mr. Robert B. Wolf, from Berlin Mills, New Hampshire, has worked out over there a system which he is going to put into practice here. He says, "That every man within himself is creative." "If he is given a chance to develop he will develop!" I think that taking men as a whole, taking humanity as a whole, that is true. He is trying to develop men in this way in so far as he can; that is he carefully regards every day the results of the man's work. If he turns out quality he makes a card. This has been standardized. Not only in crowds of men, but individually it has been found that it can be done. I hope that at some time in the near future you will call upon Mr. Wolf to explain this to you. I think if we can create this attitude, and get a man interested in his work he will seek after further knowledge. If he has it he will want more knowledge and seek for further elementary knowledge if he can read.

The non-English speaking employee is a problem too which we must develop. We must try to teach him the English language as early as possible.

Mr. Crossley.—I am quite glad that Mr. Gilkerson has brought up the question of the Co-operative Education in Cincinnati. This plan has been tried for years and found successful. Students have obtained their degrees while learning a trade—as companies are giving the students an opportunity of going through every department.

I want to say that you are going back to your various mills and the Committee on Technical Education of the Pulp and Paper Association is very anxious to have as many as possible night schools or night industrial classes started. We ought to have as many as possible of these started next year, and I do hope that you who are going back to your places will do your utmost to see that they are started. But be careful in starting them. It should be that you start them as a matter of demand and not as a matter of imposition. Try to do what you can to induce the men to demand the schools. Try to get the interest for the schools and the schools will naturally follow.

ENGINE AND BOILER HORSEPOWER.

There is a vast difference between an ordinary horsepower and a "boiler horsepower". A boiler horsepower is more than 13 times as great as an engine horsepower. To be exact, the one is 13.149 times as great as the other. Did you ever know that?

I have searched through engineering books of all descriptions in an endeavor to find this comparison, but I couldn't find it. So, I sat down and figured it out for myself.

The definition of a boiler horsepower is: "A boiler horsepower is the amount of heat required to evaporate 34.5 pounds of water from and at 212 degrees Fahr per hour." It has been figured that this amount of heat is equal to 33,479 British thermal units an hour.

An ordinary engine horsepower is equal to 33,000 foot pounds per minute. Now, since it takes 778 foot pounds to make one British thermal unit one can easily figure that an ordinary horsepower is equal to 2,546 British thermal units an hour.

We are now ready to find the relation by dividing as follows:

$$33{,}479 \div 2546 = 13.149.$$

This is a point worthy of remembering. Roughly, you should at least remember that the engine hp. is only one-thirteenth as great as the boiler horsepower.

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The Paper Industry in Italy

(Special Translation from "Papir-Journalen.")

The Austrian Industrial Museum recently issued a very complete description of the development of the Italian paper industry, which contains much of great interest. We shall in the following give some of the data:

History and Organization of the Italian Paper Industry

As everybody knows, the art of paper making was introduced into Spain by the Arabs at the end of the eleventh century; fro mSpain the new art came to Italy. As early as the twelfth century the paper, which was manufactured in Fabriano was known through all Europe. In 1375 several paper mills were in operation in Fabriano, and there the first ppaer with water-mark and the first sized paper was made. Pace da Fabriano erected in 1340 one paper mill in Padua and one in Turin. Immediately afterwards mills were built in Colle Val d'Elsa, in Bologna, in Genoa, and at Lake Garda, and Italy in the course of time supplied all Central Europe with paper.

Later on the Italian paper industry gradually lost its importance, and only around 1870 the numerous small mills expanded into larger plants, after it become known that mechanical and chemical wood pulp could be used as raw material for paper making. At the present time the Italian paper industry is of very great importance in spite of the fact that most of the raw materials have to be imported. The rapid development must be due to the high protective duty, by which the industry is favored.

Besides the large plants, however, the old-fashioned paper mills have been able to continue, for instance, in Tuscany, Liguria, Venetia and Campania, where in the individual mills about 450 lbs. of straw-wrapping or cigarette paper are made with 5 to 8 workmen.

In Italy a paper technological institute is established at the university of Milan under the direction of Professor Camillo Levi. One laboratory and one teaching course for the paper industry are given R. Nuisco, industriale de Torino. In 1882 an association of the paper manufacturers of taly was formed with centre in Milan.

The rapid progress in the paper industry is to a large extent due to the extremely rapid development and large circulation of the newspapers; about one-eighth of the total production is newspaper.

Raw Materials and Half Stuffs for Paper Making.

Rags were in former days obtainable to such an extent, that an appreciable amount could be exported. This export has now entirely ceased.

In 1886, 1,800 tons cellulose (chemical pulp) were imported, which figures had increased in 1910 to 80,000 tons. In the three pulp mills in Italy about 7,000 tons are made per year. In 1896 10,000 tons mechanical pulp were manufactured in 16 paper mills and 12 groundwood mills with 65 grinders and 4,740 h.p. In 1908, 50,250 tons with 29 groundwood mills. The import of mechanical pulp increased from 9,500 tons in 1909 to more than 10,000 tons in 1913.

The Development in the Last Forty Years.

The development can most easily be judged by the increased number of machines and laborers. In the last years a number of small or medium sized plants have been enlarged and modernized, as will be seen from the following table:

Year.	1862.	1876.	1889.	1896.	1903.	1908.	1913.
Number of plants	.....	521	.....	244	405	412	412
Number of horsepower	.....	13,980	.....	22,082	20,928	.....	73,000
Vats for hand-made paper	687	813	485	216	223	182	97
Fourdrinier machines	.....	95	100	169	171	240	268
Cylinder machines	.....	73	200	220	200	316	338
Grinders	.....	.....	.....	65	78	.....	106
Digesters	.....	.....	.....	181	189	.....	.....
Number of pulp mills	.....	.....	.....	.....	.....	2	3
Number of groundwood mills	.....	.....	.....	.....	.....	29	26
Number of laborers	.....	17,312	.....	15,766	19,088	.....	26,000
Yearly production (tons)	24,000	.....	70,000	.....	.....	231,600	283,222

The paper manufacturers association has reported that the production in 1913 was:

	Tons.
Cardboard (containing wood fibre)	39,435
Paper (containing wood fibre)	71,794
News	33,701
Wrapping paper	66,626
Straw paper	51,569
Different other kinds	20,097
Total	283,222

In this table the higher grades of paper are evidently not included.

In 1913 9,391 tons cellulose and 60,323 tons (dry) groundwood were manufactured in the country. All qualities of paper were made.

The Italian Paper Trade and Export.

Already in 1912 an increase in price of wood and coal due to the Balkan war was very noticeable to the mills. The demand for and the import of newspaper increased, while the export decreased. In 1912 the import of rags to the paper mills was 262 tons less and the export 77 tons more than the previous year which shows that the export of better qualities of paper was decreasing. The import of rags in 1913 was 7,400 tons against 7,100 tons in 1912, whereas the import of the other raw materials increased from 928,000 tons to 933,000 tons.

Paper Import and Export in the Years 1871-1913.

	Import, tons.	Export, tons.
1871	1,564	4,571
1880	1,578	7,505
1890	2,854	6,533
1900	2,663	13,743
1910	6,501	10,867
1913	6,290	13,050

In 1913 the export was for the various qualities as follows.

	Weight, tons.	Value, lira.
Cigarette paper	1,443	2,452,760
White writing paper	3,684	2,541,330
White writing paper (linen)	2,990	2,541,330
Wrapping paper	4,209	700,565
Finer cardboard	119	160,920
Ordinary cardboard	598	209,405
Envelopes	447	447,100

(One dollar equals about 5 lira).

The Import of Raw Materials and Half Stuffs.

It will be noticed from the statistics given above that the import of rags and mechanical and chemical wood pulp from the various countries has increased very rapidly. Mechanical wood pulp is imported especially from Austria-Hungary, chemical pulp from Austria, Germany and Scandinavia. The great import, however, has not caused an increasing export of paper, but has been necessary in order to cover the requirements of the country itself. A special chapter is dealing with the increased home production of wood material by replanting and by using the rapid growing poplar. Successful attempts have also been made with planting of Canadian poplar. There are now in Italy 33 pulp mills using poplar, namely, in Venetia 3, in Lombardy 4, in Piedmont 10, in Campania 11, in Tuscany and Smilia each, one.

The Situation in the Paper Industry Before and During the War.

In 1911 the paper industry of Italy was developing very well, chiefly as regards the cheaper qualities. The demand for newsprint grew more and more lively, the Turkish war being not the least reason for this. The prices on pulp increased 10 per cent and on groundwood 7 per cent, which caused a conflict between the mills and the news printers, who in a petition asked for a reduction of the duty on paper. In 1911 some of the mills were enlarged and new mills for production of news were built. In 1912 a long dry period caused an increase in the prices of all raw materials. In June it was decided to increase the prices of paper 10 per cent; the result of these circumstances was that the wood using industry was working under unfavorable conditions and in 1913 an over-production was experienced. When the war broke out the import of pulp was stopped for a period, but increased again, especially from Scandinavia. The export of paper from Italy was continually further reduced. In February, 1915, the export of pulp from Austria-Hungary was prohibited.

But it was not till after Italy's declaration of war that the crisis in the paper industry grew very serious, and a strongly felt paper shortage arose in the country. On July 18th, 1916, a government's commission was appointed with the mandate of attempting to remedy the difficulties, and this commission made the following proposals:

1. Producers and consumers of newspaper shall fix a price on newsprint.
2. Also for two kinds of printing paper a price shall be fixed.
3. The paper mills shall obtain coal at first cost.
4. It shall be attempted to facilitate the importation of pulp by all means, and especially by not raising the price by high freight rates.
5. The import of wood (poplar) must be increased by administrative orders.
6. The prohibition of export of newspaper must be maintained, and export of other grades of paper must only be allowed in so far as it does not cause a shortage in Italy.
7. Arrangements must be made to prevent storing of the three qualities of printing paper, so that these are placed immediately on the market.
8. The public authorities must make it a duty to save as much paper as possible.

A provisional fixation of the paper prices was adopted. From August to October the paper makers had to deliver the necessary paper to the newspapers at an average price of 85 lire per 100 kilos with the addition of packing at cost price.

ARRANGEMENTS MADE FOR HOLYOKE MEETING.

A meeting of the members of the local committee of arrangements for the fall meeting of the Technical Association for the discussion of details relating to the reception of visitors, hotel and railroad accommodations and the order of speakers, reports, papers and discussions, followed luncheon at the hotel on the summit of Mt. Tom, where a dinner will be given on the evening of Friday, September 28. In addition to President Carruth and Secretary Keenan there were present: L. M. Yoerg, of the Finance and Program Committee; Raymond S. Hatch, Hotels and Registration; George E. Williamson, Transportation and Reception, and W. L. Nixon and Robert O. Harper, Mill Visiting and Entertainment.

An attendance of 200 is anticipated, and to accommodate this large number at the business sessions the Knights of Columbus Hall, in Holyoke, has been secured for Thursday, September 27, the opening day of the convention. Rooms for the use of committees will be available at the Hotel Nonotuck, Holyoke's new hotel, which is headquarters. Requests for room reservations at the Nonotuck should be made by members without delay to Raymond S. Hatch, chairman of the Hotel Committee, care of the Crocker-McElwain Company, Holyoke, Mass.

Holyoke is on the Connecticut River line of the New ork, New Haven and Hartford Railroad, and trains leave the Grand Central Station, New York, at frequent intervals, from 8 o'clock a.m. to 11.15 p.m., the journey taking about four hours. Connections from Boston and the North can be made with equal frequency. Members who may decide to spend Wednesday, September 26, at the Exposition of Chemical Industries, Grand Central Palace, Forty-fifth Street and Lexington Avenue, New York, to which their association badges will admit them free of charge, will find it convenient to take the through sleeper, leaving the Grand Central Station at 11.15 p.m., and arriving in time for breakfast at Holyoke on Thursday morning, at 7 o'clock. But details of transportation can be readily arranged railroad officials at points of departure.

As the railroad travel to points west and south of Holyoke is especially heavy in late September, members are urged to make sure of sleeper accommodations on the return journey as far in advance as possible.

The convention will close on Saturday, September 29, with an automobile trip through the beautiful Berkshire hills of Western Massacchusetts, ending at Dalton. The drive is over the famous "Jacob's Ladder" route of the State Highway system, a distance of some seventy miles, traversing the paper-making centres of Woronoco, Westfield, Russell, Huntington, Lee and Dalton. Cordial invitations for the inspection of mills have been received from L. L. Brown Paper Co., Adams; Crane & Co., and Byron-Weston Co., Dalton; the Smith Paper Company, Lee, and B. D. Rising Paper Company, Housatonic.

The start for this unrivalled trip through a picturesque region will be made from the Hotel Nonotuck on Saturday morning, at 7 o'clock, though late risers may be accommodated by conveyances leaving an hour later. The first stop will be at Woronoco where the mills of the Strathmore Paper Company are situated. Arrangements have been made for luncheon at the Maplewood Hotel, Pittsfield. Members desiring to leave the party for New York and the West may do so at Pittsfield, or return to Holyoke and Springfield by automobile in the evening. A typical New England Cattle Show, one of the great events of this part of Massachusetts, takes place at Great Barrington in the afternoon and evening of the last day of meeting, and Robert O. Harper of the local committee, has undertaken to show members the sights.

Mention of the entertainment provided for the last day of meeting is introduced here for the purpose of letting members know the dispositions they can make of their time and to permit of making transportation arrangements for their return journey to their homes. Sleeper and Pullman reservations for the return journey for points West of Albany, N.Y., should be made with James Gray, district passenger agent, 119 Worthington Street, Springfield, Mass., and for points north and south of Holyoke with F. P. Dearborn, General Ticket Agent, Union Station, Springfield. It is important that members do not delay about hecuring reservations for sleepers on the return trip from Holyoke, Springfield or Pittsfield as the tourist travel is particularly heavy in the closing days of September. The rule of the Pullman Company is first come, first served, and possible annoyance and delay will be prevented by making early application for reservations on trains, leaving the points named on Saturday, September 29. If in doubt on any point concerning railroad arrangements members would do well to communicate with George E. Williamson, chairman of the transportation committee, Strathmore Paper Company, Mittineague, Mass.

The convention will open at Knights of Columbus Hall, Holyoke, at 10 o'clock a.m., Thursday, September 27, with an address of welcome by the mayor of the city, followed by responses for the association. President Carruth will then deliver an address reviewing the work of the association. The reports of officers and committees will then be presented and discussed, after which an adjournment for luncheon will be in order.

The afternoon session will open at 2 o'clock with a paper by Prof. H. O. Keay, of McGill University, Montreal, Canada, a member of the Technical Association, on "An Investigation of Stresses in Digester Shells." Other papers for the programme for the afternoon session are:

"A Review of Different Processes for Causticizing Sodium Carbonate Liquors and the Separation of the Sludge," by Martin L. Griffin, of the Oxford Paper Company, Rumford, Me.

"Some observations on the Retention of China Clay by Paper Pulp," by Dr. Otto Kress and G. C. McNaughton, of the Forest Products Laboratory, Madison, Wis.

In the evening, at 7 o'clock, a banquet will be served at the Nonotuck Hotel, to which all members and visitors who have previously signified their intention to attend the meeting will receive invitations.

The program for the second day of meeting provides a round of visits to the paper mills of Holyoke, South Hadley Falls and vicinity. Automobiles will be provided and will start from headquarters on Friday morning at 9 o'clock. The party will return to the Nonotuck for luncheon at 12.30 p.m. After luncheon the visits to mills will be resumed and at 4.30 o'clock members will leave by automobile and trolley cars for Mountain Park at the foot of Mt. Tom. At 5.00 p.m,. the party will leave Mountain Park by the inclined railway for the summit of Mt. Tom, where dinner will be served at 6 o'clock. Musical and other entertainments will be enjoyed on this famous mountain resort until a late hour, when the guests will return to hotel headquarters in Holyoke. As already noted, Saturday will be devoted to a tour of the paper-making centres in the Berkshire hills. Members who wish to ncoecntrate their visits of inspection to particular mills should communicate their desires to the chairman of the mill visiting committee, Wm. L. Nixon, Chemical Paper Manufacturing Company, Holyoke, Mass.

THIRD NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

The Third National Exposition of Chemical Industries will be held at the Grand Central Palace, New York, during the week of September 24th this year, preparations for which are in active progress.

A great section of exhibits showing the industrial opportunities our South presents in its raw materials will be known as the "Southern Opportunity Section." A "Paper and Pulp Industry Section" has been provided and many elaborate exhibits are in preparation for the paper men when the Technical Association of Pulp and Paper Industry members visit the exposition as they have promised to do again this year. Other exhibits will be of interest to men from the rubber and textile industries. Many more dyestuffs companies have engaged to exhibit their products than were shown formerly. Many of the chemical and allied industry companies have so expanded their operations in the past year, and their products and interests have become so numerous that they require much additional space to make adequate showings.

The Bureau of Commercial Economics at Washington is this year again, preparing many of the motion picture films that will be shown at the exposition, and many exhibitors have now in preparation pictures showing phases in their work in the manufacture of their products. These will be of all absorbing interest, the more so, when as stated many are of processes that have been photographed for the first time, and their first showings will be made at the show.

The Expansion of the Coated Paper Industry in Canada

By G. B. VAN BLARICOM.

It was about 1884 that coated paper first made its appearance in America and since that time the development of the industry has been little short of marvellous, in both Canada and the United States. The increase in the use of coated stock for fine printing catalogue, booklet and magazine work has been increasing each year. To-day there are several coating paper plants in the Dominion, all exceptionally busy. It was not until 1886 that half tone engravings were used in the magazine displacing in a short time the old, fine line wood engravings.

Possibly the first trade publication in Canada to make use of copper half tone cuts was the Shoe and Leather Journal, which is published by the Acton Pub-

The first coating mill established in Canada was that of Ritchie and Ramsay at New Toronto. It started operations just twenty-five years ago this fall. F. A. Ritchie and C. N. Ramsay had been employed in the Canada Paper Co., Montreal, and sold coated stock which was imported from the United States. They conceived the idea of starting a mill for the production of this kind of paper and began with one machine. There were many knockers at the time who prophesied that the venture would never prove a success, but alas! for pessimists. There are now five coating paper industries in Canada and seventy-seven in the United States.

Ritchie and Ramsay, as already stated, were the pioneers in this line of paper making and deserve every credit for their enterprise and foresight. They were also the first firm to adopt the "Made-in-Canada" slogan on their goods which has grown in prestige and wide esteem and to-day is in use on many manufactured products.

In 1905 the late John R. Barber, the late John Waldie, and others, established the Canada Coating Mills, Limited, at Georgetown, which is the largest plant of its kind in the Dominion. Five years ago, at the time of the withdrawal by Mr. Barber of all his interests in paper business, the plant was acquired by the Provincial Paper Mills Co., Limited, by whom it has since been operated. In 1910, L. E. Fleck and others started the Georgetown Coated Paper Mills. Other flourishing companies in the coated paper line to-day are the Consolidated Lithographing Co., of Montreal, and the National Paper Co., of Valleyfield, Quebec.

From the one machine operated by Ritchie and Ramsay a quarter of a century ago, there are now over a score of single and double coating paper machines installed in the various plants in Canada, which shows the tremendous strides made by the industry. As each plant was put in operation it was predicted that the business was being overdone, but time has demonstrated the fact that so steady has been the expansion of the printing, catalogue, lithography, book and other trades in the Dominion, that business was never better with all the coating paper mills than it is to-day, except for the usual dullness of the season during the last few weeks, while prices have almost doubled.

All the paper made by the mills is used in Canada, although many opportunities have been presented to take abroad foreign business, but the firms have preferred to look after the home market.

The coated paper industry is fast becoming a necessity and no longer a luxury and the coating mills are the best customers of all the book mills. Previous to the war, Canada imported seventy-five to eighty per cent of box, enameled in white and tints, and a considerable quantity of No. 1 book and lithograph, the former used for high class catalogues and the latter for cigar band labels and fancy box tops. Machinery has been installed to make these grades and the bulk of the orders will remain in Canada after the war. This new business helped the mills. Fifteen months ago, to tide over the dull season in the printing and lithographing trades, the mills also formed a Casein Company to encourage and increase the production in the Dominion, as nearly seventy-five per cent was imported from France, England, United States and South America. Greater efforts are being put forth this year than ever, and Canada is supplying about fifty per cent of the requirements of the mills and eventually, it is expected, that all casein will be made in the Dominion.

Coated paper was first used for wood cut printing by the "Century Magazine," of which Mr. DeVinne was the printer. A. W. Drake was art manager of the publication, and Frank J. Ball, now of the Miehle Printing Press, was the foreman of the DeVinne press room. The art manager was ambitious and idealistic and was always striving for better and clearer effects. Wood engraving was attaining higher achievement, the engravers cutting white lines in the wood blocks finer and shallower. The engraver was able to send the publisher splendid proofs of his work, but the cuts did not show up so well after they were electrotyped and printed on supercalendered rag stock. They were dim and obscure when compared with the India paper proofs which were sent over to the "Century" office from the wood engravers. The art manager of the magazine wondered why much of the original and striking effect was lost. Not infrequently the wood engravings were sent to the electrotyper to be made over again and another make-ready was made on the press, still the result was not much if any better. The wood engraver would be called in to re-enter and deepen the lines of his cut or the electrotype of it.

According to the Inland Printer, Mr. DeVinne, the printer of the "Century," was insistent that the engraver cut deeper and instanced the cutting of Timothy Cole, who was at that time the ideal engraver from the electrotypers' and printers' viewpoint. One day, according to the story, a form of wood engravings was giving unusual trouble when a pressman on another machine suggested running through a sheet of glazed stock such as was used on the covers of cheap books. The result was that every line of the wood cuts stood out sharp and clean. When Mr. Drake, the art manager, saw this sheet he sent for S. D. Warren to ask if such a surface could not be put on the paper used by the "Century" Magazine. Mr. DeVinne protested against any such paper being used in a magazine, saying, that it would crumble away in fifty years. Mr. Warren thought that he could make a paper which would print as well as the glazed stock, and so coated paper was made and used in the "Century." This magazine which was the first publication in America to adopt this class of paper, which, up to the recent high cost of all kinds of paper, has been employed on practically every high grade weekly and monthly periodical on the continent.

Review of Recent Articles of Interest to the Pulp and Paper Industr

Physical Tests for Paper. Paper **20,** (1917). No. 20, p. 17. (From a new book on paper by H. A. Maddox). Paper stretches more in the crossway of the sheet, therefore for color printing and other purposes the direction of the sheet must be known. To obtain an idea of the resistance of a paper to stretch, cut strips each way of the sheet to standard measure, damp thoroughly, and lay on glass. Before the drying process shows an indication of commencement take the dimensions of the expanded strips and calculate out the finding as percentage. Acid traces in paper may be proved by applying a drop of Congo red solution, which, in presence of acid residue will turn blue. Opacity is judged by the number of sheets required to obliterate a standard line of heavy black type. To distinguish real coated from imitation art paper rub with a silver coin. If coated, a black mark will be produced on the surface. To judge the quality of the coating, damp the ball of the thumb and press heavily. A good coating will remain unmoved but if weakly held a portion of the clay will come off with the thumb. —E. K. M.

Adding Reagents to Water. Paper Making 36, (1917). No. 6. p. 171. Apparatus for adding chemical reagents to water in which the water flows under pressure through a closed pipe, and in which a proportion of the total flow is by-passed through a pipe which leads to a close reagent container, from which the liquid by-passed takes up a quantity of reagent and thus charged is returned to the main flow through the by-pass pipe. It is of such a nature that proportioning weirs and float-operated valves are inapplicable for proportioning the amount by-passed. A venturi throat in the closed main, which causes a difference of pressure and induces a flow of liquid through the reagent container has therefore been used. An improvement (Brit. Pat. 105,086) ensures that the amount of liquid by-passed will always be proportioned to the total flow, so that the proportion of reagent added will be constant.—E. K. M.

Paper Yarns. Sci. Am. Supp. Aug. 4, page 74, 1917. From Z. Angew. Chem. thru J. Soc. Chem. Ind. W. Massot. Use has increased as substitute for Jute as packing between lead sheath and iron armour in cables. Paper yarns spun from parchment paper are used for weaving driving-belts for machines up to 8 H.P. The effect of treatment with various chemicals is discussed. —A. D. C.

Paper Films for Photographic Negatives. Ernest Constet. Sci. Am. Supp. May 26, 1917, page 323. (Reprinted from La Nature). Paper films weigh less than glass and have several advantages over celluloid. For an equal degree of sensitiveness the adjacent paper permits a shorter exposure than transparent supports such as glass or celluloid, since the light after passing thru is reflected back. After development the sensitive film is separated from its paper support and printing carried out in the usual manner.—A. D. C.

Every Effort Must Be Made to Load Freight Cars to Full Capacity.—West Coast Lumb., Vol. 32. (1917), No. 379, p. 22. A discussion of proposed loading, together with C.P.R. new tariffs re minimums on lumber shipments, and orders to shippers and railroads of Washington by the Public Service Commission.—H. N. L.

The Molds that Injure Paper. Sci. Am. Supp. Ma 19, page 315, 1917. Pierre See. (A report at a r cent Session of the French Academy of Sciences Paper undergoes alterations in the course of tim These are produced particularly by humidity and co sist in the appearance of pigmented specks such as a observed in the spotted pages of old books. Th damage is due to the presence of certain inferior fun Some of these secrete a pigment which is diffused the fibres of the paper, and whose tint varies accordi to the species. Examination of a spot shows it to composed of two portions: a central part, general deep in tone, and constituted by the mycelium, and nearly circular peripheral zone, which is lighter tint, colored by the secretions of the fungus, and oft visible on both sides of the sheet of paper by reason the diffusion of the pigment. The various fungi a pigments which they produce are discussed.—A. D.

Creosote in Water From Treated Water Pipe. We Coast Lumb., Vol. 32, (1917), No. 379, p. 25. Resul of investigations in Washington. All traces disappe in a very short time.—H. N. L.

Resin-Tapping from Spruce, Scotch Pine and Bla Pine in the Forests of Austria; Results Obtained 1916. — F. Ernst, Oesterreichische Forst — und Jag zeitung, No. 6, 9 Feb. 1917, through Int. Rev. of S and Practice of Agri., Vol. 8, (1917), No. 4, pp. 603-5. Although resin was obtained by the methods used t results were failures financially.—H. N. L.

Making Use of Aspen Poplar.—B. E. Fernow, Ca For. J., Vol. 13, (1917), No. 7, pp. 1185-7. — Popl has a wider distribution than any other Canadian tr It is a prolific producer of seeds and grows rapidl especially in full sunlight, as on burns, and with u dergrowth may prevent valuable conifers from gro ing. Before it reaches commercial size poplar is liab to deterioration from heart rot. It is commercial used in the manufacture of excelsior, certain kinds cooperage, crates, baskets, spools, and especially f soda pulp.—H. N. L.

Snow Removal in Nurseries. — Can. For. J., Vol. 1 (1917), No. 7, p. 1208.—Sowing finely pulverized di over snow has been found to so hasten melting th shoveling is unnecessary at the tree nurseries of the S. Forest Service in Utah. The first experiments wer so satisfactory that the method has been official adopted for snow removal. — H. N. L.

Effect of Insect Attack on Spruce. — Austin Car Amer. Lumb. No. 2201, (1917), p. 44. — The resul of observations and experiments in various regions Maine, during the past twenty years. Affected are could often be recognized at a distance by a red tin in the forest cover. The beetles usually attacked on timber 12 inches or more in diameter. Cut over la was practically exempt. Woodpeckers and other n tural enemies of the beetles usually did more good th damage. The destructive insects were seldom fou in stumps or old tops left by logging, or in windfal The only practical method of control was to cut the i fested area with the result that most of the beetles we destroyed. Details of deterioration of individual tre kept under observation are given.—H. N. L.

The Preparation and Uses of Wood Flour.—Kres mann F. W., in Sci. Am., October 7, 1916, p. 229. S review in this Magazine, Vol. 15, p. 517 (May 24, 191

Paper-Making in the Insect World.—R. W. Shufeldt, mer. For., Vol. 23, (1917), 283, pp. 431-2. — Paper ests made by hornets and wasps. Illustrated.—H. N. L.

Apparatus for Washing and Airation of Cellulose and Similar Material. A. D. Berglind. Norw. 27,751 (1917). A combination of a container for washing, furnished with agitator and spray pipe in the usual manner, with a closed container for airation of the pulp. This container carries arrangements for mixing the pulp and for pressing air through, and is also connected up to a relief pipe for the air and a pipe by which the pulp is continually transferred from the washer to the air container and back to the washer, in order to obtain an alternating washing and airation.—B. J.

(From Chemical Abstracts.)

The estimation of oxycellulose. G. Kita. J. Chem. nd. Tokyo **20,** 138(1917).—According to K., the method of Nishida (cf. C. A. **8,** 3236) does not give the real value, as the amount of dyestuff taken up is influenced by various factors, especially by the degree of subdivision of the substance to be dyed, and no proportionality exists between the quantity of oxycellulose and that of methylene blue absorbed. This method differs from that of Schwalbe's Copper value in that it is not applicable for the determination of injury that occurs in the various treatments of cellulose, although, in some special cases, it may conveniently be applied for that purpose.—F. W. Smither.

The condition in solution and the stability of various cooking liquors in sulfite cellulose manufacture and their specific action in the decomposition of wood. T. Marusawa. J. Chem. Ind. Tokyo **20,** 229(1917).—A complete theoretical and experimental study of the specific action of the different constituents of sulfite cooking liquor on wood, involving a study of the state of solution of several sulfites and bisulfites. The problem is attacked from a physical chemical standpoint.—R. B. Roe.

Methyl alcohol and acetone as by-products of the soda-pulp industry. A. H. White and J. D. Rue. Met. Chem. Eng. **16,** 182-6(1917); see Pulp and Paper Mag. **15,** p. 653.—R. B. R.

Numerical expression for color as given by the Ives tint photometer O. Kress and G. C. McNaughton. J. Ind. Eng. Chem. **9,** 282-4(1917); see C. A. **10,** 2403; **11,** 1299.—R. B. R.

Microscopical examination of printed paper. Michiya Yano. J. Chem. Ind. Tokyo **20,** No. 299(1917).—A study of the penetration of printing varnish into paper in the process of printing gave the following results: (1) Paper made of coarse fibre permits penetration more easily than that from fine fibre. (2) Drying above an optimum of 50° causes the varnish to penetrate too quickly, leaving the pigment which easily rubs off. (3) Rosin size even up to 20% does not prevent penetration; gelatin sizing hinders penetration. (4) Too much loading should be avoided since penetration is decreased due to decrease of porosity. (5) Drying may be safely carried out over 50° provided Manganese borate is added to the ink.—R. B. Roe.

PATENTS.

Apparatus for treating wood cellulose. Standard Alcohol Co. Norw., 27,857, Apr. 10, 1917. A rotary digester, for converting cellulose material into fermentable sugar by a hydrolyzing agent.

Long-fibered wood pulp. Whole Process Corporation. Jap., 30,587, Jan. 9, 1917. In a device for manufacturing wood pulp strong long fibres are produced with the aid of a grooved grindstone.

Boiling acid for use in the manufacture of sulfite cellulose. H. O. V. Bergstrom, Norw., 27,849, Apr. 16, 1917. H_2SO_3 is collected from waste gases, and purified by cooling, then led into receivers, and finally subjected to heating to remove wood alcohol, oils, etc.

Sizing paper or cardboard. A. H. Haeffner. U. S. 1,231,153, June 26. A sizing material for paper, cardboard and the like is prepared by treating the dealcoholized fermented sulfite liquor (from cellulose pulp manufacture) with alum or $Al_2(SO_4)_3$. The precipitate which is thus formed is mixed with the paper pulp to be sized. Rosin soap may be added with it.

Cellulose and chemical industry (1866-1916). C. F. Cross. J. Soc. Chem. Ind. **36, 531-3(1917).**—A lecture. —E. H.

Microscopic paper fibre analysis. George K. Spence and John M. Krauss. Paper **20,** No. 11, 11, 13(1917). —A scheme for the fibre analysis of paper is suggested in which consideration is given to the relative weights of the different paper-making fibres. Weight factors are obtained by preparing slides from an accurately weighed portion of the unknown fibre and rag as a standard and then counting the number of the respective fibres in the field, using a magnification of 160 diameters. By proportion, the ratio of the weight of the unknown fibre to rag is obtained. Having obtained weight factors for different fibres the analysis of an unknown mixture consists in counting the different fibre diameters and multiplying the counts by the respective weight factors.—R. B. R.

Folding endurance of paper. F. P. Veitch and E. O. Reed. Paper **20,** No. 12, 13-9(1917).—As a result of several years testing of paper for folding qualities under a standard relative humidity of 65% and at 65° F., it is shown that the results obtained can be readily duplicated provided at least ten tests are made. Individual differences in tests are due to irregularities in the paper, and not to the machine, provided the latter is first carefully standardized.—R. B. Roe.

Paper fibre from corn stalks. V. Drewsen. U. S., 1,229,422, June 12. Papermaking fibre is obtained from corn stalks, bagasse or similar materials by boilin the raw material for 5-6 hours under a pressure of 40-120 lbs. per square inch, in the absence of any substantial proportion of free caustic alkali, in an aqueous solution of sufficient Na monosulfite to equal about 25% of the dry weight of the raw fibrous material. The mixture is maintained alkali throughout the disintegrating process which is continued until the connective tissue is loosened or dissolved, producing strong fibre including pith material suitable for direct use in paper-making.

Incorporating fillers in paper. G. W. Miles. U. S., 1,228,580, June 5. Fibre for making paper is incorporated with a filler, e. g., china clay, and with an emulsion of paraffin, in a beater. The use of the paraffin emulsion permits the incorporation with the fibre of more filler than it would take up in the absence of the emulsion.

Coating paper. J. E. Baum, Jr. U. S., 1,230,095, June 19. Paper is given a smooth glossy surface by coating with a mixture of clay and SiO_2 in the form of an impalpable powder, with or without coloring materials, and calendering.

Sizing paper pulp. C. W. Fish. U. S., 1,229,924, June 12. After resin size and an Al salt have been incorporated in paper pulp the mixture is treated with niter cake to fix the size. Cf. C. A. **11,** 1547.

UNITED STATES NOTES

Despite a rather lethargic market, Kalamazoo Valley paper mill men are optimistic of an early change in the situation, and new mills and expansions are being rushed to as early completion as is practicable.

William Whiting, son of W. F. Whiting, of the Whiting Paper Company, saved a man from suicide last Friday. The man, who was under the influence of liquor, had filled his pockets with coal and was contemplating jumping over the rail of the second level canal bridge, where with the coal for "sinkers" he would have undoubtedly drowned. Mr. Whiting persuaded him to come to the mill office and after he had calmed down had him taken home.

The American Writing Paper Company's testing laboratory is being transferred to the "Little Mt. Tom mill" at the Parsons division from the main office building. H. P. Carruth, who is at the head of the department, will transfer his headquarters to the new office.

An interesting item in regard to the supplies situation informs us that the German dye-makers have formed a combine for the purpose of meeting competition after the war. All of the important German companies are apparently in the deal. It is said their combined capital is $55,000,000, and that the agreement is binding for a term of fifty years.

The new digester building of the Eastern Manufacturing Co. at South Brewer, Maine, is now bricked in.

From the way "The Mill," published by the employees, roasts the fellows with girls, their reporters must be mostly feminine.

W. Murray Crane, Jr., son of ex-Senator Crane of Dalton, has become associated with the War Council of the American Red Cross, and will go to Washington shortly to begin work in the department. Mr. Crane will serve the Council without pay.

Six hundred attended the outing given by the St. Regis Paper Company, at Deferiet, N.Y., to their employees last week. Officials of the company have found the output of the Deferiet mill in the month of July to exceed that of any previous month in the existence of the mill, and in appreciation of the co-operation of the employees, the outing was given to the men. Refreshments were served and entertainment provided. Several of the officials of the company spoke.

Arthur C. Hastings, president of the American Writing Paper Company, has been appointed by the Governor of the State of Massachusetts a member of the Belgian Commission.

The Northwest Paper Company's mill at Brainerd, Minn., has begun making paper. It is said to be the first convertible mill in the United States, shifting easily from print to book paper. The company employs 135 men. The mill, which is a 40-ton concern, cost $300,000. The Weyerhaeuser interests are identified with the company.

Many mills in the Miami Valley, Ohio, are making improvements. Among these are the Mead Paper Co., Champion Coated Paper Co., Fiber Pail and Package Co., Colin Gardner Paper Co., West Carrollton Parchment Paper Co., Vulcanite Roofing Co., and the Ball Brothers Mfg. Co.

Rangeley, Me., August 15, 1917.—Ten thousand cords of pulp wood and 2,000,000 feet of logs for the American Realty Company will be cut in this district under a contract just taken by Thomas Tague and Albert L. Savage, of Dead River. A whole village has been started near the scene of the cuttings, to accommodate the small army of woodsmen.

NEW MILL IN OREGON.

The Astoria Pulp and Paper Company has built a mill at Astoria, Ore., and installed machinery in the plant for the production of about 20 tons of chip board per day. It has also made plans for installing other machines at a later date, and will probably use this for the manufacture of high grade tissues and specialty papers.

The officers of the company are as follows: C. F. Hendrickson, a capitalist of Portland, Ore., well known in banking circles of the Northwest, president; L. L. Leadbetter, of Portland, Ore., vice-president; C. H. Leadbetter, of Portland, Ore., secretary, and J. M. Anderson, cashier and organizer of the Scandinavian-American Savings Bank of Astoria, Ore., treasurer.

CAR SHORTAGE REDUCED IN U. S.

The excess of unfilled car requisitions on May 1 was 148,627; on June 1 it was 106,649; on July 1 it was 77,682; and on August 1 it had been reduced to 33,776.

This result has been accomplished at a time when the railroads are supplying from 15 to 20 per cent. more freight service with the same number of cars than was being given this time last year, for the railroads handled in July a tremendous increase in both Government and commercial traffic.

The movement of cantonment supplies alone occupiel the full services of more than 30,000 cars. There was also an extraordinarily heavy demand for cars to transport food products, as well as materials to and from munition factories.

The result above acheived has been accomplished by co-operation with the railroads of shippers, regulating bodies, and the public generally. This co-operation has made possible the intensive loading of freight cars, prompter unloading, the eliminating of a large amount of unnecessary passenger train service, and an opportunity generally to utilize the railroad plant efficiently.

The aim of the railroads at the present time is to put each car to the greatest possible use, to have empty cars placed where they are most needed, to prevent overlapping and unnecessary service—in other words, to make the entire railroad system of the United States the most effective possible transportation agency in winning this war.

When lawyers depart from their ancient customs there must be good reasons for such action. We are told that in Ireland members of the legal profession are using both sides of their briefs and affidavits—a hitherto unheard of innovation.

PULP AND PAPER NEWS

Bernard Simonson, of Chatham, N.B., whose father is superintendent of the Dominion Pulp and Paper Company's mill, has enlisted in the 49th U. S. Infantry. His first application was rejected because he was too light, but a short visit at Chatham with some home cooking seemed to put on the necessary avoirdupois.

A Paris buyer desires to open negotiations with manufacturers of paper of all kinds and wood-pulp, mechanical, sulphite, bleached and unbleached. For particulars inquire of the Department of Trade and Commerce, Ottawa, regarding trade inquiry number 1148.

There is some likelihood that a paper-making industry will shortly be started at Sao Paulo, Brazil.

C. F. Mansell, sales manager of the Toronto Paper Mfg. Co., Toronto, leaves in a few days for Winnipeg, where he will attend the sessions of the Sovereign Great Priory of Canada, Knights Templar, of which body he has been Grand Treasurer for the past ten years. W. P. Ryrie, Toronto, of Becker and Co., of America, who is widely known in pulp and paper circles, is Past Supreme Grand Master. Other pulp and paper men are prominent in the order.

A. G. Hinzke, general superintendent of the Port Arthur Pulp and Paper Co., who has recovered from his recent illness of several weeks, is able to resume his duties at the plant. It is expected that all the buildings at Port Arthur will be under cover by September 15th, and that the sulphite mill will start operations before the end of the year.

There was a strike of the helpers in the beater room of the plant of the Toronto Paper Mfg. Co. at Cornwall, Ont., last week, but the trouble was soon adjusted and operations resumed.

Mr. F. O. Warren, consulting engineer, well known in the paper industry of the U. S. A., and on the Continent, has established a paper mill at Pennaroya, Spain.

J. Hewitt, of Paper Sales, Limited, Toronto, has returned from spending a few days fishing and camping at Fenelon Falls, Ont.

C. Nelson Gain, sales manager of the oDn Valley Paper Mills Co., Trenton, has returned from spending a few days in Montreal on business.

A charter has been granted to the Denis Advertising Signs, Limited, with a capital stock of one hundred thousand dollars, and headquarters in Montreal. The company is empowered to carry on a general advertising business in all its branches, and to manufacture and deal in signs, posters, etc.

Stewart Lyon, editor of the Toronto Globe, who has been representative of the Canadian Press at the front for the past eight months, is returning to Canada at a nearly date, and will resume his former newspaper duties.

Many friends in the trade will regret to learn of the death of A. E. Long, head of the firm of A. E. Long and Co., Limited, paper box manufacturers, 357 Gerrard St. East, Toronto. He passed away at his summer home, Orchard Beach, having contracted pneumonia at a regatta held at Lake Simcoe. He was in his fifty-fourth year, and is survived by a widow and one son. Some 25 years ago he founded the business which bears his name, and built up a large and growing trade. He was a member of the Toronto Board of Trade, the Canadian Manufacturers' Association, and Sherburne Street Methodist Church, and was prominent in all things pertaining to the business life of Toronto.

Further forestry battalions are being recruited for overseas service. This is likely to increase the acuteness of the labor problem so far as operations in the Canadian woods are concerned during the coming winter. There are now twenty-two companies of the Canadian Forestry Corps in France, and it is hoped to employ thirty-six in all by the early fall. The companies are equipped with Canadian saw mill machinery and tools, and the greatest efficiency and keenness is displayed by all ranks. Operations extend over a wide area.

A London firm wishes to be placed in correspondence with actual Canadian manufacturers of sulphate pulp mill machinery and plant, which is required for shipment to Russia. Address the Department of Trade and Commerce regarding inquiry number 896.

During the past year R. O. Sweezy, and assistants, have completed detailed cruises with forestry maps covering 1475 square miles and have examined or investigated in a general way some 7,200 square miles, making a total of 8,675 square miles in Ontario and Quebec. Investigation of rivers and their water powers and cost of operation has been included with these.

W. F. Christie, of the J. Christie Co., rag and paper stock dealers, Toronto, is spending the holidays at his summer home, Trent Bridge, Ont.

The barking drum for the Port Arthur Pulp and Paper Co., Port Arthur, Ont., has arrived, and one hundred and fifty cords of wood will pass through the drum every twenty-four hours. Already A. G. McCormack, wood purchasing agent for the company, has arranged with a number of contractors and farmers for a supply of pulpwood. The price paid is eight dollars per cord and considerable quantity has been delivered. The company will use one hundred and twenty cords per day. It is proposed to change the name of "Bare Point," on which the mills are located to "Prosperity Point," and the trees and shrubs on the site are being conserved, while the company are projecting plans for beautifying the grounds after construction work is finished.

The 136 inch machine of the Provincial Paper Mills Co., at Mille Roches, Ont., will be shut down for a month while arrangements will be made for changing the drive fro ma rope to a shaft drive and other improvements will also be made.

I. H. Weldon, President of the Provincial Paper Mills, Limited, Toronto, is doing his part in the agricultural production campaign. Some months ago he bought a farm of 264 acres, two miles above Richmond Hill on North Yonge street and is erecting houses thereon for himself and the members of his farm staff. Mr. Weldon will not only go in extensively for general lines of farming, but will devote a large part of the property to raising sheep, having already a flock of one hundred and twenty-seven.

The Sidney, N.S., "Post" says that machinery for a second great paper and pulp plant is being forwarded from St. John, N.B., to Grand Falls, N.F., where a plant similar to that operated by Lord Northcliffe will be established.

A new lumber company has been formed in Pembroke, Ont., and has started operations. It will engage chiefly in the pulp wood business, and a gang of men is busy taking out spruce from the fifty miles of limits which have been acquired. The members of the new firm are W. L. Hunter, J. C. Hunter and W. B. Wilson.

The Belgo Canadian Pulp & Paper Company, River Side, Shawinigan Falls, Pa., are contemplating the erection of a pulp and paper mill at Cap de la Madeline, P.Q. The manager is H. Biermans, care of the company, and he has an option on the property of the Burrill Lumber Company, near Highway Bridge.

Extra Provincial Charter Unnecessary.

According to Mr. Justice Masten, Toronto, who gave judgment recently in the friendly actions brought by Horace B. Currie, and the Attorney-General of Ontario, against the Harris Lithographing Co., Limited, Toronto, companies incorporated under the Dominion Companies Act need not take out an Ontario license, but while the Extra Provincial Corporations Act of Ontario is held to be ultra vires, the companies are not to hold or occupy lands in Ontario unless they take out a license under the Mortmain Act, 1914. The plaintiffs in the litigation asked that the Harris Lithographing Co. be restrained from carrying on business without being licensed "as required by the Extra Provincials Act," and that the company be compelled to take out a license. H. B. Currie is a shareholder in the company and the stated case was a test one. If the judgment given by Mr. Justice Masten stands it will mean a heavy annual loss to Ontario. The case, however, will be carried to the Privy Council as the situation is as yet somewhat complicated.

OTTAWA NOTES.

The priicnpal concern of the paper manufacturers in the Ottawa district appears to be a shortage of labor for bush operations even though the mills are offering the ruling market prices which are from $47 to $50 per month for this class of labor. Such prices were hitherto unknown for bushmen in Ottawa, and besides the high water figure and board has also to be included, and this year this item alone amounts to considerable and is a big factor to be reckoned into the operating cost. In view of the enforcement of the conscription bill at no distant date it seems certain that a further labor shortage will insure from woods to mill and that the cost of producting newsprint and other grades of paper cannot help but have an upward tendency and an enhanced value.

The correspondent of the Pulp and Paper Magazine is in a position to make the definite statement that John R. Booth is not going to cut as much wood this year—pulpwood, lumber, timber, etc., as he did last year. According to authentic information he has between one and one-quarter and one and one-half million pulp logs in the Breckenridge reserve on the Upper Ottawa and many thousands more between there and the Chats and above Chats Lake. These logs are in the water or on the shore. The high water which prevailed in the Ottawa River during the early spring carried thousands of them down and facilitated towing. Of course these logs were not cut last year, some of them may have been cut two, three, or perhaps four years ago, and thus with a labor shortage the uncertainty is not so much for the present as keeping up the perpetual annual supply that is causing the Booth interests not a little worry and forethought. The Eddy Company is more or less in a similar position as this company also receives many thousands of pulp logs from the Upper Ottawa River source annually.

The new Fuel Commissioner, Mr. C. A. Magrath has, during the past week been instrumental in helping out the paper manufacturers of Canada, who do not privately contract for their own fuel and from time to time are forced to purchase it in the open market.

The relief comes by way of the new demurrage rate which have been passed by the Railway Commission. The matter of delay in unloading coal cars has been so serious that Mr. Magrath took the matter up with Sir Henry Drayton, chairman of the Railway Commission, the fuel controller's view being: "Any person who fails to unload a car promptly is an enemy of his country." Under the drastic order which has been passed by the Railway Commission, a demurrage rate of one dollar per car per day, up to a period of five days is charged. In the past, under the old rates coal cars were not unloaded for a week or ten days—sometimes longer. The following statement shows what it will cost a paper manufacturer to keep a car of coal loaded for ten days: First two days, free; third day, $1.00; fourth, $2.00; fifth, $3.00; sixth, $4.00; seventh, $5.00; eighth, $5.00 nineth, $5.00; tenth, $5.00; total for 10 days, $30.00.

Through a strange coincidence an engineer of one of the major paper mills in the Ottawa district comes home on furlough, while about the same tim eanother engineer of another major paper plant is contemplating going back to the trenches. The two men are Lieut. Forest Millen Pratt, M.C., engineer of the E. B. Eddy Company, and grandson of Mr. George H. Millen, and the other is Joseph Chadwick, stationary engineer of John R. Booth's paper mill. Lieut. Pratt, of the Canadian Engineers, was slightly wounded a short time ago, and expects to return to duty about the end of this month. Chadwick was also of the engineers and was knocked out by a shell some time ago, and was treated in a military hospital for shell shock. He arrived in Ottawa on furlough last week. Taking this pair of engineers as examples, the paper manufacturing trade is certainly doing its bit toward the war.

The manager said: "My highest ambition is to have men in my employ, who speak of me as the 'old man' when I am out of hearing distance."

HEAD OF WALMSLEY CONCERN IS DEAD.

Paper makers the world over will regret the death at the comparatively early age of 43 years, of Mr. A. Walmsley-Wood, of Summer Croft, Cartmell-road, St. Anne's-on-Sea, which occurred at a nursing home on July 22, following an operation, which took place on the previous Monday for appendicitis.

The following sketch is taken from the Paper Maker and World's Paper Trade Review:

Mr. Walmsley-Wood was the head of the well-known firm of papermakers' engineers, Messrs. Charles Walmsley and Co., Ltd., of Bury, Lancashire, founded by the late Mr. Charles Walmsley. Ingenuity, enterprise and expansion have always been characteristic of the firm, but the world-wide fame achieved during the last decade is traceable to the genius and activities of Mr. Walmsley-Wood, whose death removes from the field of paper-makers' engineering a figure that stood in the very forefront and one that will be sorely missed. As an engineer he looked well ahead, anticipating the demands of the trade, and his bold conceptions were executed with a thoroughness and effectiveness that showed originality and ability of the highest order.

Not only were his business qualifications admired and appreciated by his clients, but his genial disposition won for him the regard and esteem of a very large circle. He gained the confidence of paper-makers by making good any claims he put forward, and great achievements were accomplished. The Imperial Paper Mills, at Gravesend, stand as a monument to the talents of the deceased, who was responsible for the installation of eight out of the ten machines, and also for the greater part of the preparatory plant. Mr. Walmsley-Wood introduced into the best mills in the country what are known to-day as "Dreadnought" machines, on account of their width and fast-running powers. His successful competition with the leading engineers in the United States was also an accomplishment of the highest order. His visits to the States and Canada paved the way to important orders for the house of Charles Walmsley and Co., and English machines once in operation and tested in American mills promptly led to additional orders. We believe visitors to the well-arranged Bury works during recent months were in a position to see in course of construction for the United States four machines to produce 222-in. of perfect paper. In addition to these mammoth machines were also to be seen eight others in hand. Not only did Mr. Walmsley-Wood successfully invade America—to the chagrin of home builders—but on the Continent and Scandinavia he scored some notable successes. Since the war the firm have, in addition to paper mill requirements, been engaged on Government work, supplying special equipment for the production of "destroying forces" for use against the enemy. The deceased evidently gave himself no rest, and as a pioneer his death creates a gap that will be difficult to fill.

Mr. Walmsley-Wood was the son of Mr. Abraham Wood, of Bury, and served his apprenticeship as an engineer. He married the only daughter of the late Mr. Charles Walmsley, who died in May, 1915, when the sole responsibility of the management of the extensive works fell upon the deceased. He leaves a widow but no family.

TO HANDLE NEWFOUNDLAND PAPER.

The Publishers Paper Company, Inc., has now been completely organized to handle the output and products of the Anglo-Newfoundland Development Company, Ltd., and the Albert E. Reed Company, Newfoundland.

The stock of this company is all owned by the American Newspaper Publishers Association and officers have been elected as follows: President and treasurer, A. G. McIntyre; vice-president, Emil M. Scholz; secretary, Frank W. Fraser; manager, Morris W. Leahy; traffic manager, W. T. Robinson; manager manufacturing, A. A. MacDiarmid; chief accountant, A. J. Dacres.

Most of these men have been connected with Canadian mills.

The sale of the groundwood pulp has been disposed of to E. S. Bates, Coristine Building, Montreal, who is a pulp broker. The Publishers Paper Company itself will not handle the sales of pulp.

Manager Leahy was formerly chief engineer for the Powell River Company, Ltd., and manager of the Abitibi Power & Paper Co., Ltd.

Mr. Robinson was formerly manager of the mills at Parsons, W. Va., and at Chandler, Quebec.

Mr. MacDiarmid was formerly chief engineer for the Montreal Light, Heat and Power Company, the Bathurst Lumber Company, Ltd, and the Mattagami Pulp & Paper Company, Ltd.

Mr. Dacres was formerly accountant for Price Brothers & Co., and the Montreal Box Board Company.

In addition to this, a rail traffic man has been engaged, whose name has not yet been made public.

The entire control of the company is in the hands of the executive committee of the committee on paper of the A. N. P. A., and the whole company will be operated to do the most good for the publishers of this country.

A number of small shipments of paper have already been received, and larger ones are following this month up to full capacity of the mill.

DECREASED PULPWOOD AND WOODPULP SHIPMENTS BY T. & N. O.

Pulpwood shipments were made over the Temiskaming and Northern Ontario Railway, during June, 1917, to Merritton, Thorold, Toronto, Georgetown, Ottawa, Ont.; Niagara Falls, Watertown Carthage, Norfolk, N.Y.; Johnsonburg, Pa.; Port Huron, Grand Rapids, Mich., and Appleton, Wis., as follows:

June 1st to 7th	1,385 cords
June 8th to 14th	1,972 cords
June 15th to 21st	1,958 cords
June 22nd to 30th	3,382 cords
	8,697 cords

This is a decrease of 3,973 cords from preceding month, or 31.4 per cent. Woodpulp and paper shipments were as follows:—

	Woodpulp	Paper
June 1st to 7th	147 tons	1,085 tons
June 8th to 14th	406 tons	1,198 tons
June 15th to 21st	204 tons	1,547 tons
June 22nd to 30th	428 tons	2,132 tons
	1,185 tons	5,962 tons

This represents a decrease on woodpulp shipments of 752 tons, or 39 per cent., and an increase in paper shipments of 371 tons or 6.6 per cent.

The Markets

CANADIAN MARKETS.

TORONTO, August 20.

The improvement, which was noted last week in the paper trade, continues, although there is no great impetus. The members of the different concerns in the pulp and paper line look for a good fall business, but not so rushed as last year, when things were in almost a panic on every hand.

Jobbers report that during the past two months, while the turnover has been very good, it, of course, does not come up to last season. The price outlook is the main thing, and while some producers thought that advances would be made all along the line, they are not so sure now, and will not venture any predictions beyond the statement that prices should maintain their present level. Stocks in the hands of jobbers in numerous lines are small, and they cannot hold off much longer from entering the market, and this will materially improve conditions. The one feature of the trade is that all pulp and paper mills are now operating on a healthy normal basis. The companies have enjoyed a year of great prosperity, and reserves have been built up against the possible lean period after the war. Resumption of bond interest has taken place with a few organizations which were in a bad way before the war, and regular fixed charges have been reduced while the payment of deferred dividends has occurred and increases in orinary dividends are quite numerous.

News print mills are still running to capacity, and prices remain firm. If the price question were once settled, and the basis of operation made more permanent, the lot of the news print producer would be a fairly happy one. The threatened action of governments and commissions hangs over their head like the sword of Damocles, and may drop at any moment. No word has been received regarding the time when the present audit of books will be completed, and there is nothing for the manufacturers to do but play the waiting game with the best grace possible. As soon as the summer season is over it is expected there will be a more vigorous demand than ever for news print, as advertising agencies report that the outlook for heavy publicity this fall is decidedly favorable, and this will mean larger editions of the dailies.

In the chemical pulp line, after some weeks of quietness, there is a larger number of inquiries than there has been all summer, and, when buying is resumed a stiffening of prices will result. Manufacturers across the border are beginning to feel out conditions, and there is no increase in the small importations. One leading manufacturer this week remarked: "We have known all along that conditions in the sulphite pulp line were not normal. We had contracts on hand covering a large portion of our output for 1917, but when the United States entered the war, our customers held back and have not been taking their regular shipments. They preferred to wait until the decks for martial action had been cleared, and they knew where they were at. Now things are getting on a sounder basis, and already several of our clients are asking us to protect them for the full quantities. We fully expect that prices will strengthen, and we have no fears of the future."

Ground wood plants in Canada continue to pile pulp and producers are holding out for forty dollars a ton at mill. They are not uneasy about the situation as they feel that, owing to the scarcity of pulp wood, and the high price of labor, there is no fear of any recession in the figure for the finished article. There is no tendency to reduce quotations merely for the purpose of unloading, as all owners think that mechanical pulp will go higher. One firm predicts that the figure by late fall will touch fifty dollars at the mill. There have been several absurd stories going the rounds that pulp has been sold at a much lower value than what has been named, but such reports cannot be verified. Speculators have been trying to buy up large quantities, but mills have steadily refused to consider the low offers of thirty-five and thirty-six dollars per ton.

Canada is becoming more and more the pulp dictator of the continent, and all eyes are on the Dominion. Last year the pulp mills of this country consumed 1,764.912 cords of wood valued at $13,104,458, while 1,068.207 cords, valued at $6,866,669, were exported making a total production of 2,833,119 cords, valued at $19,971,127. This represents an increase of 25.5 per cent. in the pulp wood production, and 28.1 in total value, as compared with 1915. There was an increase of 20.6 in all kinds of pulp made. Ground wood pulp showed a gain in production of 11.2, sulphite 54.6, (which will be further increased this year by the completion of half a dozen mills), sulphate 9.3, and soda pulp 23.1.

Action is being taken by a number of Boards of Health throughout the country to prevent the wrapping of meat, bread, etc., in old newspapers. It is pointed out that the practice is a dangerous one, and should be stopped. The papers come from dwelling houses, and are not sanitary. If they were secured from one source it would not be so bad. In the meantime, waxed paper manufacturers are getting busy, and the demand for this clean, sanitary covering is making progress. It is reported that the producers of this brand intend getting together and inaugurating a publicity campaign, pointing out the advantages of buying goods sealed in wax paper, emphasizing their freshness, wholesomeness and purity. They intend to educate the Canadian public to use many more lines of merchandise put up in this way. One new waxed paper plant has started operations, and another is about to begin putting this commodity on the market, which make nearly a dozen industries in this branch in the Dominion.

Printing establishments are beginning to get busy, and are making more inquiries for paper of all kinds. Paper manufacturers—those who have not their own pulp plants— are wondering when experiments will be successful so that flax fibre can be used. Fifty years ago there were about one hundred flax mills in Ontario, but this number has dwindled down to half a dozen. The war, however, is reviving the industry, and as a result of attractive prices, due to the almost

total disappearance of foreign competition, many Ontario farmers are starting the raising of flax. Eight thousand acres have been planted in the crop in Ontario, while the west has devoted an immense acreage to it. Officials state that between thirty and forty mills will be operating in Ontario next winter, turning out the product of the flax plant.

Coating mills are running rather light at present, but with the resumption of annual reports, bank statements, catalogues, etc., they expect to be going full again in the near future. Box manufacturers are starting in in earnest for the fall campaign, and board mills are fairly well employed. Makers of envelopes, papeteries, etc., are fairly active, and many of the latter goods are appearing on the market, in new shapes and styles. One leading Canadian house which has not been advertising its goods for many years, has just inaugurated a campaign of publicity with many Canadian weeklies and dailies.

Paper.

The following prices prevail f.o.b. Toronto:

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.35
xBook papers (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook papers (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
Grey Browns	$4.75
Fibre	$7.35
Manila, No. 1	$7.35
Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	23c to 30c
Drug papers, whites and tints	10c to 12c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$78.00 to $80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$70.00 to $80.00
Sulphite (bleached)	$120.00 to $130.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

In the rag and paper stock arena so many mills are continuing to stay out of the market that dealers have been hit hard on white shavings, kraft and mixed papers, and there is a regular slump in the latter commodity. One dealer remarked this week: "The mills first stayed out on the ground that they were repairing their plants, but they now appear to be holding aloof from the market on general principles. They all claim stocks to be high and business to be rather quiet, and none of them show any inclination to buy for next month. This attitude has brought on a rather serious situation for us."

Cotton rags are still in poor demand, although better conditions are looked for next month. The requisitions for roofing stock are still strong, with quotations holding firm. There has been an advance of ten cents in tailor rags.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.75
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.50
No. 1 printed manila	$1.25
Folded news	70c
Over issues	$1.00
Kraft	$3.00
No. 1 clean mixed papers	50c
No. 1 white short cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
Thirds and blues, repacked	$2.85
Flocks and satinettes	$2.10
Tailor rags	$2.10

SPANISH RIVER STOCK LIVELY.

Financial columns last week commented on the awakening of interest in Spanish River stock, especially common. A rise of several points was observed and several hundred shares changed hands. There was some demand for preferred at a slight advance.

While the past year has been generally profitable for the industry, this company is said to be still facing deferred interest and accumulated interest on preferred stock. The company has a plant that should be a money-maker.

NEW YORK MARKETS.

New York, Aug. 18.—The activities of the Federal Trade Commission at Washington, which has been designated during the past week, as "the price fixing body," is, of course, attracting considerable attention throughout the trade. However, it is not felt that the paper industry will be affected by anything going on at the present time, in view of the fact that prices of papers in general are comparatively low. In the chemical pulp market, demand is reported fairly active for this season of the year and business of moderate proportions is reported current. The consumption is still considerably below normal, yet grinders are being forced to limit their production and, with newsprint manufacturers and other consumers coming into the market now and then for additional supplies of pulp, few producers are experiencing any great difficulty in disposing of the bulk of their surplus fibre. Authoritative advices from grinding centres state that the stocks of pulp now held by producers are exceptionally meagre for this time of the year, and that there seems to be but little likelihood of manufacturers being able to increase their operations under prevailing transportation and labor conditions. Reports were in circulation, early in the week, of some offering of groundwood at $40 a ton and less, but sellers insist that such prices only apply to minor quantities of pulp and that no appreciable volume can be secured at below $42 or $42.50 per ton, for they maintain there is no reason why less should be considered. Present quotations are as high as $47, at the pulp mill.

The chemical pulp market is still in a static condition with practically no improvement noted in the demand from consumers. Some business, of course, is passing, but buyers continue to confine their attention to domestic pulp, and sellers of foreign fibre are experiencing an almost total lack of interest on the part of paper manufacturers. As one importer stated: "there is no such thing as a market for foreign pulp at the present time." There is no question that the lack of demand in this market at the present time is due to the inactivity of the paper mills. Usually, at this dull season, plants take advantage of conditions and run stock ahead. There has been very little of this done, judging from reports, and with the fall season less than a month off, some action is looked for in the immediate future.

It will be remembered that, sometime ago, in these columns, we referred to the fact that several paper manufacturers pointed to the fairly large number of chemical pulp mills in the course of construction with a bearish view for the future. This has been brought up again, in view of the fact that there have been several announcements recently that various new plants hoped to be open in the near future. Among these is that of the Aroostook Pulp & Paper Co., at Van Buren, Me., which expects to be in operation on kraft pulp in November, starting in with a capacity of about 60 tons daily. At about the same time, there will be similar announcements from other companies and also new installations in present mills will be in a position to start running. It is thought that the increase in production may be more than is generally thought. However, it is not at all certain that the effect will be bearish on the market. In the first place, the new mills may not be able to get wood supplies in such a way that will enable them to keep in constant operation. Then, with foreign sources practically cut off, it is thought that any added production will be immediatel absorbed, when things pick up—and prices will n be weakened, to say the least.

While the demand for roofing rags and several of th specialty stocks is active and prices tend upwar business in other descriptions of old cotton rags seasonably dull and few dealers are securing orde of any importance at present. A report from Bosto tells of conditions being held up there because of rai road embargoes. It says: There is still a good dema for roofing stock, but prices are lower than they we a week or ten days ago. $45 is about the outside pric obtainable for No. 1 grade of roofing rags. Dealer however, continue to feel optimistic about the futur One report says that felt mills will be kept going capacity for the remainder of the year.

The market for new cotton rags rules firm and trad of fair size is reported in several descriptions of stoc Fancy shirts are selling at about 5¾ cents and highe prices have been rumored. In fact, it is said to b getting increasingly difficult to locate any appreciabl amount of stock at lower prices. Washables are movin well, consumers buying conservatively but, neverth less, in fair quantity. New light silesias are in som request, also white shirt cuttings.

The market for bagging rules steady and trade fairly large proportions is reported on open orde although manufacturers are not particularly anxiou about placing further orders.

Old manila rope is moving in fair volume toward consumption although demand at present is not e ceptionally brisk. Manufacturers seem to appreciat that there is likely to be a serious shortage of stoc when the usual stimulation of the paper industry o curs this fall and are wisely buying up all the suppl now offered at reasonable figures. Quotations rang around 6¾ cents.

The waste paper market has shown more life durin the past week and that slightly higher prices have bee obtained than for some time. Trading is still co siderably hampered by railway embargoes. Har white shavings are held as high as 4¾ cents; so white shavings are quoted at about 3¾ cents, ove issue magazines are offered at 1¾ cents; solid ledge stock, is going at 3¼ cents; old manilas are going at little over 1 cent; old krafts are held at about 3 cent strictly over-issue news is selling at about over 1 cents; strictly folded is going at about 90 cents p hundred; while mixed papers are at about 65 cen per hundred.

Activities in the paper market are still far fro what they ought to be. Buying continues poor, wit no indication of betterment immediately. Howeve as has been stated before, confidence is expressed th the early fall will show a decided improvement. newsprint, there is not very much exciting. Report are to the effect that the publishers are going ahea with the Northcliffe plan, and are making good hea way. Paper mills still belittle the idea, believing tha when it comes to the shown down, it will not prove a that is now being claimed for it. Tissues are still do mant. Prices show a further weakening tendenc Boards are a bit more active, with buying interests r ported to have taken on a little more strength. Wra pings have not yet shown any inclination to pick u It is evident that consumers are using every possibl economy with this material—and intend to stay o of the market as long as possible. However, it is fe

HOYT METAL COMPANY

HOYT SHEET ALLOY

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that, with business improving in the fall, this market can not help but follow. Book papers are uninteresting except for the fact that the trade is awaiting the official announcement of the report of the Federal Trade Commission.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b. mill	$42 to $46
Foreign bleached, sulphite, ex-dock, N.Y.	9¼c*
Foreign easy bleaching, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b., pulp mill	6c*
Foreign unbleached sulphite, ex-dock ,N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b., mill	3½c*
Kraft pulp, f.o.b., mill	5¾c*
Foreign kraft pulp, ex-dock, N.Y.	6c*
Bleached soda pulp, f.o.b., pulp mill	5¼c*
Mitscherlich unbleached	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	5½c*
Foreign easy bleaching soda, ex-dock, N.Y.	
Ledger papers	10c
Regular superfine	19c
Best grade writings	21c
Bond papers, sulphite	10c
News, contracts, f.o.b. mill	3c to 3¾c
News, spot lots	3¼c to 4½c
News, side runs	4½c
Book, super	7½c
Book, coated	8½c
Books, m. f.	7c
Tissue, good sulphite, bleached, per ream	$1.00
Tissues, ground wood, manila, per ream	$1.00
Kraft, domestic	7½c*
Kraft, foreign	8c*
Wood manilas, No. 1	7c*
Wood manilas, No. 2	5¾c*
Jute manilas	9c*
Newsboard, per ton, f.o.b., New York	$55.00*
Strawboard, per ton, f.o.b., New York	$50.00*
Chip board, per ton, f.o.b., New York	$50.00*
Binders Board, per ton, f.o.b., New York	$65.00*
Wood Pulp Board, per ton, f.o.b., New York	$75.00*

(*)—And higher. R. W. JOLLY.

CANADIAN CHEMICAL MARKET.

The Canadian Chemical Market on the whole is firmer. Bleaching powder has further declined owing to over-production in the United States. Advances are noted in caustic soda, soda ash and starch.

The following are the prices in the Montreal market:

Alum, Ammonia, lb.	5½ @ 6½c
Alum Potash, lb.	8½ @ 9c
Blanc Fixe, paste, lb.	4 @ 4½c
Blanc Fixe, powder, lb.	5 @ 5½c
Bleaching Powder, lb.	2¼ @ 3c
Brimstone, f.o.b. mines, long ton	$35.00 @ $37.50
Casein, lb.	30 @ 40c
Caustic Soda, 76%	8¼c @ 8¾c
China Clay, imported, ton	$30.00 @ $40.00
China Clay, domestic, ton	nominal
Lime, ton	$7.25 @ $8.00
Sal Soda, in bags, 100 lbs.	$1.25 @ $1.30
Sal Soda, in barrels, 100 lbs.	$1.35 @ $1.40
Salt Cake, 100 lbs.	$1.00 @ $1.10
Soda Ash, lb.	3¼ @ 4c
Starch, Pearl in bags, lb.	8¼ @ 8¾c
Sulphate Alumina, technical, lb.	3½ @ 4c
Sulphate Alumina, iron free, lb.	4¾ @ 5¾c
Talc, American, ton	$13.00 @ $18.00

NEW YORK CHEMICAL MARKETS.

New York, N.Y., Aug. 18.—Quotations for bleaching powder, at spot, are reported somewhat easier. Sales in large domestic drums at 1¼ cents per pound are reported, though the majority of sellers ask 1½ cents. Demand is light and export trade is restricted, with drums priced at 3 cents to 3½ cents. The local market for rosin is firm, but with no marked change in values. It is said consumers purchased rather heavily early in the season, but it is expected that quite some pales will still be wanted. Quotations vary from $5.90 to $6.15 per barrel of 280 pounds.

Interest in china clay has weakened lately. For the moment, consumers have ample supplies on hand and are displaying willingness to buy ahead. Foreign clay is purely nominal in value, as practically no supplies are coming in from abroad. Quotations on the domestic grade range from $13 to $18 per ton.

MORE NEWS.

A market bulletin for their logging contractors is issued periodically by the Eastern Sands Branch of the Canadian Northern Railway, under the direction of Mr. C. T. Young. The bulletin dated July 7, gives prices and market conditions on horses, hay, flour, oats, rolled oats, bran, beef, hogs, lard, potatoes, beans, sugar, tea, canned goods, molasses, rice, dried fruits, salt, etc.

The Lotbiniere Lumber Company, Lyster, P.Q., who recently lost their pulp mill and sash and door factory at Nicolet Falls, P.Q., by fire, report that they were only partially covered by insurance, to the extent of $36,000. They have not yet decided whether they will rebuild.

Shippers in this country have reason to congratulate themselves that government measures to lessen the freight car congestion are only of a persuasive nature. In Spain they do things rather differently. There, according to a U. S. Consular report, the freight stations are loaded with merchandise shipments. In order to relieve the congestion the government has authorized the railroads to sell at auction all merchandise not withdrawn by the consignee in five days from the date of its arrival at destination.

The Pacific Mills, Ltd., Ocean Falls, B.C., are increasing the output of their mill. The present output is 75 tons daily, and the company plan to increase it to 120 tons daily by the end of the year.

Harry G. Pounsford, well-known stationer of Cincinnati, Ohio, is visiting his son, Arthur G. Pounsford, general manager of the Port Arthur Pulp & Paper Co., who is building the new mill on Lake Superior.

The continued import into Scotland of wood pulp at five to six times the pre-war price, and in appreciably larger quantities, shows that manufacturers believe in the present high cost of paper. But there is more paper offering than there was a short time ago, and orders are not being so readily obtained at current rates.

Mr. A. Muntzing, in retiring from the office of secretary of the Swedish Paper Mills Association, and also as editor of the Svensk Pappers-Tidning, is to be congratulated on the success of his journalistic work since his first association with the paper in 1902. We hope Mr. Muntzing will live many years to enjoy his well-earned retirement. The new secretary appointed by the Swedish Paper Mills Association, the principal proprietors of the Svensk Pappers-Tidning, will act as editor of the paper.

BEAVER BOARD BUYS CANADIAN FOREST.

William F. McGlashen, president of the Beaver Board Companies, of Buffalo, has just returned from Canada, where he has purchased the assets of the Abitibi Timber Company, Ltd., and organized a Beaver Board subsidiary known as the Beaver Abitibi Timber Company, Ltd. The Abitibi limits were recently acquired from the Canadian Government. They comprise an area of 180 square miles, nearly one-eighth of a million acres, located on the Frederickhouse and Buskegow Rivers in northern Ontario. The holdings comprise the best virgin timber in Canada, where the sound of an axe has never been heard, and are easily accessible to transportation.

Mr. McGlashen says that the company will proceed at once with the operation of the timber camp. Several hundred men will be employed.

The new company's limits include 16 square miles of very large spruce.

CASEIN MADE IN CANADA.

Some two years ago the coating paper mills of Canada organized what is known as the Consumers Casein Company, with a capital stock of $10,000, in order to encourage dairies to produce casein for the Canadian mills. This commodity had previously been exported. Mr. Copping of St. John's, Que., is president of the company; C. N. Ramsay, of Toronto, vice-president, and F. H. Gage, of Toronto, secretary treasurer. The result has been highly satisfactory, and the production of casein in the Dominion has been largely increased. Better prices have been paid and the mills are well satisfied with the outcome of their efforts.

SHORTAGE OF PRINTING PAPER IN NEW SOUTH WALES.

The sudden cessation of shipping from North American ports and the closing down of Scandinavian paper mills from lack of fuel, foreshadows a paper famine in New South Wales.

What little paper is available has gone up in price enormously, and the consequence is that many papers have ceased publication. Other papers announce that owing to the necessity of husbanding their stocks the size of the issues will be considerably reduced.

3-CENT PAPER NOT PROMISED.

A report was current in New York this week that the sales manager of the Canadian Export Paper Company, Ltd., Montreal, had stated that his firm would sell its 1918 output of news print at 3 cents a pound, f.o.b. mill. When The Fourth Estate asked for a confirmation or denial of the story, the following reply was received from J. W. Linehan, assistant to the general manager of the company:

"The report you have received regarding our making any statement regarding price of news for 1918 is incorrect. We have not made any such statement."

According to Mr. Gustave C. Piche (Chief Forester of Quebec), the experts have reduced their estimate of the forest wealth of the Dominion to 414 million acres, which will not last more than fifty years unless precautions are taken.

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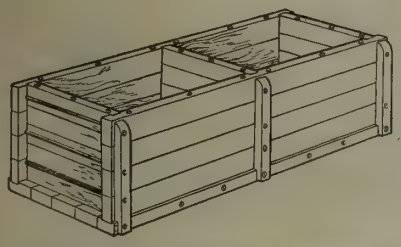
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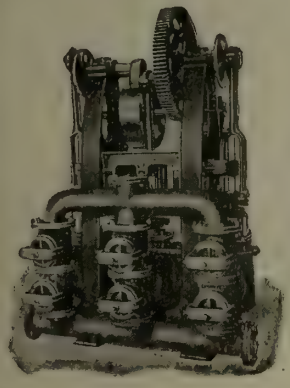
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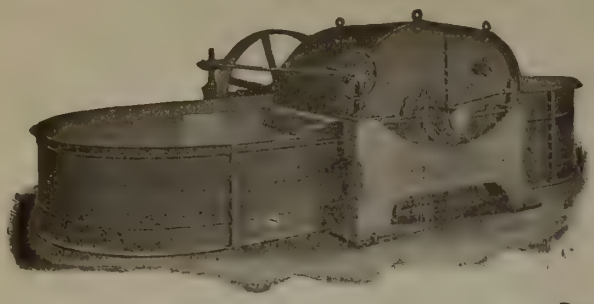
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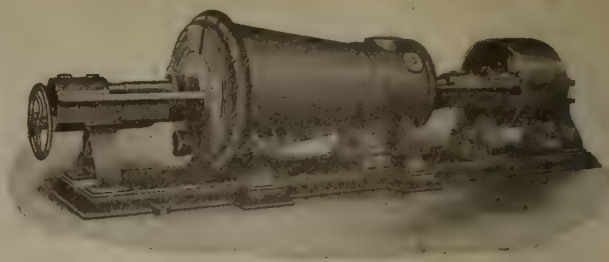
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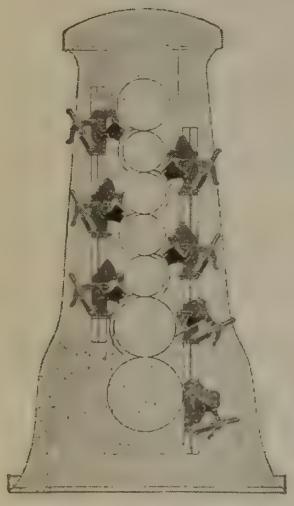


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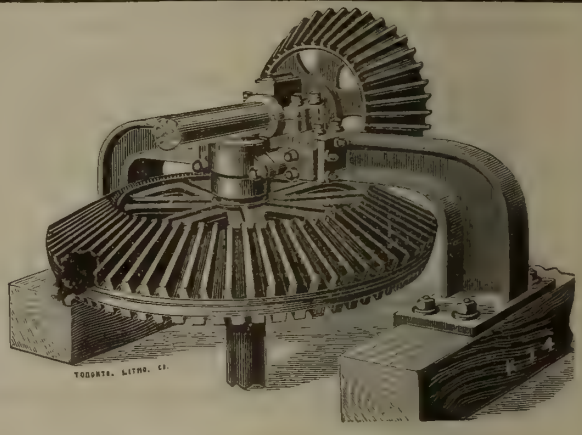


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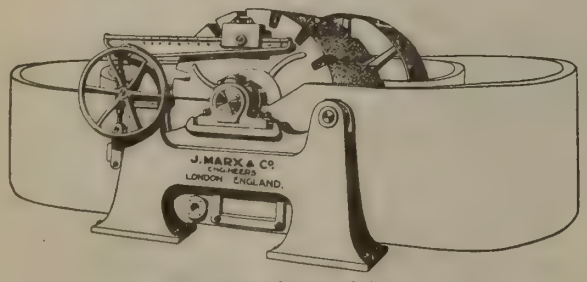
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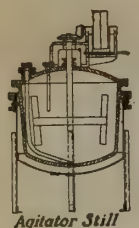
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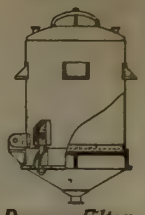
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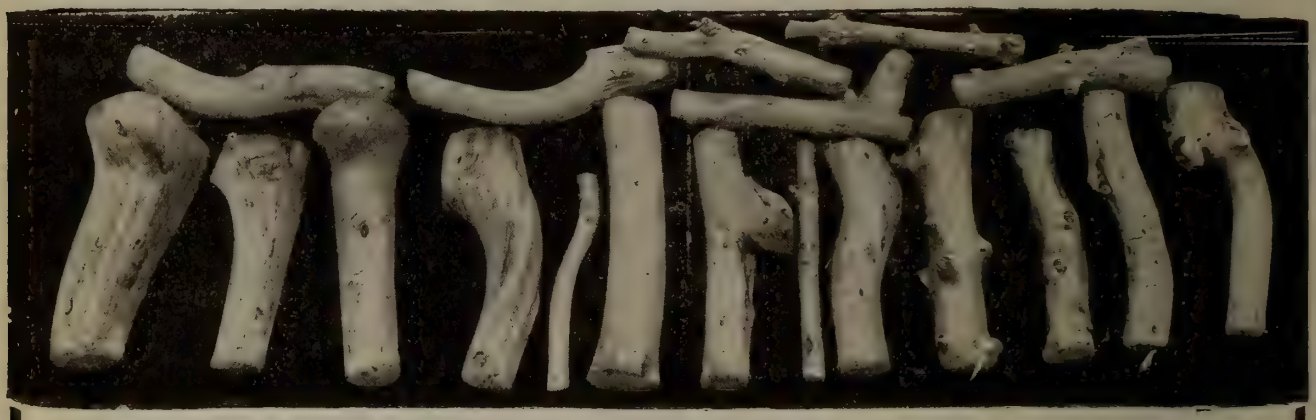
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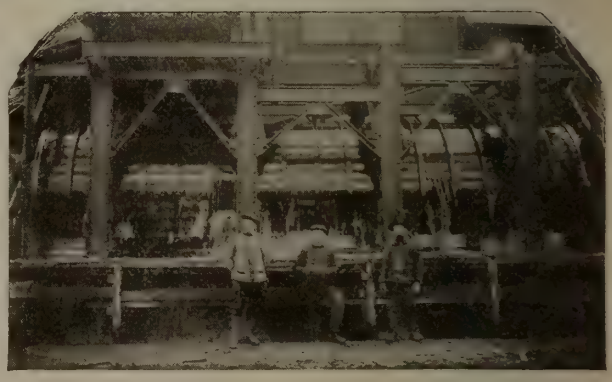
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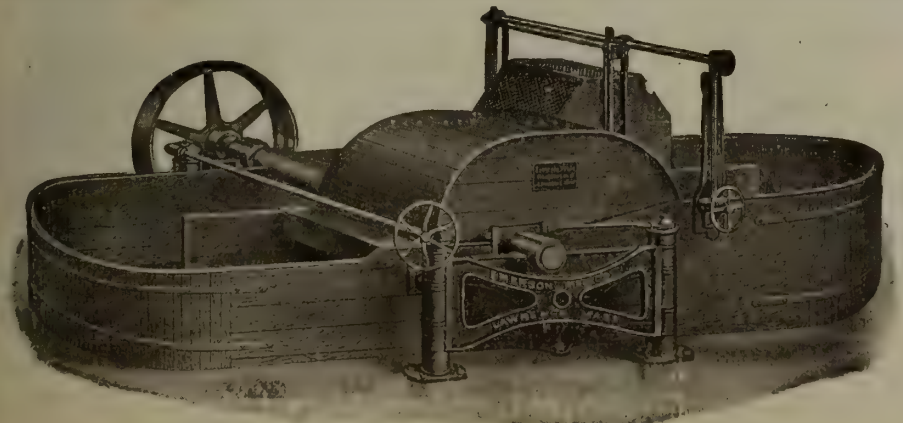


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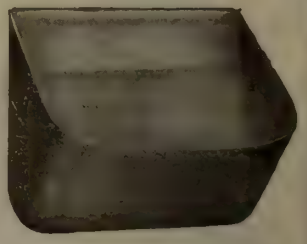
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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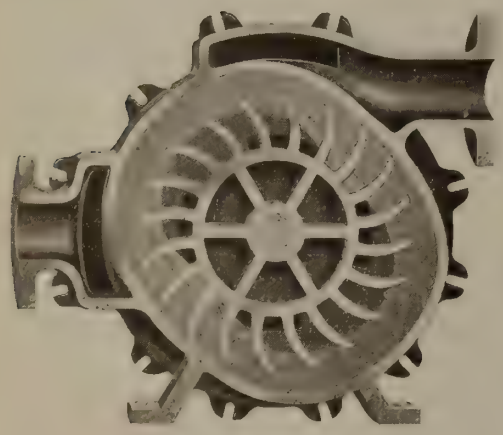
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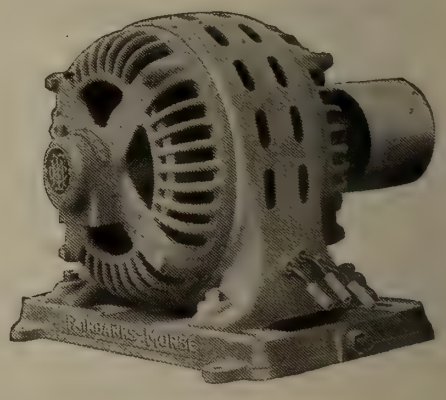
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EDITORIAL

SCHOOL DAYS.

Within a few days the school bell will ring once more, and many feet, some eager, some reluctant, will take their owners along the well known paths. Some who hear the bell will answer its call for the first time. Others for the first time will fail to heed the call. For many young people, this will be the last year spent in the public day school. Those who do not return to school this fall may be staying out for one of three reasons: the need of their earnings to support themselves or help support the family; the lack of incentive or desire for further education, or the lack of educational opportunity for further progress.

All three of these reasons are serious reflections on our school system. The first is largely due to the fact that the father did not get sufficient training to make him capable of earning enough to keep his children in school. This lack of education by the father may also be a principal cause for the second reason. Another cause for this reason is the failure of the school to connect with the economic life of the community. The school is not sufficiently attractive to the unscholarly. The last reason may become operative at various stages in the educational growth of the child. In some communities the facilities are very limited and in comparatively few are they extensive enough to keep a child in school up to the age of 16. Twelve years is obviously too young for a child to leave school, yet there are many children not that age running loose, and in factories, shops and offices in Canada. Some provinces have a longer school age than others, but this law seems to have little enough attention anywhere.

These troubles are partly provincial in character, but are largely due to the local organization, or disorganization, of school matters. There is a definite and individual local school problem for each community, or there ought to be. Certain ready-to-wear plans and regulations can be made by the province, but many will have to be altered to fit the community. It is this adapting of the general system to meet specific local conditions that requires thoughtful effort on the part of capable people in the school district. This is particularly true of industrial conditions and education for immediate industrial work.

The education of those who will go to college or technical school is fairly well provided for, and the needs of this class of students must be carefully considered in making any changes in behalf of those who stop after high school or even before. There are many worthy examples of people who have made good because of, or in spite of, the present system of education. The great number of incompetents, however, proves beyond a doubt that the present system is inadequate for present and future requirements. Instead of complaining that workers are poorly paid, a more sensible move would be to educate these people so they would be capable of earning a better wage. Employers are not unwilling to pay well for good service, but they must get their money's worth or they cannot afford to have the work done.

There may be—though we doubt it—some forms of manual labor that require no mental effort or intellectual capacity. Some education, then, is a fundamental part of the equipment of every worker.

A usable education is not only a privilege to which every citizen is entitled, but it is also his duty to take advantage of the opportunities offered to develop a fundamental intellectual equipment. The higher the position a citizen aspires to hold, the further should his education progress. The first essential is a speaking acquaintance with the English language, then arithmetic, commercial geography and principles of government, with instruction in some trade or business, chosen according to the community interests, then preparation for college or closer attention to the principles of manual training, domestic science, agriculture, or trade and commerce. For those who must leave school at the minimum age, there should be provided some form of extension school. It is in this connection that the greatest advantage will come from active participation in the local school problem by men of prominence and ability in our industries.

Canada can have a sound system of education, **if she wants it.**

The winding up of contracts for shells has released some Canadian shops to the more peaceful pursuit of making locomotives. This activity is quite as important in winning the war, especially in connection with the Russian situation, and the necessity of moving foodstuffs and materials at home.

THE PUBLISHERS' PAPER COMPANY.

Because the American Newspaper Publishers' Association had no legal right to buy and sell pulp and paper, the Publishers' Paper Company was incorporated. The stock of this company is all owned by the Association. The organization of the company was given out last week. Ostensibly the company was organized to distribute the product of Newfoundland pulp and paper mills. It is understood that the principal aim of the new company is to obtain and distribute newsprint to the smaller publishers in the States. This is a worthy motive. No statement is made as to whether the companies' activities will extend beyond assistance to members of the Newspaper Publishers' Association. Nor is it intimated whether the activities of the company will cease when the Newfoundland supply is again turned to English channels.

Perhaps our astute friends expect to divert their attention to the product of their paper mill project at Seattle by the time three months after peace have elapsed, which is said to be the limit of the contracts with the Newfoundland mills. As a distributing agency the new company can perhaps be of great service to the small publishers, who will not or can not protect themselves with contracts. It is doubtful whether the publishing business at large would have been much better off had such an organization existed a year ago. More paper was wanted than could be made, and some one had to go without. The Publishers' Paper Co. might have exerted a restraining influence on jobbers' prices and quotations on small lots, if they had the paper, which is, of course, a sort of post mortem analysis.

Paper makers have rather encouraged small publishers to buy collectively. Building up fair sized orders in this way means fewer changes on the machines, and lower selling and distributing charges. Acting in such a capacity, a publishers' paper company ought to be welcome to the mills, but might be "persona non grata" with the dealers.

THE SULPHUR SITUATION.

During the twelve months ending with last March, 168 million pounds of sulphur was brought into Canada. Of this amount, more than 158 million pounds came from the United States. A large proportion of this was consumed in the manufacture of sulphite pulp. Allowing an average of 250 pounds of sulphur per ton of pulp, or 60 pounds per ton of newsprint paper, something like 75 million pounds of this quantity imported was sent back to the United States by the pulp and paper industry of Canada.

On account of the large amounts of sulphur used in the making of explosives and the incidental manufacture of certain chemicals, the United States Government has placed an embargo on exports of sulphur, except where permitted by special license. The idea of the license is to assure the authorities that the sulphur exported is for legitimate consumption and actual needs. The industry suffered a slight shock at first, over the announcement of the embargo, but on finding the reasonable attitude of the American Government in the matter, there is now no anticipation of difficulty over getting necessary supplies of sulphur.

FOREST FIRES FROM TRIFLING CAUSES.

A man dropped a lighted match on the shore of Kalamalka Lake, British Columbia, on July 8th last. Within a hour a hot fire was racing through the underbrush. For three weeks after that there raged a series of forest fires, defying the organized efforts of hundreds of men.

At one time, 26 fire fighters were ringed about with flames while their relatives, shut off from them and helpless to aid, awaited news in terrorized suspense. Only after severe suffering from exhaustion, thirst and hunger did the band of workers force their way through to safety.

That experience is a big price to pay for one person's foolish act in handling matches in a forest. The court fined the careless man $50, but that does not help the province to bear the enormous loss.

One lighted match dropped on one inch of inflammable ground expanded into fifteen miles of ruin.

In the Spruce Valley fire of British Columbia of the same month, eleven men lost their lives, most of them tortured to death as they struggled over the mountain tops. The fuse to that disaster was supplied by a small piece of lighted tobacco carelessly thrown on the grassy floor of a tent.

Ninety out of a hundred tragic holocausts could be avoided if every Canadian camper and fisherman kept vigilant watch on his own pair of hands, and every settler kept a tight rein on his clearing fires. It does not cost five cents or five minutes to put out a camp fire or a cigarette or a match, but it costs the people of Canada four or five million dollars a year to partially overtake the timber damage caused by runaway flames.

The Federal Trade Commission says the average profits of 21 makers of book paper was 8.7 per cent. on the investment in 1915, and 21.5 per cent. in 1916, and prophecies a rate of 40 per cent. for 1917. By comparing the latter figures with the first the F. T. C. applies a magnifying glass to the increase. The drop in American Locomotive Co. profits from 36.1 per cent. in 1915-16 to 22 per cent. in 1916-17, is greatly deplored in the papers, but the government didn't criticize the enterprize for doing such a successful business.

MR. GEORGE F. STEELE.

We welcome you to Canada and wish you success as Manager of the Canada Export Paper Company.

Canadian Pulpwood Industry

Forestry Branch Bulletin No. 62B. R. H. Campbell, Director of Forestry

The steady growth of the pulp and paper industry in Canada, practically since its inception, was continued in 1916. Forty-nine firms reported their mills as active in 1916 as compared with 50 firms in 1915, but the total consumption of pulpwood and total value of the wood used rose much above the preceding year. These facts are brought out in the figures below.

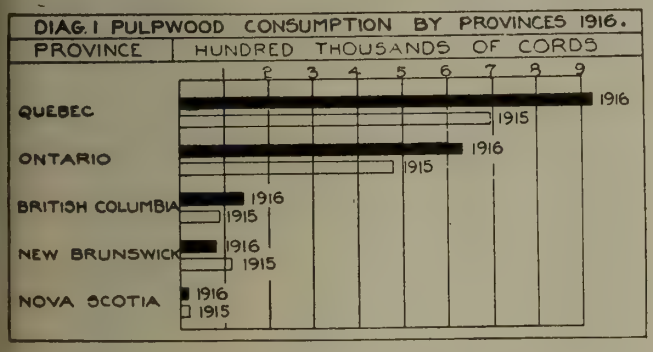
Year.	Total Consumption.	Total Value.
1908	482,777 Cords	$ 2,931,653
1909	622,129 "	3,464,080
1910	598,487 "	3,585,154
1911	572,288 "	4,338,024
1912	866,042 "	5,215,582
1913	1,109,034 "	7,243,368
1914	1,224,376 "	8,089,868
1915	1,405,836 "	9,426,217
1916	1,764,912 "	13,104,458

Of the five provinces engaged in this industry three greatly increased their production, and two fell behind last year. Those which increased in production were Quebec, Ontario, and British Columbia, and those which showed decreases were New Brunswick and Nova Scotia. This change brings British Columbia back into third place, which it occupied in 1914.

The Canadian pulp mills in 1916 consumed for the manufacture of pulp in Canada 1,764,912 cords, valued at $13,104,458; while 1,068,207 cords, valued at $6,866,669 were exported, making a total production of 2,833,119 cords, valued at $19,971,127. This represents an increase of 25.5 per cent. in pulpwood production and 28.1 per cent. in total value, as compared with 1915.

Table 1.—Pulpwood 1915 and 1916 by Provinces.

Provinces.	No. of Firms Reporting.	Quantity. 1915. Cords.	Quantity. 1916. Cords.	Per cent Distribution. 1916.	Total value. 1916. $	Average value per cord. 1915. $ cts.	Average value per cord. 1916. $ cts.
Total, All Provinces	49	1,405,836	1,764,912	100.0	13,104,458	6 71	7 42
Quebec	23	697,962	924,272	52.4	6,840,489	6 06	7 40
Ontario	15	480,627	637,612	36.1	5,016,425	7 92	7 87
British Columbia	2	90,535	108,997	6.2	579,799	6 08	5 32
New Brunswick	4	115,842	79,594	4.5	591,705	6 32	7 43
Nova Scotia	5	20,870	14,437	0.8	76,040	4 75	5 27



This great increase is due to the tremendous demand for pulp and paper caused by the war conditions of the preceding two years.

The average value of pulpwood at the mill increased 71 cents per cord, over that of 1915. All the provinces show increases in the value of pulpwood except Ontario and British Columbia.

As in the past spruce heads the list of the different kinds of wood used with 68.2 per cent of the total; followed by balsam fir with 24.5 per cent. This represents a gain of about 2½ per cent in balsam fir and almost a corresponding decrease in spruce. Each of the remaining woods, hemlock, jack pine and poplar forms less than five per cent of the total.

Table 2.—Pulpwood 1915 and 1916 by Kinds of Wood.

Kinds of Wood.	No. of Firms Reporting.	Quantity. 1915. Cords.	Quantity. 1916. Cords.	Per cent Distribution. 1916.	Total value. 1916. $	Average value per cord. 1915. $ cts.	Average value per cord. 1916. $ cts.
Total	49	1,405,836	1,764,912	100.0	13,104,458	6 71	7 42
Spruce	49	998,156	1,203,557	68.2	9,219,414	7 07	7 66
Balsam Fir	35	307,219	433,154	24.5	3,167,311	5 84	7 31
Hemlock	4	55,265	82,307	4.7	483,633	5 89	5 88
Jack Pine	4	41,953	39,717	2.3	192,405	5 37	4 84
Poplar	6	3,243	6,177	0.3	41,695	6 94	6 75

Table 3.—Pulpwood 1915 and 1916 by Processes.

Processes.	No. of Firms Reporting.	Quantity. 1915. Cords.	Quantity. 1916. Cords.	Per cent Distribution. 1916.	Total value. 1916. $	Average value per cord. 1915. $ cts.	Average value per cord. 1916. $ cts.
Total	49	1,405,836	1,764,912	100.0	13,104,458	6 71	7 42
Mechanical	39	743,776	827,258	46.9	6,316,007	6 48	7 63
Sulphite	16	470,949	727,945	41.3	5,510,517	7 20	7 57
Sulphate	5	184,811	201,954	11.4	1,221,168	6 11	6 05
Soda	1	6,300	7,755	0.4	56,766	6 77	7 32

In regard to the process by which the wood is converted into pulp it is to be noted that while the mechanical, or ground-wood, process was the single process most largely used, the three chemical processes, for the first time in Canada, together consumed more wood than the mechanical, the totals being: chemical processes 937,654 cords, and mechanical process 827,258 cords. While a slight increase was made by the soda process and a considerable increase by the sulphate process, the notable change during the year was the increase made by the sulphite process from 470,949 cords in 1915 to 727,945 cords in 1916. An increased quantity of wood was converted into pulp by each of the four processes.

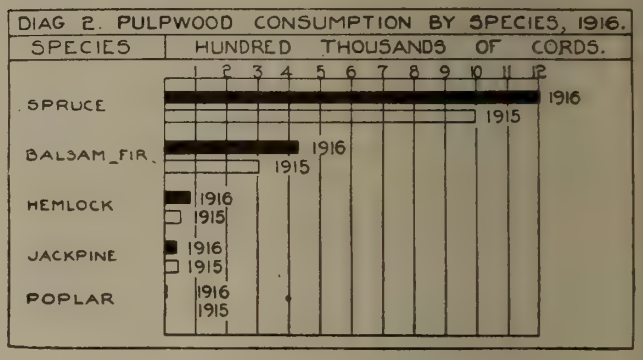


Table 4—Pulpwood 1916 by Provinces, Kinds of Wood and Processes.

	Total Quantity. Tons.	Total cost.	Average cost.	Mechanical. Tons.	Sulphite. Tons.	Sulphate. Tons.	Soda. Tons.
Pulp Produced	1,296,084	.....	.....	827,258	363,972	100,977	3,877
Quebec	686,604	.....	.....	448,938	142,880	90,909	3,877
Ontario	473,014	.....	.....	308,416	154,530	10,068	.....
British Columbia	78,655	.....	.....	48,313	30,342	.....	.....
New Brunswick	43,374	.....	.....	7,154	36,220	.....	.....
Nova Scotia	14,437	.....	.....	14,437	.....	.....	.....
	Cords.	$	$ cts.	Cords.	Cords.	Cords.	Cords.
Wood Used (Total, all kinds)	1,764,912	13,104,458	7 42	827,258	727,945	201,954	7,755
Quebec	924,272	6,840,489	7 40	448,938	285,761	181,818	7,755
Ontario	637,612	5,016,425	7 87	308,416	309,060	20,136	.....
British Columbia	108,997	579,799	5 32	48,313	60,684	.....	.....
New Brunswick	79,594	591,705	7 43	7,154	72,440	.....	.....
Nova Scotia	14,437	76,040	5 27	14,437	.....	.....	.....
Spruce	1,203,557	9,219,414	7 66	597,735	476,253	127,366	2,203
Quebec	564,083	4,246,614	7 53	287,629	151,919	122,332	2,203
Ontario	528,165	4,209,657	7 97	266,177	256,954	5,034	.....
British Columbia	33,433	199,841	5 98	24,809	8,624	.....	.....
New Brunswick	63,489	487,537	7 68	4,733	58,756	.....	.....
Nova Scotia	14,387	75,765	5 27	14,387	.....	.....	.....
Balsam Fir	433,154	3,167,311	7 31	193,831	198,856	39,067	1,400
Quebec	331,307	2,427,382	7 33	159,245	131,595	39,067	1,400
Ontario	77,121	592,486	7 68	32,115	45,006	.....	.....
British Columbia	8,571	43,000	5 02	.....	8,571	.....	.....
New Brunswick	16,105	104,168	6 47	2,421	13,684	.....	.....
Nova Scotia	50	275	5 50	50	.....	.....	.....
Hemlock	82,307	483,633	5 88	30,460	50,589	.....	1,258
Quebec	1,258	6,605	5 25	.....	.....	.....	1,258
Ontario	15,520	147,440	9 50	8,420	7,100	.....	.....
British Columbia	65,529	329,588	5 03	22,040	43,489	.....	.....
Jack Pine	39,717	192,405	4 84	2,064	2,132	35,521	.....
Quebec	24,615	139,548	5 67	2,064	2,132	20,419	.....
Ontario	15,102	52,857	3 50	.....	.....	15,102	.....
Poplar	6,177	41,695	6 75	3,168	115	.....	2,894
Quebec	3,009	20,340	6 76	.....	115	.....	2,894
Ontario	1,704	13,985	8 21	1,704	.....	.....	.....
British Columbia	1,464	7,370	5 03	1,464	.....	.....	.....

Approximately 1,296,084 tons of air-dry pulp were made in Canada in 1916. This is on the basis that one cord of wood produces one ton of ground-wood pulp or one-half ton of chemical fibre. This is a total increase of 20.6 per cent. over 1915. The increases shown by the different processes were: ground-wood pulp, 11.2 per cent.; sulphite process, 54.6 per cent.; sulphate process, 9.3 per cent.; and soda process, 23.1 per cent.

Spruce and balsam fir are used in all provinces and in all processes. Hemlock and poplar are not reported from New Brunswick and Nova Scotia. Jack pine was used only in Ontario and Quebec, and most of it was used in the sulphate process.

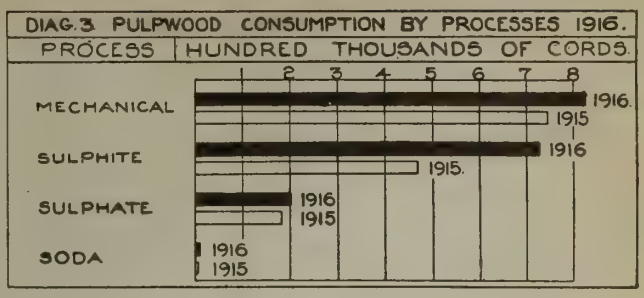
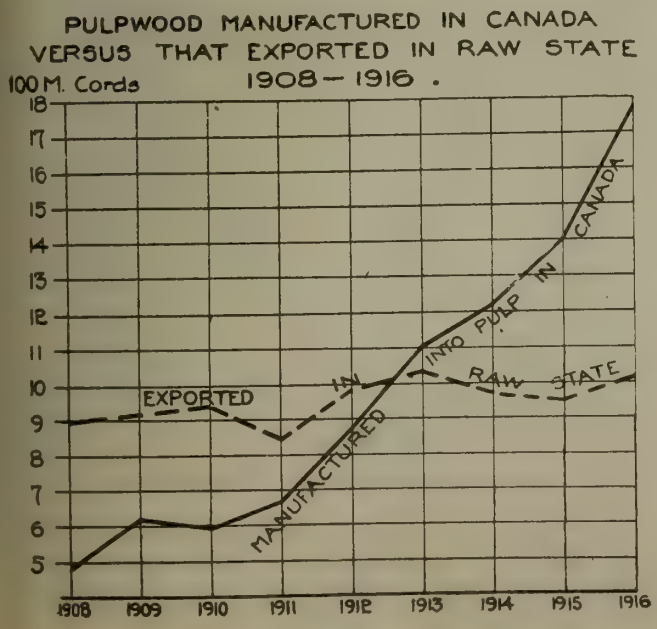


Table 5.—Canadian Pulpwood Exported Unmanufactured vs. That Manufactured in Canada, 1915 and 1916[1]

	1915.				1916.			
	Quantity.	Value	Value per cord.	Per cent. Dist.	Quantity.	Value.	Value per cord.	Per cent. Dist.
	Cords.	$	$ cts.		Cords.	$	$ cts.	
Total, all Provinces.								
Production	2,355,550	15,590,330	6 62	100.0	2,833,119	19,971,127	7 05	100.0
Manufacture	1,405,836	9,426,217	6 71	59.7	1,764,912	13,104,458	7 42	62.3
Export	949,714	6,164,113	6 49	40.3	1,068,207	6,866,669	6 43	37.7
Quebec—								
Production	1,322,231	8,348,525	6 31	100.0	1,711,151	12,037,603	7 03	100.0
Manufacture	697,962	4,237,033	6 06	52.8	924,272	6,840,489	7 40	54.0
Export	624,269	4,111,492	6 59	47.2	786,879	5,197,114	6 60	46.0
Ontario—								
Production	682,866	5,063,618	7 42	100.0	787,357	5,931,450	7 53	100.0
Manufacture	480,627	3,806,804	7 92	70.4	637,612	5,016,425	7 87	81.0
Export	202,239	1,256,814	6 21	29.6	149,745	915,025	6 11	19.0
New Brunswick—								
Production	235,738	1,503,346	6 38	100.0	207,324	1,317,998	6 36	100.0
Manufacture	115,842	732,521	6 32	49.1	79,594	591,705	7 43	38.4
Export	119,896	770,825	6 43	50.9	127,730	726,293	5 69	61.6
British Columbia—								
Production	90,535	550,809	6 08	100.0	109,115	580,153	5 32	100.0
Manufacture	90,535	550,809	6 08	100.0	108,997	579,799	5 32	99.9
Export	.....	.....	....	.....	118	354	3 00	0.1
Nova Scotia—								
Production	24,180	124,032	5 13	100.0	18,172	103,923	5 72	100.0
Manufacture	20,870	99,050	4 75	86.3	14,437	76,040	5 27	79.4
Export	3,310	24,982	7 55	13.7	3,735	27,883	7 47	20.6

[1] The figures of pulpwood exports were furnished by the Department of Customs.



The quantity of pulpwood manufactured into pulp in Canada has been steadily gaining on the amount of wood exported to other countries in the unmanufactured state. In 1908, 482,777 cords were manufactured into pulp in Canada, and 794,896 cords were exported in the raw state. In 1912 the figures were: manufactured in Canada, 866,042; exported in the raw state, 980,868. The dividing line was crossed in the year 1913, since which time the quantity manufactured in Canada has exceeded that exported. In 1915, 1,405,836 cords were manufactured in Canada, and 949,714 were exported in the raw state. In 1916 these figures had risen to: manufactured in Canada, 1,764,912 cords; exported in the raw state 1,068,207 cords, showing that 696,705 cords more were manufactured into pulp in Canada than were exported in the raw state to be manufactured abroad.

WOOD-PULP.

Table 6.—Exports of Wood-Pulp, 1915 and 1916

Kinds of Pulp and Countries to which Exported.	1915. Quantity. Tons.	1915. Value. $	1915. Average Value per ton. $ cts.	1915. Per Cent. Dist.	1916. Quantity. Tons.	1916. Value. $	1916. Average Value per ton. $ cts.	1916. Per Cent. Dist.
Wood-pulp exported aggregate	364,170	9,279,414	25 48	100.0	558,899	17,344,242	31 03	100.0
Total Mechanical Pulp	206,701	3,239,599	15 67	56.8	329,752	5,649,365	17 13	59.0
Total Chemical Pulp	157,469	6,039,815	38 36	43 2	229,147	11,694,877	51 04	41.0
Total to United States	318,498	8,357,747	26 24	87.5	466,761	14,275,185	30 58	83.5
Mechanical	170,804	2,679,274	15 69	.....	270,179	4,741,526	17 55	.....
Chemical	147,694	5,678,473	38 45	.....	196,582	9,533,659	48 50	.....
Total to Great Britain	18,488	324,032	17 53	5.1	51,072	2,666,585	44 38	9.1
Mechanical	17,537	287,255	16 38	.....	25,955	401,468	15 47	.....
Chemical	951	36,777	38 67	.....	25,117	1,865,117	74 26	.....
Total to France (all mechanical)	18,335	272,700	14 87	5.0	31,821	473,190	14 87	5.7
Total to Japan (all chemical)	8,666	317,842	36 68	2.4	7,039	274,485	38 99	1.3
Total to Spain (all mechanical)	.....	.....	.....	.....	1,737	32,200	18 54	0.3
Total to China (all chemical)	112	4,243	37 88	*	324	15,230	47 01	0.1
Total to Australia (all chemical)	35	2,094	59 83	*	85	6,386	75 13	*
Total to Mexico (all mechanical)	.....	.....	.....	.....	60	981	16 35	*
Total to Cuba (all mechanical)	25	370	14 80	*	.....	.....	.....	.....
Total to New Zealand (all chemical)	11	386	35 09	*	.....	.....	.....	.....

* Less than one-tenth of 1 per cent.

[1]The figures of wood-pulp exports furnished by the Department of Customs.

The exports of wood-pulp from Canada show alternate increases and decreases practically every year from 1909 to 1916. The total export in 1915 decreased 14.3 per cent., while in 1916 it showed the remarkable increase of 53.4 per cent. The exports to the United States show a gain of 148,263 tons. Exports to Great Britain increased from 18,488 tons to 51,072 tons, and to France from 18,335 tons to 31,821 tons. There was not much change in the business to other countries except that Spain, which was not an importer of Canadian pulp in 1915, took 1,737 tons in 1916.

The alternate rise and fall of wood-pulp exports is shown in the following figures:

Wood-Pulp Exported—1908-1916.

Year.	Tons.	Value.
1908	239,805	$ 4,070,928
1909	280,744	4,898,842
1910	328,977	5,694,896
1911	259,514	4,902,862
1912	348,100	5,952,361
1913	298,169	5,913,560
1914	424,883	8,865,436
1915	364,170	9,279,414
1916	558,899	17,344,342

Table 7.—Imports of Wood-Pulp, 1915 and 1916[1].

Countries from which imported.	1915. Value.	1915. Per Cent. Distribution.	1916. Value.	1916. Per Cent. Distribution.
Total Value of Imports	423,331	100.0	552,002	100.0
United States	316,843	74.8	552,002	100.0
Sweden	105,743	25.0	.....	.....
Great Britain	745	0.2	.....	.....

[1] Figures furnished by the Department of Customs.

The imports of wood-pulp into Canada increased from $423,331 worth in 1915 to $552,002 in 1916. All this pulp came from the United States, from which country the importation increased by 74.2 per cent. There were no imports from Sweden in 1916, from which over 100,000 tons came in 1915 nor from Great Britain, which sent 745 tons in the same year.

APPENDIX.

List of Active Canadian Pulp-Mills.

The following is a list of firms operating pulp-mills in Canada in 1916 to whom the Forestry Branch is indebted for the data on which this bulletin is compiled:

British Columbia.

British Columbia Sulphite Fibre Co., Ltd., Mill Creek, Howe Sound—Sulphite Fibre.

Powell River Co., Ltd., Powell River—Ground-wood Pulp and Sulphite Fibre.

New Brunswick.

Bathurst Lumber Co., Ltd., Bathurst—Sulphite Fibre.

Dominion Pulp Co., Ltd., Chatham—Sulphite Fibre.

Nashwaak Pulp and Paper Co., St. John—Sulphite Fibre.

St. George Pulp and Paper Co., Ltd., St. George—Ground-wood Pulp.

Nova Scotia.

Campbell Lumber Co., Ltd., Weymouth— Ground-wood Pulp.

Clyde River Pulp and Paper Co., Ltd., Clyde River —Ground-wood Pulp.

La Have Pulp Co., Ltd., Bridgewater—Ground-wood Pulp.

Macleod Pulp Co., Liverpool—Ground-wood Pulp.

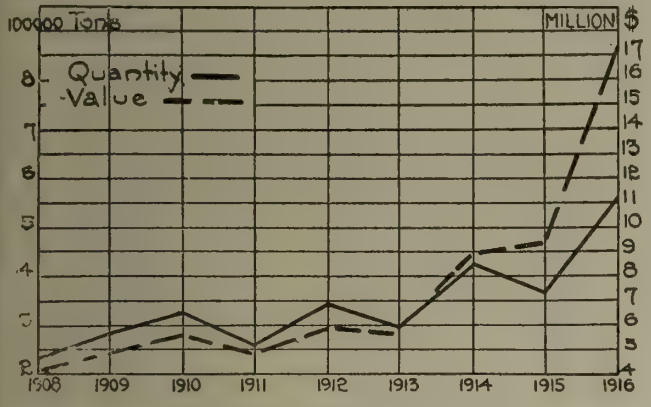
Medway Pulp and Power Co., Charleston—Ground-wood Pulp.

Ontario.

Abitibi Power and Paper Co., Ltd., Iroquois Falls —Ground-wood Pulp and Sulphite Fibre.

Beaver Wood Fibre Co., Ltd., Thorold—Ground-wood Pulp.

Diagram Showing Quantity and Value of Wood-Pulp Exports 1908-1916.



Booth, J. R., Ottawa—Ground-wood Pulp and Sulphite Fibre.

Bronson Company, Ottawa—Ground-wood Pulp.

Canada Box-board Co., Ltd., Frankford (formerly Trent River Power Co., office 182 Shearer St., Montreal)—Ground-wood Pulp.

Dryden Timber and Power Co., Ltd., Dryden—Sulphate Fibre.

Foley-Rieger Pulp and Paper Co., Ltd., Thorold — Ground-wood Pulp.

Fort Frances Pulp and Paper Co., Fort Frances—Ground-wood Pulp.

Lake Superior Paper Co., Ltd., Sault Ste. Marie—Ground-wood Pulp and Sulphite Fibre.

Northumberland Pulp Co., Ltd., Campbellford — Ground-wood Pulp.

Ontario Paper Co., Ltd., Thorold —Ground-wood Pulp.

Riordon Pulp and Paper Co., Ltd., Hawkesbury and Merritton (office Beaver Hall Square, Montreal)—Sulphite Fibre.

Spanish River Pulp and Paper Mills, Ltd., Sturgeon Falls and Espanola (office Sault Ste. Marie)—Ground-wood Pulp and Sulphite Fibre.

Thorold Pulp Co., Ltd., Thorold—Ground-wood Pulp.

Toronto Paper Manufacturing Co., Ltd., Cornwall —Sulphite Fibre.

Quebec.

Belgo-Canadian Pulp and Paper Co., Ltd., Shawinigan Falls—Ground-wood Pulp and Sulphite Fibre.

Brompton Pulp and Paper Co., Ltd., Bromptonville and East Angus—Ground-wood Pulp and Sulphite Fibre.

Brown Corporation, La Tuque—Sulphate Fibre.

Canada Paper Co., Ltd., Windsor Mills — Ground-wood Pulp and Soda Fibre.

Chicoutimi Pulp Co., Chicoutimi and Ouiatchouan Falls—Ground-wood Pulp.

Dominion Paper Co., Kingsey Falls (office, Montreal)—Ground-wood Pulp and Sulphate Fibre.

Donnacona Paper Co., Ltd., Donnacona—Ground-wood Pulp and Sulphite Fibre.

Eddy, E. B., & Co., Ltd., Hull—Ground-wood Pulp and Sulphite Fibre.

Gulf Pulp and Paper Co., Clarke City—Ground-wood Pulp.

Maclaren, James Co., Ltd., Buckingham — Ground-wood Pulp.

Lake Megantic Pulp Co., Lake Megantic —Ground-wood Pulp.

Laurentide Co., Ltd., Grand' Mere —Ground-wood Pulp and Sulphite Fibre.

Lotbiniere Lumber Co., Nicolet Falls—Ground-wood Pulp.

Nairn Falls Power and Pulp Co., Murray Bay — Ground-wood Pulp.

News Pulp and Paper Co., Ltd., St. Raymond—Ground-wood Pulp.

Price Bros., and Co., Ltd., Kenogami and Jonquiere —Ground-wood Pulp and Sulphite Fibre.

Price-Porritt Pulp and Paper Co., Rimouski — Ground-wood Pulp.

River du Loup Pulp Co., Ltd., Fraserville—Ground-wood Pulp.

Soucy, Florentin, Old Lake Road—Ground-wood Pulp.

St. Lawrence Pulp and Lumber Corporation, Chandler (office Chicoutimi)—Sulphite Fibre.

St. Maurice Paper Co., Ltd., Cap Madeleine — Ground-wood Pulp.

Wayagamack Pulp and Paper Co., Ltd., Three Rivers—Sulphate Fibre.

Wilson, J. C., Ltd., St. Jerome—Ground-wood Pulp.

Note: Some new mills and additional production has occurred since this bulletin was compiled.

REPORT OF NORTH AMERICAN PAPER CO.

The North American Pulp & Paper Company's report for the six months ended June 30 shows total earnings available for bonds, other interest and sinking fund of $632,106, so that after deductions of this requirement there remains a balance of $262,510.

An official of the company states that as operations were curtailed for the first two months of the year owing to climatic conditions, earnings for the current six months should show some improvement over the first half.

This would make net earnings after all charges for the current year over $500,000 as compared with a deficit of over $200,000 for 1916.

BOOK REVIEW.

Graphic Methods for Presenting Facts. By Willard C. Brinton. Pages XII and 371, with 255 illustrations. Published by the Engineering Magazine Co. (Industrial Management) New York, 1914. Price, $4.00.

In this carefully written book, Mr. Brinton has presented information collected from a study of the methods and systems tried out and found satisfactory by the best organized industries in the country. The scope is broad and covers the various phases of the field in such a manner that the individual can readily apply to his own business, the principles described and the methods explained. It is a book that should be carefully read by at least one responsible official in every firm that wishes to keep its data available in intelligible form.

The chapter headings are: Component Parts; Simple Comparisons; Time Charts; Curve Plotting; Comparison of Curves; Component Parts Shown by Curves; Cumulative or Mass Curves; Frequency Curves, Correlation; Map Presentations; Maps and Pins; Curves and Records for the Executive; Corporation Financial Reports; General Methods; A Few Cautions.

The following lines will indicate a few of the points that appealed to the reviewer.

For simple comparisons, bars may be used if drawn to scale. Pertinent figures should be given.

Comparatively few people can read curves. An understanding of how to plot and to read curves should be part of the equipment of every business man, just as it is of every engineer and statistician.

A curve permits of finer interpretation than any other known method of presenting figures for analysis.

The author explains how to plot, the choosing of paper, of space intervals, etc. Illustrations of good and of bad practice in plotting are given. The ruling and use of logarithm paper is explained, with examples the same data plotted on this and on ordinary paper.

A misleading chart may result from the use of different base or zero lines.

In a cumulative curve, the slope of the line shows rate of production. A fine interpretation is given of a production curve, drawn to meet an estimated demand, and how the factory responded.

It is interesting to note the relation of wages curves and continuity of employment.

Correlation curves, plotted on the same sheet are helpful in perceiving relations between factors. Comparisons made in this way may show important discrepancies.

In discussing map presentations, the author points out chances for giving erroneous impressions. Copyrights should be considered in reproducing maps.

The map and pin system has great possibilities. Ordinary tacks are condemned. A firm, soft backing for the map, like cork or strawboard is important. Twenty-four kinds of satisfactory pins are described. By using correct colors of pins, the map or chart can be photographed. This makes possible a record of periodical development. The author might have given some attention to the use of the pin system in following material through the factory or keeping track of shipments en route by rail or boat or on order, but readers will see opportunities to apply the principles and examples given.

In plotting curves it is much better to use slanting lines and peak tops than steps with flat tops.

Curves and records for the executive are given very full treatment, covering production, wages, sales, costs, etc. Directions showing how curves are plotted and what they represent should be filed.

Probably ninety percent of the answers "yes" and "no" given by a business man are based on opinion rather than on fact. Proper files of records and curves reduce guessing to knowing. Reflecting lanterns can be used at directors' meetings as soon as corporation directors know how to read curves.

Under General Methods the author calls attention to electric card sorters, the slide rule, and other helps. Fictitious accuracy is well discussed and there are some valuable cautions in regard to titles and other points relating to curves.

WOOD WANTED IN WATERTOWN, N.Y.

Labor and traffic conditions are working together to bring about disastrous conditions for the paper manufacturing trade in this section. Inability to get pulp wood or to make certain provision for a supply for next year has brought forth a confession from local manufacturers that they see the writing on the wall. The paper manufacturing business must halt, and after that the publishers must hesitate.

Conditions continue to become worse. In Canada they are demanding $21 a cord for pulp wood. That would not be so bad if the paper manufacturers could devise a means of transportation. They can't get rolling stock. There are simply no cars available. Then the labor shortage with high prices is seriously felt across the border as well as on this side. Men can't be obtained to cut the wood, and at least one concern with its own tract in the Adirondacks is unable to get lumber jacks for the 1918 supply.

One large paper manufacturing concern in this section has employed a man for some time to do nothing but search for cars in Canada to carry pulp wood. He has only been able to keep the mill going with no surplus. Any kind of a car is acceptable, even wood pulp being shipped in open wood cars, and coal cars being used. There are no extra boats available either.

An official of a large lumber concern in Canada was here and said that the price of pulp wood is bound to go much higher, for the labor and car situation is sure to get worse.

LINK-BELT MACHINERY.

The Pulp and Paper Magazine is in receipt of Link-Belt booklets describing locomotive cranes and link belts. The former is an interesting picture book, showing various sizes and types of cranes and illustrating their use in a number of industries. Our attention was particularly drawn to this "de luxe" method of handling pulpwood and for unloading coal where a trestle is impracticable. The latter book shows some of the operations in making the links and sprockets, illustrates various types of conveyors and portrays a number of representative installations. Tables of dimensions, strength and price are given.

These booklets, numbered 290 and 260-c, respectively, will be sent on application to the Link-Belt Co. or the Canadian Link-Belt Co.

Mr. W. J. Patton, Superintendent at the Price-Porritt Pulp and Paper Co., at Rimouski, is leaving to spend his vacation at Sherbrooke and Montreal, visiting relatives and friends. While en route it is his intentions to stop off at the several pulp and paper districts to look over the plants.

Automatic Pulp Stock Regulator

A new and useful improvement in automatic means for regulating pulp stock has just been patented by Thomas Warner, of Oregon City, Ore., which is described by the inventor as follows:

This invention relates to improvements in pulp stock or stuff regulators whereby the consistency or density of the stock is kept uniform, and while I have described an apparatus which is adapted to insure an even flow of uniform stock to a paper machine so that a paper varying but slightly in weight and texture may be produced, the utility of the device has a much wider scope and can be used to equalize or control the density of the pulp as it comes from the pulp mill or the sulfite mill, or from the mixing tanks where the tank system is in use. In the application of the various types of stuff regulators to a paper machine, the efforts of inventors have been mainly directed toward an automatic stuff gate control in the machine stuff box,

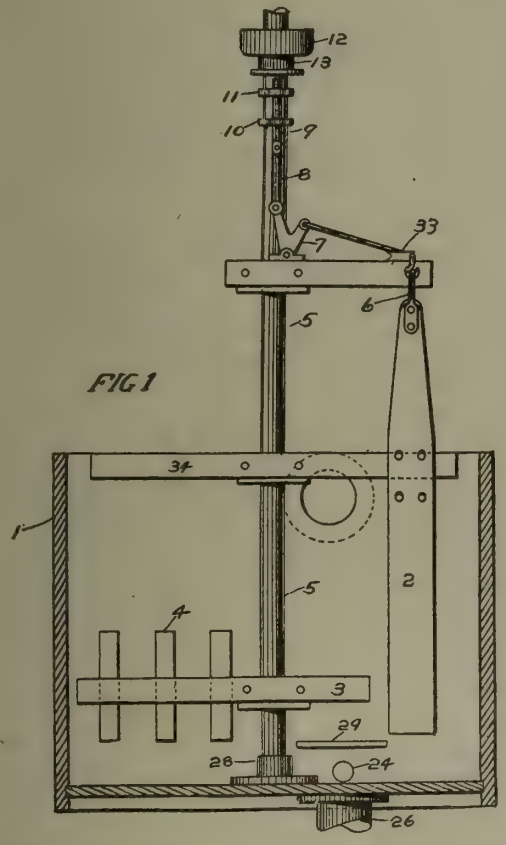


FIG 1

regulating by means of an adjustable gate or slide the amount of stock that issues from the box. My device, however, relates more particularly to obtaining a uniform stock before it reaches the machine stuff box, rather than an apparatus to control the flow of the stuff from the box to the machine—it does not attempt to regulate the flow so much as the consistency of the stock itself.

Referring to the drawings:

Figure 1 is a side elevation of my equalizer showing the agitator tank 1 in section;

Figure 2 is also a side elevation at right angles to Fig. 1, and showing details of the driving mechanism;

Fig. 3 is plan view and Fig. 4 shows in detail the mechanism operating the slide 30 in water control box 20;

Fig. 5 is top view of sliding spool 12, showing split collar 13.

In describing the operation of my apparatus I have assumed that it is to be used in controlling the consistency of the pulp stock delivered to a paper machine. I place the tank 1, Figs. 1 and 2, between the stuff chest and the machien stuff box. Probably it is situated in the machine room with its overflow at an elevation higher than the machine stuff box, so that the stock will flow by gravity from the equalizer tank to the stuff box. The stock is pumped from the stuff chest to the bottom of the equalizer tank through pipe 26 and water is admitted at the same time through pipe 24, the mingled mass of pulp and water striking a baffle plate 29 that prevents the stock from spurting up into the middle of the tank and tends to spread the flow of stock evenly on the bottom of the tank. As the pulp rises in the tank it engages the agitator arms 4 and the paddle 2. This paddle is hinged at 25 on the arm 34, which is attached to shaft 5. Its upper end is attached by cable 6 to bell crank 7 mounted on arm 35, which, like arm 34, is firmly affixed by shaft 5. A spring 19 tends to push the upper end of paddle 2 away from arm 34. The cable passes around

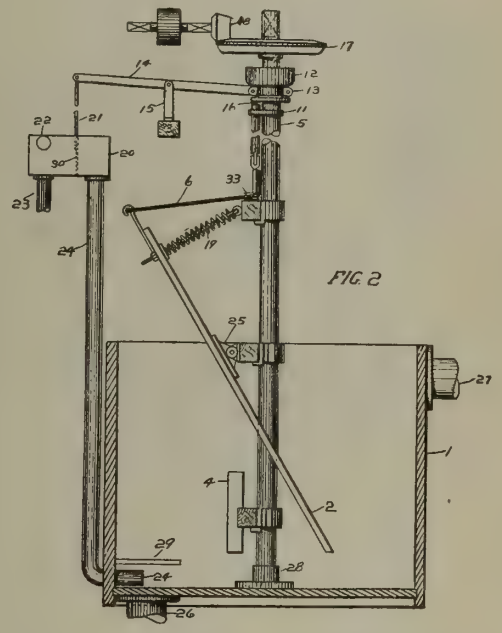
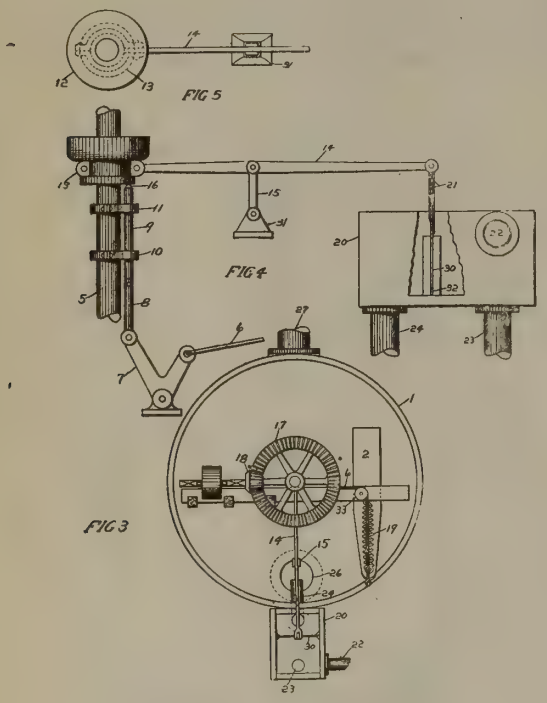


FIG 2

a sheave 33 at outer end of arm 35. Rods and angle crank could, of course, be substituted for cable 6 but best results have been obtained with a cable as described. Attached to bell crank 7, Figs. 4 and 5, are jointed rods, 8 and 9, extending upward vertically and parallel with shaft 5, passing through guides 10 and 11. On the top of rod 9 is a socket and ball 16, which latter engages the underside of spool 12. A split collar 13 fits a groove in spool 12 and is attached to a lever 14, supported by fulcrum block 31 and arm 15. At its outer end is attached an arm 21, to which is affixed a vertical slide 30, dividing water box 20 into two sections. This water box 20 has its intake 22 and outlet 23 on one side of the slide 30 and a bottom outlet 24 on the other side. Outlet 24, Fig. 2, connects with the bottom of tank 1 as shown, just at the stock inlet. Outlet 23 runs to the pit under the wire of the paper machine. Both pipes 22 and 23 are provided with valves so that the flow through each may be regulated. Power is applied by means of the bevel

gears 17 and 18, rotating the shaft 5 about seven revolutions per minute. Agitator arms 4, paddle 2, arms 34 and 35, spring 19, rods 8 and 9, all swing around with the shaft 5. Spool 12 does not rotate, but is free to move vertically up and down on the central shaft 5. The apparatus is so adjusted that when there is but slightly pressure against the bottom end of paddle 2, the spring 19 will hold it out to its further extension; bell crank 7 and arms 8 and 9 will be held firmly in place so that the spool 12 is up as high as it will go and the slide 30 will be at its lowest position, closing up entirely the opening 32 between the two sections of water box 20, and thus preventing any water from flowing through pipe 24. Water is then flowing into the intake side of water box 20 and out through pipe 23, the flow being regulated to keep the box nearly full.

Stock that comes from the machine stuff chest varies greatly in consistency and as it gradually fills up the tank 1 and the paddle 2 swings through it, a pressure



will be brougnt to bear on the face of the paddle that is proportional to the density of the stock. If it is thin, the pressure will be light; if thick, the pressure will be heavier, varying directly with the specific gravity of the stock. The operation of the apparatus is based upon this phenomena. As the stock flows through pipe 26 and into the tank, pressure is exerted on paddle 2, and if the stock is heavier than desired, of too great a density, depending on the adjustment of the apparatus, the spring will be compressed, the tension will thereby be lessened on cable 6 and the bell crank 7 will be free to respond to any weight on the rods 8 and 9, gravity will cause spool 12 to slide downward on shaft 5, lever 14 will raise the sliding gate 30 in the water box 20 and water will flow through opening 32, Fig. 4, and thence down pipe 24, and thin the too heavy stock in tank 1. When enough water has been admitted to bring the stock to the right degree of consistency, less pressure will be exerted on paddle 2, the compression in spring 19 will tend to overcome the pressure against the paddle, cable 6 will be pulled taut, bringing rods 8 and 9 into elevated position, raising the spool 12 and thus sliding gate 30 will be lowered cutting off somewhat the flow of water through pipe 24. In practice it is well to have some water flowing through pipe 24 and into the stock in the equalizer tank, for almost always the stock comes from the stuff chest of too heavy a consistency and needs thinning. It will take some experimenting to get just the right adjustment for the spring, area of paddle, etc., for the weight of paper desired, but with all the adjustments made, this equalizer will hold the pulp to the correct consistency and a steady flow of uniform stock will pass through pipe 27 to the machine stuff box. It is an easy matter then to set the stuff box gate to regulate the flow of stock to the machine to get the desired weight of sheet required. Thus it will be seen that the stock is fed to the machine stuff box of uniform consistency and that the object of the invention is rather to equalize the stock than to regulate its flow to the machine. This consideration suggests other valuable uses. Stock from a pulp mill will vary greatly in density, making it difficult for the paper machine tenders to run the sheet to weight when stock is being used directly from the ground wood and sulfite mills. By the use of this equalizer, the stock from the pulp mills can be made of uniform consistency before sending it to the paper mill, a result long desired and whose benefit can hardly be overestimated.

TIMBER LIMITS SOLD FOR PULP.

A large auction sale of Quebec timber limits took place last week. It was quite a success, the sale having brought into the Provincial Treasury a sum of $380,000, besides the ground rent which is payable now. About 800 square miles were sold at an average price of $440 a mile. This exceeds by $100 the largest average yet obtained. The biggest sum paid for a square mile, was paid by the St. Maurice Paper Co., who paid $1,000 a mile for limits situated near River Assomption, in the lower Ottawa agency. The Laurentide Paper Co., bought 100 miles at $710 a mile, 50 miles at $410 and 50 miles at $310, in the St. Maurice agency. McDonald and O'Brien bought 50 miles at $510 and 100 miles at $375.

The Chicoutimi Pulp Co., bought large limits in Lake St. John at prices varying from $405 to $510. Other purchasers were the Belgo-Canadian Co., the Port aux Quilles Lumber Co., William Power, H. Petit, Auger and Son, and Louis Goulet.

About 5,000 miles were offered at this sale and more than 4,000 were withdrawn, no bid being offered over the minimum price.

The price of adjudication is payable in three equal instalments, the first cash, the second in twelve months, and the last in two years, with interest at the rate of 6 per cent per annum.

The ground rent for 1917-18 is payable in advance.

The permit to cut will be subject to the laws and regulations now in force, or to be enacted in future and also on the following condition:

The grantees of the aforesaid territory must within a delay of three years, manufacture annually in the Province of Quebec, with the timber cut in this tertory, either pulp or paper, the proportion of ten tons per day, or sawn timber in the proportion of ten thousand feet, hard measure, per day, per hundred square miles.

Technical Men Assured of Beautiful Trip

The region to be visited by the members of the Technical Association of the Pulp and Paper Industry on the occasion of the Fall Meeting in September is famous both for its scenic beauty and its fine paper mills. With Holyoke as the starting point in the southeastern part of the State of Massachusetts, it is planned to take the members in automobiles for visits to mills situated in the beautiful Berkshire hills of western Massachusetts, the route being over the famous "Jacob's Ladder" of the State highway system, a region of unrivaled beauty. In his guidebook, Baedeker declares that "for gentle loveliness of a hill country, as contrasted with a mountain country, it is unsurpassed in the United States and has few rivals elsewhere." If time permits mills will be visited at Westfield, Russell, Huntingdon, Lee, Dalton, Adams and Housatonic, cordial invitations having been extended to the members by Crane Brothers, the Smith Paper Company, Crane & Company, Byron-Weston Company, L. L. Brown Paper Company and B. D. Rising Paper Company. It is a foregone conclusion that few will be willing to miss seeing this beautiful section of New England.

Convention Opens Thursday, September 27

The Convention will open in the Knights of Columbus Hall, Holyoke, on Thursday morning, September 27, and continue three days. The headquarters of the association will be the Hotel Nonotuck, Holyoke, and requests for room reservations may be made to the chairman of the hotel committee, Raymond S. Hatch, care of the Crocker-McElwain Company, Holyoke, Mass. It is suggested that in making out applications members give some idea of the priced room preferred.

Transportation.

Members in the West can make connections for Holyoke by fast trains over the Michigan Central Railroad carrying sleepers without change to Springfield which is only a short distance away, the running time from Springfield to Holyoke being twenty minutes. Holyoke is on the Connecticut and Passumpic division of the Boston and Maine Railroad and trains leave the Grand Central Station, New York, at frequent intervals from 8 o'clock A.M., to 11.15 P.M., the journey taking a little less than four hours. Connections from Boston and the North can be made with equal frequency.

Holyoke, the Paper City.

Holyoke has been well named "The Paper City", from the number of its paper mills, papeterie plants and immense blank book establishments. The American Writing Paper Company alone has thirteen mills in operation manufacturing bonds, linen, linen ledger, cover and book papers. Other concerns engaged in the industry, and who will be the hosts of the association during three days of meeting, are the Chemical Paper Manufacturing Company, Crocker-McElwain Company, Franklin Paper Company, Parsons Paper Company, Valley Paper Company, Whiting Paper Company, and Mt. Holyoke Tissue Mills. South Hadley Falls lies across the river from Holyoke and is the home of the Carew Manufacturing Company and the Hampshire Paper Company, whose specialties are bonds and ledgers, and bond papers and papeterie respectively.

The environs of Holyoke offer many attractions. The principal recreation ground of the city is known as Mountain Park, being situated at the base of Mt. Tom. It contains something like 500 acres of natural allurement besides a Casino with a seating capacity of 2,500, a restaurant, pavillon, deer park, dance hall, merry-go-round, and similar attractions. An electric incline railroad carries visitors from Mountain Park to the Summit House on Mt. Tom, where the members and guests of the Technical Association will assemble for dinner on the evening of the second day of meeting.

New England's Fairest Scenery.

Those who have stood on the summit of Lookout Mountain in Tennessee, will know what to expect when they visit Mt. Tom in Massachusetts. Here is a bold, black mass of rock rising abruptly to a height exceeding 1,300 feet. The inclined track is a mile long and in some places seems to stand on end. As the car rises above the tree belt, a grand vista of New England's fairest scenery is exposed to view. Spires and roofs of toy towns catch the sun's rays, the soft sound of an engine whistle is wafted up as from an immeasurable distance, and a tiny train is seen crawling through the cultivated fields, over glinting streams and into patches of woodland.

The ascent is made in les than ten minutes. A few steps from the landing place is the Summit House, rising deck above deck like a white section of some Atlantic steamship. On the upper deck is a battery of huge telescopes waiting to reveal what the frail human eye cannot encompass. With their aid can be seen to the south the gold dome of Hartford's capitol. In the distant west is the steel tower on Greylock Mountain. Monadnock's Peak lies north, while over the east is the Wachuset's Mountain-reservation. A little closer are glimpses of the various college towns, the Arsenal tower at Springfield, the Suffield Institute, the water tower at Rutland, Vt. On and about, past towns, farms and forest, flows the placid Connecticut — the Indian "Long River" — furnishing picturesqueness to the scene, and likewise waterpower for unnumbered paper mills and other industrial plants.

An Outline of the Program.

An outline of the program for the first day's session was published in the preceding issue of the Pulp and Paper Magazine. After the official reception of the association by the mayor of Holyoke, reports of officers and committees will be read and discussed, followed by special papers, details of which will be given in the official program to be sent out a short time in advance of the meeting.

On Thursday evening at 7 o'clock, members and guests will attend a banquet at the Nonotuck Hotel of which addresses will be made by distinguished representatives of the paper industry, Hon. Arthur C. Hastings, president of the American Writing Paper Company, being toastmaster.

On Friday, visits are planned to the numerous paper mills of Holyoke and vicinity. Automobiles will be provided and will start from the Nonotuck Hotel at 9 A.M., returning at 12.30 P.M. for luncheon. More mills will be visited in the afternoon and at 4.30 P.M., the party will leave Holyoke by automobile and trolley cars for Mountain Park to make connection at 5 o'clock with the inclined railway for the Summit House on Mt. Tom where dinner will be served at 6 o'clock.

The Trip Through the Berkshires.

Early on Saturday morning automobiles will leave from in front of headquarters in Holyoke for visits to mills situated in the Western part of Massachusetts. The first stop will be at Woronoco for a visit to the mills of the Strathmore Paper Company.

Pittsfield will be reached at noon and the party will come together there at the Maplewood Hotel for luncheon. In pittsfield are the big shops of the E. D. Jones & Sons Company, makers of paper mill machinery, a firm that is represented in the Technical Association by one of the partners. It is also the home of the Eaton, Crane & Pike Company, papeterie manufacturers, who operate the largest high grade stationery plant in the world.

The program of visits as described in the opening paragraphs will then be carried out if time permits.

New England's Supremacy in Fine Papers.

The dry climate and clear atmosphere of New England, and the abundant springs and artesian wells, make it possible to produce fine papers of a quality such as can hardly be produced in other parts of the world. Dalton, where the Crane mills are located, is especially well adapted by climatic advantages as a location for the manufacture of hard, well sized paper, being at an altitude of between one and two thousand feet above the level of the sea, and having the purest of artesian well and spring water in abundance. The mills of the Byron-Weston Paper Company in Dalton are celebrated for the quality of the ledger papers made there. Byron Weston, who founded the industry was a veteran of the Civil War, and a Lieutenant-Governor of the State of Massachusetts.

Crane & Company's Government mill is in Coltsville, a suburb of Dalton. It is here that the paper for the currency of the United States is made—the bank bills that are put in circulation by the National Banks. Every sheet is counted by government experts from Washington. The silk threads are "inserted" in the paper by a special process.

The town of Lee where are located the mills of the Smith Paper Company, Mountain Mill Paper Company, The Eaton-Dikeman Company and the G. K. Baird division of the American Writing Paper Company, was at one time the largest paper centre in the United States and ceased to be so only after the enormous water-power development at Holyoke.

About four miles off the main road from Lee to Pittsfield, at Interlaken, is what is generally known as the first pulp mill in the country, but it has not been operated as such for a great many years.

The highway, over which the trip will be made, passes along the brook on which were once a great many mills; nothing of these now remains except ruins of old water-powers. On the way will be seen the H. C. Clark & Son Machine Company's plant, which has made paper mill machinery for upwards of a hundred years. One of the first, if not the first, paper machine built in the United States was made at this plant.

Between Lee and Pittsfield, the highway passes through the town of Lenox, known all over the world for its beautiful estates, a great many of which may be seen from the road.

Adams, on the Hoosac river, and at the base of Greylook mountain, the highest elevation in Massachusetts, is notable as the home of the L. L. Brown Paper Company, manufacturers of linen ledger and record paper, used for blank books, county and state records, merchant's and banker's ledgers, loose leaf systems and for all documents where superior wearing qualities are required. Arthur B. Daniels, treasurer and manager of the company, is the president of the American Paper and Pulp Association.

STEELE TO MANAGE EXPORT PAPER CO.

Mr. J. M. McCarthy, the President of the Canadian Export Paper Company, Limited, announces the appointment of Mr. G. F. Steele, formerly the Secretary of the News-Print Manufacturers' Association, as General Manager of the Canadian Export Paper Company, Limited. Mr. Steele will assume his new duties on September 1st next.

About a year ago some of the larger manufacturers of paper in Canada became strongly impressed with the view that the abnormal conditions brought about by the war in the world's trade and the absolute lack of any precedent to serve as a guide to the conditions which the manufacturers would be called upon to cope with upon the cessation of hostilities affecting trade conditions in practically every civilized country of the world called for the most careful study and co-operation. Many of the largest paper consuming sources of supply had been compelled to look elsewhere either for their manufactured paper or for their raw material. The increased demand for pulp and paper and the general rise in prices of all materials throughout the world, including wood and wood products, was, it was felt, likely to lead to a very considerable increase in the production of pulp, paper and other wood products throughout the Dominion in view of its available resources.

The best informed opinion in financial and manufacturing circles seemed to be that pending the readjustment of trade conditions consequent upon peace being declared a very wide-reaching disturbance was likely to be experienced. The doctrine of preparedness was being preached everywhere. After a general review of the situation it was felt that it could best be met by establishing connections as far as possible throughout all the world's markets which would be available to cope with any contingency which might arise. It was realized that preparation of this kind could not be undertaken and properly carried out by any individual manufacturer or by the manufacturers acting individually.

The Canadian Export Paper Company, Limited, was accordingly formed with a view to securing the co-operative support of as many of the manufacturers as cared to participate in the proposed campaign of market extension. Work has been going on quietly during the past year, but it has been realized that to ensure its success it would be necessary to secure the services of someone having a wider acquaintance with trade conditions in territories not hitherto touched by Canadian manufacturers.

Mr. Steele, by reason of his long association with the pulp and paper industry and his unequalled knowledge of market conditions throughout the world was obviously the man if his services could be secured. Negotiations have been pending for some time, with the result that Mr. Steele has now expressed his willingness to assume the responsibility, and arrangements have accordingly been made for the severance of his connection with the News-Print Manufacturers' Association of New York, and on the 1st of September next he will enter upon his new duties with the goodwill and best wishes of all concerned. Under the direction of Mr. Steele it is felt that the pulp and paper industry of Canada can look forward with confidence to the future, whatever it may be.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Artificial Silk Industry.—By Leonard P. Wilson, F. C. G. I. Chemical Trade J., & Chem. Eng. 61, No. 1575; pp. 78-79. All the early artificial silk was made by the Chardonnet process (Brit. Pats. 6,045 of 1885, 221 of 1886, 5,270 of 1888, etc.), or modifications of it, which had for a basis guncotton dissolved in ether and alcohol. Its lustre was considerably greater than that of natural silk. Lehner improved the details of this process. (Brit. Pats. 1,183 of 1891, 22,736 of 1892, 24,003 of 1893, etc.). Instead of a solution containing 20 per cent. of cellulose nitrate, he used 10 per cent., and further reduced the viscosity by the addition of sulphuric acid or other mineral acids. Patents have been taken out by Du Vivier (Brit. Pats. 2, 570 and 2,571 of 1889), who nitrates his cotton with a mixture of sulphuric acid and dry potassium nitrate and carries out the operation at the unusually high temperature of 60 to 80° C. He also added to his nitrocellulose albumen or gelatine. The next process to be developed was dissolved cellulose in ammoniacal copper oxide for spinning. Pauly took out his first patent (Brit. Pat. 28,631 of 1897, D.R.P. 98,641) in Germany seven years later. Bronnert, Fremery and Urban were prominent in later work, (Brit. Pats. 20,-801 of 1900, 1,283 of 1905, etc.), and the processes of these workers have been the basis of manufacture by the Vereinigte Glanzstoff Fabriken A. G. of Elberfield and its subsidiaries, with factories in Germany, Austria, France and Wales. The cotton, generally in the form of linters, is boiled with about ten times its weight of the solution containing 0.25 per cent. of caustic soda, and 0.5 per cent. of sodium carbonate for 1½ hours, at a pressure of 2½ atmospheres. The cotton is washed, hollandered and centrifuged until it contains about its own weight of water; and then again boiled with a fres hamount of liquid of half strength for the same length of time. The cotton is washed and bleached in a weak solution of sodium hypochlorite, containing 0.1 per cent. available chlorine. All traces of chlorine are removed by washing with this sulphate. The purified cotton is again taken and centrifuged until it contains less than 50 per cent. water. The cuprammonium solution is prepared by filling a large iron vessel with copper turnings, and covering them with ammonium hydrate solution, containing 14 per cent. ammonia. Air is blown through the solution, which is kept at a temperature below 4 deg. C., and in about one day the copper is dissolved. Caustic soda is added, and if necessary copper sulphate to raise the copper oxide content, and 2,500 lb. of it is run into the mixer, into which has been put 500 lb. of the wet purified cotton. Solution takes about six hours, and during the whole of the operations and the subsequent filtering a temperature of lower than 5° C. must be maintained, otherwise copper is thrown out of the solution and spinning becomes impossible. The cellulose solution is forced through glass jets into a liquid, in which coagulation takes place. This liquid or spinning bath was made of sulphuric acid at a concentration of about 50 per cent. For a number of years past it has been made of an alkaline solution, 40 per cent. caustic soda; later various additions have been made, the most interesting is glucose, (Brit. Pat. 27,707 of 1907). Viscose silk is the latest important form of artificial filaments. Norwegian spruce forms the usual starting material. The formation of alkali cellulose is produced by steeping the sheets of pulp in a strong solution of caustic soda of a sufficient strength to produce mercerising, the excess of soda is then removed by pressing, and the alkali cellulose is ground into crumbs. The alkali cellulose, after maturing, is treated with carbon bisulphide, when a cellulose xanthate is formed as a brown sticky mass. This xanthate has the composition $C_6N_9O_4$|-CS., but hydrolysis breaks it down with successively decreasing amounts of the xanthate group, until cellulose or cellulose hydrate is reached, and it is at an intermediate stage of "ripeness" between these two extremes that viscose is used for spinning purposes. The hydrolysis takes place spontaneously under ordinary conditions, and with varying rapidity, according to the temperature, and as the proportion of xanthate to cellulose decerases, tne solubility is reduced. For this reason the solid xanthate, though soluble in water when freshly made, is dissolved in dilute caustic soda, and after a series of filtrations, to remove all dissolved fibres, is ready for the spinning operation.—E.K.M.

A Photometer for the Measurement of the Translucent Effect of Paper.—C. Frank Sammet, J. Ind. & Eng. Chem. 9, 184 (Aug., 1917).—This is supposed to be a simpler instrument than that described in Circ. 96, U.S. Dept. Agri., Bureau of Chemistry, and one which gives comparable results, but not absolute values. The instrument consists of two rods mounted upon a central support. The zero point is in the centre, and the rods are graduated in millimeters up to 300 in both directions. The light source, preferably a frosted 100 Watt Mazda stereoptican bulb, is placed directly below the zero point. Above the light and the zero point is supported a prism and eyepiece. A Lummer-Brodhum prism is very satisfactory, as it eliminates the dividing line between the two fields. Two movable standard white backgrounds are mounted on the rods, one on either side of the light source. The right hand block is set at the 300 millimeter mark, and the left hand block then moved to the position where the fields appear matched in luminosity. The left hand block is then locked in this position. A sheet of paper, of which the translucent effect is to be measured, is then placed over the left hand block. Another piece is placed over the other block with black velvet in between. The black velvet absorbs practically all the light which the paper transmits, thus allowing only the light reflected directly from the surface of the paper to reach the field in the eye piece. The other field is brighter because added to the light directly reflected from the surface is that transmitted through the paper and then reflected back by the white background. The right hand block, the one over which the velvet has been placed, is now moved forward until the fields match. Let A be the total scale reading (300 mm.), and B be the reading when the fields match. Then $100\left(1-\frac{A^2}{B^2}\right)$ is a value for the comparison of the loss of light due to absorption by the black velvet.—A.D.C.

UNITED STATES NOTES

Saturday, August 18, the employees of the J. W. Butler Paper Co., of Chicago, shook off the cares of business to romp and play in the open. It was the second annual picnic of the Butler Organization. The attendance numbered about 1,000. The doors of its big store on Monroe street were closed for the day.

Following the custom established last year, the company issued an elaborate souvenir programme in connection with the picnic. This program, besides listing the various committees in charge of the picnic, contains photographs of the department heads and also an interesting historical sketch of the House of Butler. The company say they will gladly send a copy of the program to any who make application for one.

Judge R. S. Lovett, designated as administrator of Priority Shipments Act, has ordered railway and lake carriers to give fuel cars and cargoes right of way. This will be good news to the pulp and paper mills of the Northwest.

William R. Hearst, one of the biggest newspaper men in the United States is a candidate for mayor of New York City. The election takes place in November. There have been several rumors that Mr. Hearst is to buy the Tidewater Paper Mill. Perhaps running New York will keep him too busy to run a paper mill.

George F. Steele, former secretary of the Newsprint Manufacturers Association is now manager of the Canadian Export Paper Co., with offices in Montreal. Mr. Steele's assistant, Robert T. Houk, Jr., will have temporary charge of the office.

An extension of time has been agreed to by both parties in the suit brought by a group of minority stockholders against the International Paper Company. The International's answer or demurrer will not have to be filed until September 20.

There is the greatest amount of interest being evidenced in connection with the suit of the Government Printing Office against the Republic Bag and Paper Company, of New York City, for alleged default of contract, which was filed recently in the Southern District Court of New York. This case is of peculiar interest not only to Government contract attorneys in this city, but to all paper concerns bidding on Government contracts, inasmuch as the decision in this case will be precedent establishing. It may be remembered that last winter the Attorney-General handed down an informal opinion, rendered to the Joint Congressional Committee on Printing, in which, dealing specifically with this case, he held that the contractors could be held to furnish any amount of paper that the Printing Office needed.

Although he is perhaps the largest employer of alien labor in northern New England, Garrett Schenck, president of the Great Northern Paper Co., has come out in favor of drafting aliens as well as native born and naturalized citizens. The loss of hundreds of alien woodsmen from Great Northern camps in Maine would be keenly felt just now, but that does not prevent Mr. Schenck from expressing his convictions on the subject.

Marden, Orth & Hastings, dealers in colors and dyestuffs, have increased their capital stock by $1,000,000, representing cash actual subscribed.

Thomas Bailey Draper, of the Draper Brothers Company, manufacturers of the Draper felt, died last week at his home in Canton after having been in failing health for more than two years. Mr. Draper was the senior member of the Draper Brothers Company, and formerly also was president of the Katahdin Pulp & Paper Company, of Lincoln, Me., though he ceased being active in the management of the company after his son, Edward B. Draper, became business and general manager of the company. He was born in Melbourne, Derbyshire, England, October 31, 1844. He came with his parents to this country at the early age of seven years.

A hold up and murder trail that led through Chicago ended August 19th, with the arrest in Minneapolis of Aaron Gibson Washington, 22 years old, a negro. Washington is alleged to have held up Clarence Conover, paymaster of the Aetna Paper Company, of Dayton, on July 9. Conover resisted and was shot and killed. He was robbed of $300.

The Bagley & Sewall Company is busy turning out vises for the United States and France. Some 4,000 first class vises have already been sold to the French government through New York concerns, the manufacturers selling direct and not entering into a contract with the French. Between four and five thousand vises of various sizes and values are being taken by the United States. Business now under contract will keep the plant busy for some time.

The paper industry and the Holyoke Chamber of Commerce will be well represented at the coming special war convention of American business to be conducted at Atlantic City, September 18-21, by the United States Chamber of Commerce. Included among the Holyokers to go will be James G. Taylor, President of the Taylor-Logan Company, paper makers.

Manufacturers expressed interest, during the week in a decision handed down by the Board of United States General Appraisers, in which the duty on coal tar bases, imported by manufacturers of paper makers' dyes, were reduced. In his ruling, Judge Brown stated: "This merchandise is properly dutiable at 15 per cent ad valorem, as coal tar products, as claimed, and not at 30 per cent ad valorem, as coal tar dyes or colors, as classified."

E. E. Stevens, of Canton, N.Y., has just closed a deal, whereby he has secured 5,000 acres of excellent pulpwood land in Lewis County, about twelve miles from the village of Lowville. There are about 6,500 cords of spruce and balsam pulpwood on this land, which will be cut off and sold to the Carthage Sulphite Pulp and Paper Company of Carthage, and about 5,000,000 feet of hard wood lumber.

An important incorporation during the week was that of the American & Foreign Paper Corporation, of New York. This was chartered to manufacture paper products, by the following: J. G. Bardsle, A. Isaacson, B. H. Rohrey, 258 Broadway. The concern is capitalized at $50,000.

Announcing a regular quarterly dividend of 1½ per cent, payable September 15, to stock of record September 5, the Union Bag & Paper Corporation, has issued the following statement: "This dividend has been declared payable to persons to whom stock of this corporation shall be issued of record on and after September 5, 1917, in exchange for the preferred or common stocks of the Union Bag & Paper Co., such payment to be made on September 15, in respective stock theretofore, and upon insurance, in respect of stock thereafter issued, until the directors of the executive committee shall otherwise determine."

The Central States Paper Trade Association was the title unanimously chosen by the prominent paper dealers of the Middle West when they met in Chicago last Friday and reorganized the Central States Paper Dealers' Association.

The executive family of the old association will continue intact at the head of the new body, with the exception of the office of secretary, which will be filled by Curtis E. Lyter, who is also secretary of the Middle States Wrapping Paper Association.

Officers' training camp, of second lieutenant of the Infantry Officers' Reserve Corps.

The shortage of labor is said to be forcing many of the mills throughout the country to invest in machinery that, otherwise, they would try to get along without. As a result, there is said to be quite some interest in labor saving machinery of various sorts. One report is to the effect that the Central Paper Co., of Muskegon, Mich., has installed a revolving barking plant because of the difficulty in securing labor to peel the wood.

The paper trade continues to do its share towards furnishing men for the army. C. J. Brennan, of the Standard Card & Paper Co., 8 Spruce street, was one of those to leave for Mineola, L. I., with the 165th National Guard infantry. This will be in the first division to leave for France. W. N. Holmes, of the Bermingham & Seaman Co., has just joined the officers' training camp at Plattsburgh, N.Y., while Karl Elish, son of Maurice M. Elish, has just returned to this city, having received a commission, at the of-

Paper mills throughout the country were much interested, and it is thought that most of them were gratified, at the fixing of bituminous coal prices by the President early in the week, to a figure of about $2 per ton at the mine. Now, if the transportation facilities can be increased to the extent that mills will be able to get coal as they want it, everything will be in fine shape. The coal question was becoming very serious, for it seemed that prices were going to go up without limit. It is known to be a fact that, last year during the badly congested freight period, many mills that were well covered by contracts, found themselves caught short because of slow deliveries and were compelled to go out into the open market and pay as high, and higher, than $8 per ton.

Business conditions in the Lawrence mills and machine shops devoted to paper mill machinery are good, but there is a scarcity of help of all kinds which is felt in all the industries there.

The Central States Paper Dealers' Association was succeeded, at a meeting called in Chicago last week, by the New Central States Paper Trade Association. The former officers will head the new organization with the exception of Curtis E. Lyter, who becomes the new secretary, succeeding Harold Helmer, of Beecher, Peck & Lewis of Detroit. The complete list of officers is: President, Fritz Forchheimer, of Chatfield & Woods Company, Cincinnati; Vice-President, Harold Helmer, of Beecher, Peck & Lewis, Detroit; Treasurer, A. M. Miller, of Central Ohio Paper Company, Columbus; Secretary, Curtis E. Lyter, Chicago. With the exception of the secretary, the above officials, together with the following men, form the Executive Committee of seven members.

STATIONERS TO MEET IN CHICAGO.

In the stress of other matters, particularly the opening of the school trade season which is almost at hand, do not overlook arrangements for the coming National Stationers' Convention to be held at Congress Hotel, Chicago, on October 15, 16, 17, 18 and 19. Hotel reservations should be made without delay. Write to F. F. Harris, chairman of the Hotel Committee, 11 West Austin Avenue, Chicago, and he will take care of you.

COMPLAINT AGAINST THE BUREAU OF STATISTICS OF THE BOOK PAPER MANUFACTURERS.

The Federal Trade Commission on Saturday announced the filing of a formal complaint against "The Bureau of Statistics" of the Book Paper Manufacturers, Charles F. Moore, the Bureau's Secretary, and 23 paper manufacturers, charging them with using unfair methods of competition in interstate commerce in violation of Section 5 of the Act, creating the Federal Trade Commission. The Commission's complaint formally declares the respondents named have been for about two years engaged in a concerted movement to enhance prices and bring about a uniformity of such enhanced prices, due allowance being made for grades, brands, etc.

The complaint follows shortly upon the report of the Federal Trade Commission's investigation of the book paper industry in which it urged Congress to pass legislation that would regulate trade associations such as the Book Manufacturers' "Bureau of Statistics."

The respondents, according to the complaint, manufacture by far a greater portion of the $70,000,000 worth of book print paper produced in the United States.

The charges of this complaint will be heard by the Federal Trade Commission at its office in the Federal Trade Commission Building, 15th and K Streets, N.W., in Washington, D.C., or as soon thereafter as the same may be reached. An answer to the charges made must be filed with commission within 30 days after service of the complaint.

The respondents are: Chas. F. Moore, Secretary, of the Bureau of Statistics; American Writing Paper Company; Dill & Collins Company; Diana Paper Company; New York & Pennsylvania Company; M. & W. H. Nixon Paper Co.; Oxford Paper Company; Ticonderoga Pulp & Paper Co.; Tileston & Hollingsworth Co.; Wanaque River Paper Compayn; S. D. Warren & Company; West Virginia Pulp and Paper Co.; Bardeen Paper Company; Bergestrom Paper Company; Bryant Paper Company; Champion Coated Paper Company; Everett Pulp & Paper Company; Kimberly-Clark Company; King Paper Company; Lakeside Paper Company; Mead Pulp & Paper Company; Miami Paper Company; Monarch Paper Company and Rex Paper Company.

PULP AND PAPER NEWS

Mr. J. J. Harpell, President of the Industrial and Educational Press, Ltd., publishers of the Pulp and Paper Magazine and other trade and technical periodicals, has been appointed to the Board of Food Control. Mr. Harpell's hobby is the more extensive production and consumption of fish. He is advocating the administration of food control measures through the regular municipal civic officers and organization.

Edward Botterell, of Ottawa, died last week in Toronto, in his eighty-fourth year. For nearly forty-five years he was connected with the distribution office of the House of Commons, and in that time handled many tons of stationery and paper supplies. Mr. Botterell, who is survided by his wife and two sons, was for several years Chief Ranger of the Independent Order of Foresters.

Captain Joe Lawson, who was for many years prominently connected with the publishing and bookbinding business in Toronto, and went overseas with the 204th Battalion, as paymaster, returned to Canada recently, after his unit had been broken up in England. Capt. Lawson, whose stirring speeches on behalf of enlistment earned for him the title of the "Billy Sunday" recruiter, has been appointed paymaster and second in command of the Sudbury mobilization centre.

Hon. G. Howard Ferguson, Minister of Lands, Forests and Mines, Toronto, returned from a three weeks' tour of inspection of northwestern Ontario. The object of his trip was to see what developments had been made in the country and how the policy of the government was meeting the needs there. He reports that the agricultural development of Northern Ontario has been wonderful, and that the cut of pulpwood by the settlers will be the largest on record owing to the high prices prevailing.

At a meeting of the Saskatoon Board of Trade, the post of Industrial Commissioner for the city was offered to Andrew Miller, of Toronto, who has been for some time a prominent member of the Toronto Star editorial staff. Mr. Miller was formerly Industrial Commissioner for Calgary. J. W. Tibbs, on the Star staff for the past twelve years, has taken a responsible post with the Canadian Press, Limited, and was presented last week with two easy chairs, a fountain pen and an appreciative address.

The annual meeting of the National Safety Council will be held at the Hotel Astor, New York, from Sept. 11th to 14th. A number of leading representatives of the Safety Movement in connection with Canadian pulp and paper mills will attend. A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, Toronto, will read a paper at the gathering, his subject being, "The turnover of labor as an accident hazard, with a few suggested remedies."

G. A. Howell, of the Howell Trading Co., Toronto, and family, have returned from spending their holidays at Miners' Bay, Kinmount, Ont.

A. W. Wright and G. A. Kingston, of Toronto, who are members of the Workmen's Compensation Board, and Norman Dean, the statistician of that body, attended the annual meeting of the International Association of Industrial Accident Boards in Boston last week. Mr. Dean and Mr. Kingston read papers before that body, and the latter was elected a vice-president.

After forty-five years' publication in Barrie, Ont., the Gazette issued its final edition last week. The plant will be removed to Midland, and the paper incorporated with the Free Press of that town. Alfred Wilkes, the proprietor of the Barrie Gazette, will manage the Midland Free Press. Barrie, which for many years supported four weekly papers, now has only two, which amply serve the needs of the community.

Charles B. Gordon, of Montreal, Vice-President of the Canadian Munitions Board, President of the Dominion Textile Co., and a director of the Provincial Paper Mills Co., Limited, has been made a Knight Commander of the new created Order of the British Empire. He is receiving the congratulations of many friends.

Friday, August 31, is being observed as annual "Press Day" at the Toronto Exhibition, with the attendance of over two hundred publishers, their wives and families.

The Monetary Times of Toronto, last week celebrated the fiftieth anniversary of its history. It is the oldest publication of its kind in the Dominion.

I. H. Weldon, President of the Provincial Paper Mills Co, Toronto, is spending a few days on a fishing expedition to Hartley's Bay in the French River district.

The Abitibi Power and Paper Co., Iroquois Falls, Ont., are erecting a large concrete building near their office. The structure will be used as a storage warehouse, replacing the one which was burned some time ago.

A. P. Costigane, Safety Engineer of the Ontario Pulp and Paper Makers' Safety Association, returned last week after an extended trip to Sault Ste. Marie, Espanola, and Sturgeon Falls, where he made his first official inspection of the plants of the Spanish River Pulp and Paper Co. He also visited the mills of the Abitibi Power and Paper Co. at Iroquois Falls, and the Mattagami Pulp and Paper Co. at Smooth Rock Falls. Mr. Costigane left this week for Port Arthur, Fort Francis and Dryden, where he will look into the progress of the safety movement at the mills located in those centres. Under the direction of C. A. Gilkerson, Safety Engineer of the Spanish River mills, the whole program of the plants is being reorganized, and safety committees are being formed, while the further extension of first aid appliances, the installation of devices for improvement of sanitary conditions, and other matters will be taken up. Mr. Costigane was much pleased with the interest manifested in the work on all sides.

A plant will probably be installed near Winnipeg for treating lignite and converting it into fuel. The research council has asked the Federal Government for a $500,000 grant for this new department, and a portion of the grant will be for the construction of the coal-treating plant.

Contracts have been awarded in connection with the erection of a $250,000 manufacturing plant for the Canadian Leatherboard Company, at Chambly Canton, Que.

Contracts have been awarded in connection with the erection of a $20,000 factory at Halifax, for the L'Air Liquide Society.

The Dryden Timber and Power Company propose to install a modern sprinkler system at a cost of about $9,000.

George Carruthers, Toronto, President of the Interlake Tissue Mills, has returned after spending his vacation at Wassaga, in the Georgian Bay district.

The slasher mill of the Mattagami Pulp and Paper Co. at Smooth Rock Falls, Ont., is now running, and a huge pile of pulp wood is being made ready for the commencement of operations. The work of erecting the third digester is proceeding, while good progress is being made on the completion of the large sulphite plant.

The provision forbidding the circulation in any province, that passed a law against it, of newspapers and other publications containing advertisements of liquor, which passed the House of Commons, was defeated in the Senate recently. The clause was struck out by a vote of 22 to 13. It was pointed out by one of the speakers that if such a measure was carried, there could be excluded from the mails fourteen British and two French publications, which are now to be found in the reading room of the Senate.

OTTAWA NOTES.

Another member of a prominent Ottawa valley lumbering family has paid the supreme sacrifice in war. He is Lieut. Ewen McLachlin, director of the McLachlin Lumber Co., of Arnprior, who, according to a brief cable last week was reported dead. No details were received up to the end of last week. Two years ago Ewen McLachlin took a course in flying at Long Island, New York, and on proceeding to England qualified but was rejected on account of his being twenty-nine years of age. Later he took up artillery work and gained his Commission about two months ago.

When Commissioner R. A. Pringle, K.C., remarked at the newsprint inquiry that the "newspaper was like our daily bread. We had to have it," he was not so very far astray as to what the general public feels it owes toward the paper manufacturers. Paper of all grades since the war began has sprung up to have a score of more new uses. One of the greatest demands for paper has been for Bibles for the boys who are going overseas. The American demand is best evidenced by a recent despatch from New York, as follows:

"With publishers falling daily further behind in their orders, the war has created the greatest demand in the history of the nation for Bibles. Publishers say that anyone who possesses a set of electrotype plates for the New Testament, pocket size, owns something almost as valuable as a steamship. Many of the publishers report their presses running from 15 to 18 hours per day, but they are still several weeks behind orders already received."

From the foregoing despatch it is evident that there is very little doubt abroad, but that the paper manufacturer was going to have his place in the sun for some considerable time.

At the request of the Public Works Department J. R. Booth has removed about 100,000 feet of lumber to permit the construction of the new heating plant for the new governmental buildings on Wellington street. The forced removal of the lumber from the Bronson Avenue piling ground may, in a measure, affect the operations of the sulphite and paper making plants at the Chaudiere inasmuch as some of the ground utilized for the piling of sawed pulpwood may have to be used to pile the lumber for the English market upon.

FOREST FIRE IN B.C. WORST YET.

Nelson, B.C., August 26.—The worst forest fire in the history of this district is raging two miles below Nelson. To-night the whole of the two mountain sides are blazing with flames, fire having lifted from underbrush, where forest fires usually burn, into the tops of the trees.

The fire covers several miles and its lower end appears to be about half a mile above Kootenay River, on the opposite side of the river from Nelson. There is no danger to the city.

UNION BAG AND PAPER QUARTERLY.

The Union Bag and Paper Company reports for the quarter ended July 31 a balance after all charges of $607,969 and net earnings after deducting ordinary repairs and maintenance of $844,447. The depreciation account for the quarter amounted to $58,303, interest on bonds $53,175 and reserve for taxes $125,000.

The net compares with $863,722 for the first quarter of 1917. In each of the two quarters the company has earned more than the full year's dividend of 6 per cent paid on the capital stock. Surplus available for dividends in the first six months of the year was $1,230,658, equal to earnings at the rate of 26.2 per cent per annum, and this, too, after all provision for taxes, depreciation, etc.

BRIMSTONE PRICE WENT UP.

During the week the daily papers have published an apparently authentic report from Washington that an embargo had been placed on the export of sulphur to Canada. This report has been authoritatively denied. No change has been made at Washington affecting the export of sulphur to Canada or any other country since July 9th, when the exportation of sulphur was made subject to license. Brimstone, however, has been subject to a sharp advance and is quoted nominally at $45.00 to $50.00 at the mines. Caustic soda shows a further advance in the New York market being quoted at 9c. The remainder of the market remains firm.

Those who enjoy a rousing tale of the lumberjack will find entertainment in "The Source," a story by C. B. Kelland, which began in the August 4th number of the Saturday Evening Post. The theme of the story is the beginning of the sulphate pulp industry. The tone and "atmosphere" of the tale remind one of that absorbing story of the Maine woods, Holman Day's "King Spruce."

The Markets

CANADIAN MARKETS.

TORONTO, August 27, 1917.

For some weeks past a quiet agitation has been going on in Toronto and other parts of the province to raise funds sufficient to launch a new Liberal organ in the city. It is said that about seventy-five thousand dollars has already been subscribed, and that a meeting will be called of the President and Secretary in every riding in Ontario during the second week of the Canadian National Exhibition to further the matter. The faith of the promotors, especially in war time, is almost sublime. Many years ago a similar effort was made in Toronto, and "The Empire" was launched as the official Conservative organ. It ran a few years with a heavy loss, and then subsided. It looks as if the story of that venture would be repeated more than twenty years after, and a huge sum of money be dumped in a vain project to run another strictly political sheet. Toronto is now better supplied with reading matter than any other city of similar size in America, having six daily publications, and not more than half of them are, it is reported, making any money under present conditions.

Business in all lines of the pulp and paper trade continues, with the approach of fall, to improve, and a very good autumn trade is looked forward to. There is no word as yet when the investigation of the books of the paper companies will be completed, or the Commission resume its sitting. There are fresh dangers facing the pulp and paper producers every day. The shortage of coal looms up ominously, and only last week, Sir George Foster made the Statement that Canada might have to be put on coal rations so as to distinguish between absolutely necessary services and those which are not so necessary. Canada is dependent on the United States for 18,000,000 tons.

Then there is the shortage of labor. A representative of the trade has returned from a tour of the mills up north, says the situation is becoming very acute, and every effort is being made to get sufficient men to operate the plants In not a few mills employees, although the three tour system is in effect, are working two tours each day in order to keep things running. Conscription may add to the difficulties of the predicament, and more men are joining the forestry battalions, all the while depleting the labor in the woods.

There is another danger of a more imminent character, and that is the embargo on sulphur from the United States. If this essential commodity cannot be secured from across the border, the pulp mills of Canada will have to close down. Conversation with leading representatives of the trade leads to the belief that some special arrangement will be made whereby Canadian plants will be able to import sulphur under special license, and due representations will be made accordingly. One of the first industries affected, if the embargo does not make an exception of Canadian plants, will be the newspapers of the United States, who obtain fifteen to sixteen hundred tons daily from the Dominion; besides enormous quantities of sulphite pulp are sent annually over the line. One manufacturer expressed the belief that the alarm created was too sensational, as he felt sure that pulp and paper mills would not eventually be deprived of sulphur. It would demoralize the paper trade and that of allied industries, and a situation would be created, both in Canada and the United States, which would be unparalleled.

New hazards are being faced by the trade every day in the matter of labor, coal and now supplies, and the manufacturers' plight is no happy one. Instructions have been issued by the Militia Department to all units to economize in every shape and form. It is pointed out that, whenever possible, both sides of a sheet should be used on all forms and stationery, and every effort should be made to keep down the consumption of envelopes by stopping all possible waste.

Over a year ago the Red Cross Society, Toronto branch, inaugurated a waste paper collection service. An arrangement was made with M. Granatstein and Sons, under which they assumed all financial liability and paid the Red Cross for the waste gathered, according to market price. The arrangement worked out well for the society, who received over twenty thousand dollars, but the buyers sustained a loss of some six thousand dollars, which they, however, regard as a gift to the cause. Now the bottom has been falling out of the waste paper market for some time; and M. Granatstein and Sons have asked the Red Cross to take over the management of the scheme under the direction of F. A. Mulholland, chairman of the Waste Committee. Waste paper is a drug on the market now in Toronto, and collectors have disappeared until such time as business gets better, while many papers are being put out with the garbage owing to no demand.

Warehouse business with all jobbers is picking up some, and is expected to get much better next month. Wrapping paper is rather dull, as consumers are not wasting any of this commodity these days. Toilet and tissue mills are fairly busy, with prices somewhat easier. Coated paper plants are rather quiet, but board mills are getting busier. Considering everything business has kept up with them rather well. It is not likely that any change in prices will be made before the end of the year, and perhaps not then. Paper box plants are moderately active, but there is still considerable scurrying after orders.

The one thing noticeable is that pulp inquiries are beginning to be more numerous and, before another month elapses, prices may be a shade better. It is remarkable how they have held up, and, with the new tonnage coming on the market this fall in Canada, it is not believed that any reduction in quotations will be made. The mills across the line will be busy by that time, and all new output will be easily absorbed.

Not so much is heard of the present prospect of raising prices, and the main topic of interest is getting orders in sufficient amount to keep the plants in some lines well employed. Another obstacle to be overcome

is the securing of sufficient supplies of labor, coal, pulp wood and proper transportation facilities. Though as high as fifty dollars a month and board is being offered by some firms for men to go to the woods, which is more than double the sum paid a few winters ago, it is almost impossible to secure labor. Many concerns have decided on a policy of reduction and would rather enter the market and buy the most of their pulp wood from dealers and settlers, than undertake the enormous outlay of fitting, manning and operating camps when food materials are so high and scarce and even fodder for horses soaring to an unheard of price.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.50 to $9.00
xBook papers (carload), No. 2	$9.35
xBook papers (ton lots), No. 2	$9.75 to $10.50
xBook papers (carload), No. 1	$9.50
xBook papers (ton lots), No. 1	$9.75 to $11.00
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (manila or white sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	23c to 30c
Drug papers, whites and tints	10c to 12c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Manila folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$130.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$70.00 to $80.00
Sulphite (bleached)	$120.00 to $130.00
Sulphate	$110.00 to $115.00

RAG AND PAPER STOCK MARKET.

There is little doing in the rag and paper stock market. Owing to many of the mills being rather inactive, there is no demand for waste paper. New cotton rags are in fair requisition with prices firm, while roofing stock is moving moderately with mills offering good prices. The only changes are in the following items:

No. 1 manila envelope cuttings	$2.25
No. 1 white short cuttings	$7.75
No. 1 unbleached cotton cuttings	$7.75
Unbleached shoe clip	$6.00
Thirds and blues, repacked	$3.00
Flocks and satinettes	$2.15
Tailor rags	$2.10

NEW YORK MARKETS.

New York, Aug. 25.—A good many fears in the trade were set at rest this week, when the government gave a concrete example of the manner in which it would fix prices. In the first place, the idea that a blanket price would be named for one commodity and expected to rule for all plants proved to be mistaken. In the coal case, this week, the President set prices on the coal from the various mines, the prices varying according to the cost of production. This is regarded as a very hopeful sign for, now that the price-fixing movement is starting to gain momentum, it is thought to be only a matter of time before it will reach the pulp and paper industries, regardless of the fact that many of these figures are now considered low. The most interesting information in regard to the vital matter of fixing prices, indicating the policy of the government, is given in the following report:

"The investigation of steel production showed such a variety of costs that a single price to cover all of the manufacturers was found to be impracticable. It is probable, therefore, that a scale of prices for different plants will be established on somewhat the same plan as that announced in connection with the coal fields. Government orders will then be placed on the basis of the production cost of the plant involved in the order plus a reasonable margin of profit. It is the hope of the government that the price thus fixed for a plant will be accepted by it for other than government orders, without forcing the government to seek legislation to make such an agreement mandatory." This statement is about as clear and concise as one could want, and is thought to embody the Administration's ideals in every respect.

The very latest in the chemical pulp market is the information just received from Washington that an embargo has been placed on the exports of sulphur to Canada to prevent the supply for war needs for the United States from being unduly depleted. This is given further attention in our editorial and Canadian market columns.

The demand for chemical pulp continues light and, while some sales of domestic are reported occasionally, business in the aggregate does not amount to much. The large majority of the paper mills are still operat-

ing on a summer basis and the consumption of pulp is therefore limited, with most manufacturers finding their contract commitments sufficient to care for the present requirements. Consumers are buying with much conservatism and few if any are covering their needs for any appreciable time ahead. Importers and dealers in domestic pulp, nevertheless, seem willing to wait the expected turn in affairs which will result in a more concerted demand for sulphite. If the consumption attains such evtents which trade factors anticipate this fall, there certainly will be an insufficient supply to go around.

Demand for groundwood is on a seasonable scale and a fair volume of pulp is moving into consumption. Most grinders are well engaged on contract orders and report a moderate request for supplies from outside sources, particularly for newsprint mills and from other manufacturers of the cheaper grades of paper. Quotations are being well upheld and practically no pulp is being offered in appreciable tonnage at below $41 per ton at the grinders' mill. The present quotations for the country are about as follows: for the East, $41 to $44 per ton; for the West, $43 to $46, f.o.b. grinders' plant.

The old rag market is still attended by summer dullness and, with the exception of the roofing grades, there is no active buying being done by manufacturers. Writing paper mills are still operating at considerably below capacity, and are buying rag stock only in a scattered way, while demand for rags from book paper manufacturers fails to improve perceptibly. Felt makers on the other hand, are freely inquiring for satinets and are absorbing numerous offerings of stock. Satinets are bringing as much as 2.35 cents delivered at the mills, while No. 1 roofing has sold as high as 2½ cents at the mill. Old whites, No. 1 are getting about 4½ cents, while thirds and blues are said to be bringing about 3 cents.

Higher grades are moving in a scattered way and at fairly attractive prices. No. 1 white shirt cuttings are bringing as much as 9½ cents; fancy shirt cuttings, as much as 5¾ cents; new light silesias, at 6¼ cents.

Trading in paper stock is somewhat limited and demand from manufacturers on the whole is regarded as unsatisfactory. Low grades are moving consistently and quotations are being well sustained. Box board mills are not buying as conditions would seem to warrant. The government has placed orders for board, and mills are said to be running at a good capacity. Dealers to-day are said to be getting as much as 65 cents for mixed papers. Folded news is moving in a quiet but steady way with dealers and brokers getting as high as 90 cents a hundred; dump mixed rules firm and is in moderate demand, with quotations up to 55 cents; box board cuttings are readily salable, but supplies are light. Quotations range up to 70 cents. Flat stock is quiet and moves only in a scattered manner at irregular quotations. Dealers are holding firm at 1¼ cents for heavy books. Shavings are said to be dull, hard white, being quoted up to 4¾ cents, and soft white, up to 3¼ cents; old krafts are not very active, the figures for this grade still topping at 3 cents.

The market for bagging is quiet, and outside of the sales of roofing stock, business is confined to narrow limits. Gunny is firm and in moderate request, at as high as 4 cents; bright bagging is quoted up to over 3½ cents, sound bagging is going at as high as 2¾ cents; mixed bagging is reported up to 2½ cents. The market for old rope holds firm, but displays no marked feature.

Dealers, as a rule, are moderately engaged. Expectancy that the customary quickening of the demand this fall will be met by a shortage of stock is creative of a very steady tone. Quotations are as high as 6¾ cents, and dealers are still looking toward a 7 cent price.

Paper manufacturers insist that conditions are beginning to show some signs of firming. This is due not only to the fact that the regular "picking-up" season is approaching, but also to the fact that, in many sections of the country, the railroads have found it necessary to issue embargoes so as to care for government shipments. Thus, in certain sections, there is being some difficulties experienced, in the matter of getting paper, with the natural effect that prices would show a tendency to stiffen. Manufacturers in general, are looking forward to the next few weeks, when they believe, demand will increase and business will assume the proportions that it had until recently.

The newsprint demand is said to be fair, despite the workings of the Newspaper Publishers' Association. However, it is reported that there is still considerable machinery on part time. Tissues have not changed any, demand being poor. Wrappings are about the same, with manufacturers doing their best to maintain prices. Boards show an inclination to improve, with prices a little firmer. Books are a little weak.

New York Quotations.

(These are a nominal range of prices):

Ground wood, f.o.b. mill, ton	$41.00 to $46.00
Foreign bleached sulphite, ex-dock, N.Y.	9¼c*
Foreign easy bleaching sulphite, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b. pulp mill	6c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, New York	5c to 5¼c
Domestic unbleached sulphite, f.o.b. pulp mill	3½c*
Kraft, pulp, f.o.b., pulp mill	5½c*
Foreign kraft pulp, f.o.b., ex-dock, N.Y.	5¾c*
Bleached soda pulp, f.o.b. pulp mill	5½c*
Foreign unbleached soda pulp, ex-dock, N.Y.	5¾c*
Foreign easy bleaching soda pulp, ex-dock, N.Y.	5¾c*
Bond papers, sulphite	10c
Best grade writings	21c*
Regular superfine	19c*
Ledgers papers	10c†
News, contracts, f.o.b. mill	3¼c to 3¾c*
News, spot lots	3½c to 4c
Book, super	7¼c
Book, coated	8c
Tissues, good sulphite, bleached, per ream	90c*
Tissue, ground wood manila, per ream	90c*
Kraft	7½c*
Wood manilas	5c*
Jute manilas	9c*
News board, per ton, f.o.b. New York	$55.00
Strawboard, per ton, f.o.b. New York	$50.00*
Chip board, per ton, f.o.b. New York	$50.00

(*)—And higher. (†)—And way up.

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Book Paper too High, Says F. T. C.

The Federal Trade Commission last Tuesday submitted to the Senate its report on its investigation of the book-paper industry pursuant to the Senate resolution introduced by Senator Fletcher, together with a report of its findings of facts, conclusions, and recommendations. A preliminary report was submitted to the Senate June 13 last. The investigation was under the supervision of Commissioner Colver.

Book paper, the commission states, is a general term designating roughly all grades of print paper except newsprint. It is used by periodicals, magazines, and books. In 1916 there were approximately 40 companies operating 70 mills, the bulk of whose output was book paper, and a number of other mills which manufactured some book paper in addition to various other grades.

Output in 1916.

The output of the principal book-paper mills in 1916 probably aggregated more than a million tons, valued at $87,000,000. During 1916 the prices of different grades of book paper showed large increases over 1915 prices. Contracts made by 23 manufacturers in the last half of 1916 averaged 85 per cent higher for machine finish, 66 per cent higher for supercalendered, and 65 per cent higher for coated book paper than in 1915. The percentage of increase in current prices, except on coated paper, for sales to publishers in several large centres was even higher.

The average cost of manufacture of 39 principal book-paper mills for 1916 was $7.63 per ton higher than for 1915, the increase in particular mills ranging from less than $2 per ton in several cases to more than $20 per ton in the most extreme case. Costs were rising throughout the year, however, and for 24 mills, for which cost data were secured for the first quarter of 1917, the increase was $17.35 per ton greater on the average than for same mills in 1916.

100 Per Cent Increase in Profits.

The average profits per ton of 39 principal book-paper mills were nearly 100 per cent higher in 1916 than for 1915.

The margins of profit of paper jobbers on book-paper sales were generally much larger in 1916 than in 1915. The average increase in margins on current sales of machine finish book paper for the fourth quarter of 1916 over the third quarter of 1915 was 492 per cent for Boston jobbers, 200 per cent for the principal New York jobbers, and 203 per cent for Chicago jobbers.

The domestic production of book paper was nearly 20 per cent greater in 1916 than in 1915, but domestic consumption and exports increased more rapidly, so that stocks declined about 50 per cent. Imports, which never have been large enough to be a factor, are now practically nothing.

Volume of advertising and circulation of the principal publications of the country using book paper showed large increases in 1916 over 1915.

The concerted activities of book-paper manufacturers, with the effect thereof upon prices charged in 1916 and 1917, were investigated, and the commission has ordered institution of proceedings directed against certain practices which appear to exist in the industry.

The average profits per ton of the principal book-paper mills increased about 100 per cent in 1916 as compared with 1915. Some mills showed excessively large profits in 1916; profits of others were only moderate.

The commission secured the book investment of 2 companies operating 39 mills. On the basis of the book investment, which was found to be fairly representative of the cost of investment, the average profit of these companies on all their operations was 8.7 per cent in 1915 and 21.5 per cent in 1916.

Higher Profits for Jobbers.

Jobbers generally who handled a considerable proportion of domestic book paper obtained a larger margin of profit in 1916 than in 1915. The commission found that book-paper manufacturers, especially those belonging to their bureau of statistics, have kept one another informed of market conditions, prices, etc., so that prices were advanced simultaneously without fear of competition. While ostensibly the duties of the secretary of their bureau of statistics have been to compile and distribute certain statistical information, his principal efforts would appear to have been devoted to encouraging members to increase their prices.

The commission concludes that the advance in prices of book paper in 1916 was excessive and not justified either by the increase in cost or by the changes in conditions of supply and demand. The advance was brought about in part by activities of members and the secretary of their bureau of statistics.

Commission's Recommendations.

Under its recommendations the commission stated:

In its preliminary report of this investigation the commission recommended as a war emergency measure that all print-paper mills and distributing agencies operated on Government account during continuation of the war, and that the total product be pooled in the hands of a governmental agency so that it may be equitably distributed at a fair price based upon cost of production and a reasonable profit per ton. These recommendations the commission wishes to renew, since it believes that under existing abnormal conditions immediate relief to publishers can only be obtained by adoption of some such legislation.

The commission also desires to call attention of the Congress to the necessity for enactment of legislation regulating the activities of trade associations. The print paper and other investigations of the commission show that trade associations, although originally organized for legitimate purposes and often engaged in helpful activities which serve a useful purpose, nevertheless some of them indulge frequently in practices which tend to destroy competition and defeat the objects of the Sherman law.

The commission's print paper investigations show that the activities of the trade associations connected with the newsprint and book-paper industries have contributed to the rise in price of these commodities and that the effective regulation and supervision of such activities by some governmental agency would tend to restore healthy competition in these industries and thereby to reduce prices to a more normal basis.

SWEDEN BARS NEWS PRINT EXPORTS.

A newspaper report from London states that an Exchange Telegraph despatch from Copenhagen reports that the Swedish Government has prohibited the exportation of news print paper on account of the shortage of timber, coal and sulphur for the manufacture of pulp.

TRADING IN PAPER STOCKS IN MONTREAL.

At the present time, the securities of nine paper companies are listed on the Montreal Stock Exchange, while in Toronto there are a number of others which are listed on that exchange alone. The following is a list of stock listed on the Montreal Exchange, with the asked and bid price for the past week:

Stock.	Asked.	Bid.
Abitibi	58	56
Brompton	47	46
Howard Smith	74	68
Howard Smith, preferred.	80	75
Laurentide	172	171
Price Bros	120	115
Provincial Paper	52	50
Provincial Paper, preferred	82	78
Riordon	121	120
Riordon, preferred	92	90
Wayagamack	56	55
Spanish River	17	16
Spanish River, preferred	52	50

On the Toronto Exchange the following are the principal listed and unlisted securities:

Toronto Paper	80	75
Provincial Paper	52	50
Provincial Paper, preferred	82	78
North American Paper	4¼	4

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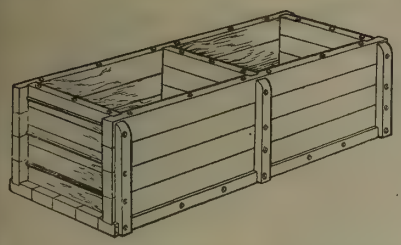
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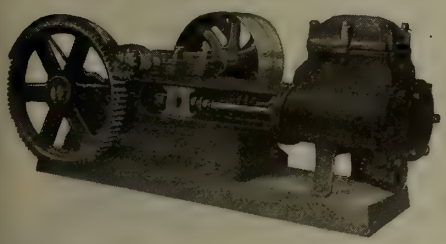
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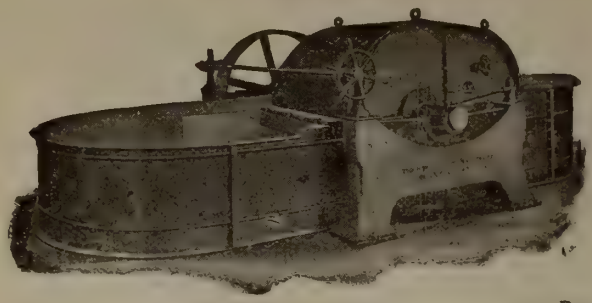
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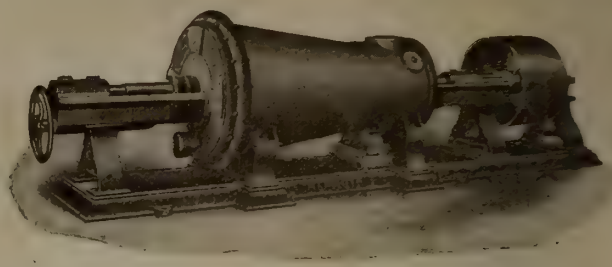
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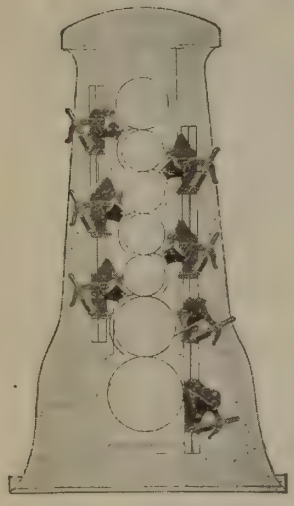


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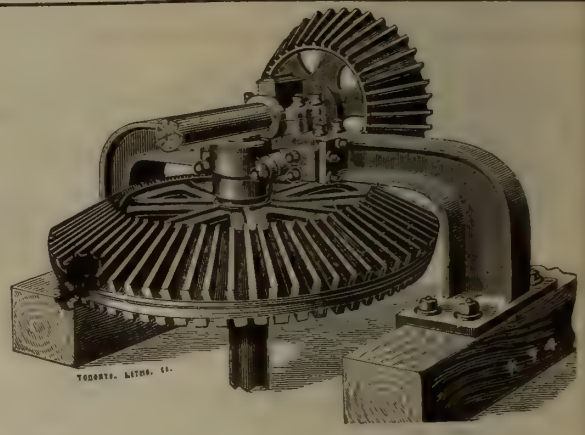


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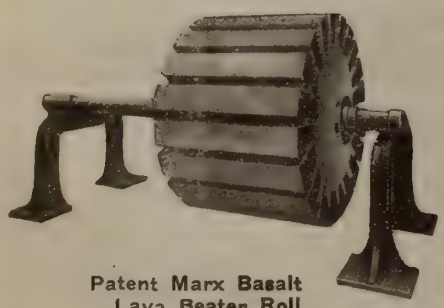
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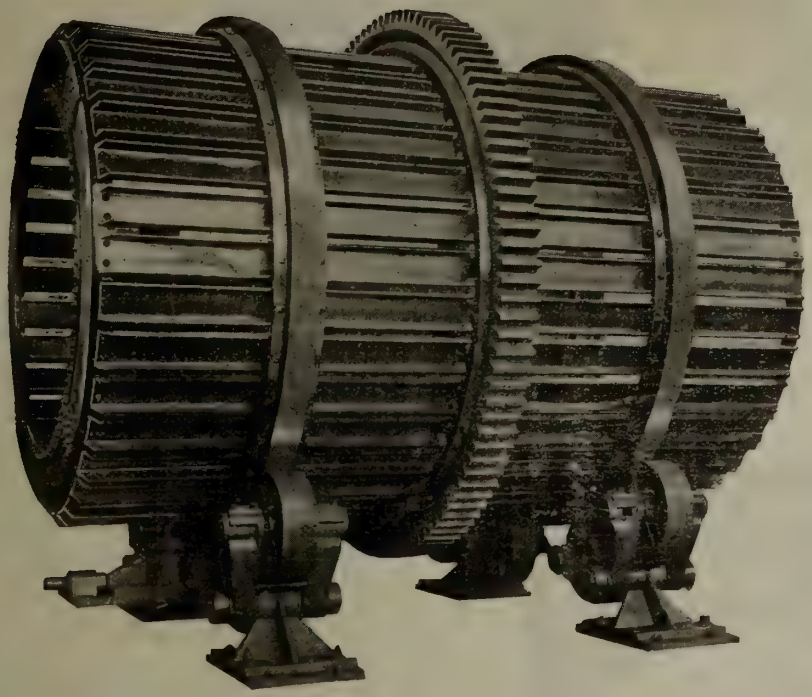
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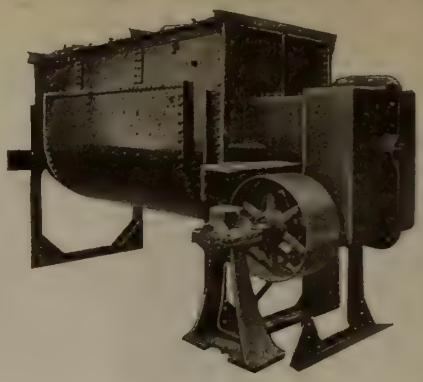
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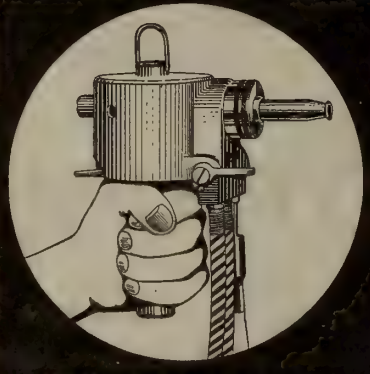
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EDITORIAL

ON BEING NEIGHBORS.

In many country districts it is quite common for one farmer to own a corn harvester and another an ensilage cutter; one a reaper and another a potato digger, and so on. If they are good neighbors—and farmers invariably are— they trade back and forth the use of their machines. When one man is using his machine, the other must wait.

Nations can also be neighbors in a similar way. Canada and the United States each have materials that are useful to both. Perhaps no industry appreciates the situation more than the pulp and paper industry. The great forests and water powers of Canada balance, in a way, the coal fields of the United States. Canada has coal fields, too, but they are mostly remote from manufacturing centres. America also has extensive forests and water powers, but these again are for the most part in regions distant from thickly settled districts.

Nature's arrangement so far has been fairly satisfactory because of the neighborly relations between the two countries and the surplus production over actual home requirements. There will undoubtedly come a time when coal, at least anthracite, will not be plentiful enough, and at such a price as to be available for all who want it. The limit on bituminous coal will also be reached some time in the central and eastern fields. There are enormous deposits of soft coal in the region of the Rockies, but this cannot be economically brought to the principal markets until there is a very considerable rise in price. It is a question whether the people of one country will ever demand the protection of an absolute embargo on fuel at the expense of suffering in another; but as one cannot loan a worn-out farm machine, neither can one sell coal from an exhausted mine.

Fortunately Canada has large deposits of lignite and peat. Experiments have demonstrated the feasability of briquetting the former to replace anthracite and the use of peat in gas producers. The time may come when our neighbors will get some of this fuel from us.

The best prospect for a solution of the fuel problem and a means for conserving this coal supply is the more extensive use of Canada's enormous water powers. With the exception of heating, and gas making, electricity has been successfully substituted for the energy stored in coal. Electricity can be generated at hundreds of water falls and rapids within easy transmission distance of industrial centres throughout the Dominion. The electro-chemical and electro-metallurgical industries are on the brink of extensive development. The successful electrification of 440 miles of railroad in the American Rocky Mountains and the use of electric locomotives for the heavy passenger traffic between New York and New Haven is an indication of great promise. The use of electric power in our more thickly settled districts would eliminate a very great drain on our neighbors' coalfields. A peculiar point in the Rocky Mountain demonstration was that the electric engines were more efficient in winter because the temperature of the motors was kept lower. The chief obstruction to the electrification of Canadian railways is the initial expense of equipment, but this can be bought, while a coal mine in Ontario or Quebec is unobtainable.

Another commodity for which Canada is dependent on the neighbor to the south is sulphur. A small amount of Japanese sulphur reaches the sulphite mills in British Columbia, but by far the greater part comes from Louisiana. The principal uses of sulphur are sulphuric acid, explosives, sulphite pulp and matches. That for acid manufacture is largely obtained as a by-product from the roasting of sulphide ores of copper, lead and iron. Large quantities are wasted in the gases from the open air roasting of some Canadian minerals, most of which present seemingly insuperable difficulties of recovery. The dependence of Canadian pulp-mills on American sulphur is forcibly emphasized by the recent embargo on this material. Sulphur is a necessary ingredient of black powder, an explosive whose slow pushing effect is not otherwise attained. The embargo is evidently intended to protect the supply of raw material to the powder maker. If it were rigidly enforced it would work great hardship on Canadian manufacturers of sulphite pulp and newsprint paper, and incidentally on many American mills dependent on Canadian sulphite. But Uncle Sam is a good neighbor, and will surely grant the necessary export licenses.

While on the subject of American coal it might be well to refer to a recent statement in a contemporary, to the effect that Canadian paper mills are getting the benefit of action by the United States Government in regard to the price of coal, but American consumers of this paper are not favored as to its price. The answer is that the fixing of the price of coal to the American consumer does not apply to the Canadian consumer. There is sufficient demand here for coal to keep the price where it is at least, from present indications. In fact, it is largely a case of being glad to get the coal, similar to the case of fresh eggs in January. There is far less than the normal storage amounts of coal in Canada for this time of the year, and any supplies that can be obtained are most welcome. Mills that have bought from mines on contract are not worrying so much about the price as about getting the coal. We must leave it with our good neighbors to be as neighborly as car shortage, labor troubles, etc., will allow.

AFTER THE BALL IS OVER.

The mills of the gods, through the auditors, are slowly grinding out material on which eventually a ruling will be based as to whether the fixed price of 2½ cents leaves a sufficient profit to the manufacturer of newsprint. The manufacturers have submitted figures to the commissioner, showing that 2½ cent price, even as an unfairly applied war measure, is made at a sacrifice to the maker. Auditing the books will show whether the accounting system of the various mills is approved by Mr. Clarkson and his helpers. If there should be an apparent discrepancy between the findings of the auditor and the figures of the manufacturers, the latter will of course have the privilege of supporting their method of accounting before the commissioner, instead of being hit in the dark as seemed to be done across the line.

Commissioner Pringle said that the fixing of the price is not in his power. The decision of the government, based on the Commissioner's evidence, will probably settle the price of newsprint in Canada till the close of the war. While the price is thus limited, to the manufacturer, the distributer to the ultimate consumer has in many cases increased the rates on both advertising and subscriptions. We have not heard of any investigation as to whether the publisher was justified on business grounds, even as a public servant, in demanding a government-made price on his raw material. And while the government had a **right** to make such a price, fair-minded men throughout the Dominion brand the action as **unjust.**

A considerable amount of ink has already been used on this subject, and there is plenty more ink.

There will undoubtedly be a period after the close of hostilities before any foreign supplies of pulp and paper can make an impression on the home market by entering those where Canadian products are sent. It seems more probable that with shipping again available, Canadian goods will find an even wider market and a footing in new fields. Civilization will take on new growth, and an unhampered development of true culture and constructive enterprise will call for increasing amounts of paper. There will be an end of the order to supply Canadian publishers at a fixed price as a war measure. It will be a fine chance for the paper makers to "soak" the publishers for their actions in the past year, but we believe the manufacturers are too magnanimous to take an unfair advantage.

The present inquiry will be carried through. The government will see to that, and while the publishers will certainly have more money in pocket as a result, and the manufacturers will surely be that much poorer, it will be a questionable advantage to the newspaper men. Getting an advantage with a pull or a club is building on a poor foundation. The old fashioned tub that could stand on its own bottom is still a rather popular ideal. Using the government to squeeze the manufacturers like so many lemons may get the publishers a sour drink. It could hardly be expected to sweeten the dispositions of the former. The American publishers have the advantage over American paper makers in that they have forced a favorable tariff measure. Even that is an uncertain advantage, as there will in time be a scientific tariff scheme that may change the complexion of the paper schedule. The Canadian publisher has nothing to hope for in the way of tariff measures on paper, either here or in the States. The United States cannot afford to put a duty on newsprint that would shut any Canadian paper out of the American market, as they must have our paper, so any slight protection that American mills might get would tend to raise newsprint in Canada, assuming the improbable.

Once the inquiry is over and the price is fixed at a reasonable figure for the duration of the war, the future relations of the publishers and paper makers will invite interesting consideration. One point to be remembered will be the forcing of a mill to sell over the head of the legitimate paper dealer. This kind of thing puts a mill unavoidably in an unfortunate relation to the dealer. The dealer doubtless understands it so, and the publishers who turned the trick will be likely to feel it some day. Somebody may have to look up recipes for making "crow" a palatable dish.

It may be presumptuous to advise the wise, but we suggest that a publisher find a manufacturer for a partner, and sit out a dance, as it were, to make his peace and pave the way for more amicable relations "after the ball."

DON'T FORGET.

The meeting of the Technical Section with the Technical Association at Holyoke, Sept. 27, 28 and 29.

The American Paper Fibre Rug*

By SYDNEY A. BONNAFFON.

(This article, which is taken from "Commercial America," will particularly interest those who have visited the plant of the Fibre Textile Company at Neenah, Wis. This success of fibre textiles in several classes of products is encouraging to both the pulp maker and the paper maker.)

As far back as history will take us the use of a floor covering of some sort has been characteristic of the human race. Even if it has been but the strewing of leaves or grass in cave habitations by the most ancient known representatives of mankind, this desire for com-



From the roll to the rug.

fort or protection underfoot has been a distinctive trait. But, while such carpeting may have been sufficient for the needs of the earliest cave dwellers, it was not long before the use of animal skins as an improvement over the more primitive means came into popularity. And even to the present day the animal skin is used extensively for this purpose, but among the highly civilized peoples the use is for decoration rather than for general utility.

In the days of ancient Greece and Rome the progress of civilization was reflected in a high appreciation of the decorative, and floorings of artificial stone, mosaics of marble, tile and variously colored woods symbolized the wealth and luxury of the times. It was in Rome that the famous textile carpets of Asia, the first recorded; those made by the Egyptians, and the woolen carpets of Babylon, found their sale, and for beauty and durability they have never been rivaled in all the centuries since. Oddly enough, the looms which made those wonderful carpets of antiquity differ in practically no respect from the Oriental hand-looms of today, which continue to supply the world's best and most expensive floor coverings.

These Oriental rugs and carpets of Western Asia early found introduction into European countries. The Moors brought them to Spain during their conquests in that country. Again, the Crusaders to the Holy Land brought them home with them. Italy, because of its proximity to the rug markets, had Oriental rugs long ahead of other modern countries. Before the advent of the textile carpet in Europe tapestries and needlework hangings were occasionally used as carpets, but it was not until the fourteenth century, and in Flanders, that carpet making really had its start. From then on the development of the industry spread rapidly, although the influence of the Oriental article, particularly in the matter of design and colors, was strong, and has continued so up to the present day.

Rugs and carpets, however, despite the modern improved methods of machine weaving and large scale production, have never become what might be termed cheap. Where low price has been desired, quality and



On the slitting machine the large roll is cut into widths suitable for weaving the paper thread.

*Photographs by courtesy of William Scholes & Company, Philadelphia.

consequently utility have had to be sacrificed. Little more than a hundred years ago American housewives considered even the modest home-made rag carpets as a luxury and only to be used in the best room of the house, while in other rooms the floor was left bare, or, as in the much-tenanted kitchen and sitting room, sand was used. Now, however, the living standard has risen, and with it a demand for an attractive as well as a durable and cheap floor covering. In recent years Japanese and Chinese mattings have come to be used as a cheap substitute for carpet. It is not, however, a cheerful winter floor covering, nor can it be considered at all attractive, rather the contrary. Similarly, cocoa matting, made from the fibrous husk of the cocoanut, while durable, is rather a coarse and



The spinning frame twists into thread the narrow paper strips unwinding from the slit rolls.

harsh floor covering and not popular for inside use. Various other vegetable fibres have been employed in making carpeting, but the product is usually found to be wanting in some respect as far as general use is concerned.

Appreciating the widespread need, not only in the United States, but all over the world, for a low-priced carpeting which would be attractive yet durable, William Scholes, a Philadelphian, hit upon the idea of weaving rugs and carpets of paper. After considerable experimenting lasting over several years, Scholes succeeded in perfecting his idea, an all-paper rug, made from strips of tissue paper of various colors, twisted into thread and woven into a compact, heavy mat or fabric. When used as a floor covering this rug was found to be not only attractive in design but durable as well, and very cheap, selling for a half to third the price of ordinary wool carpeting.

Upon further experimentation it was found that the addition of a little wool brightened up the rug, giving it a rich appearance and also making it easier to sweep. Consequently, the manufacture of both kinds of rugs, the so-called paper-fibre rug and the wool and paper-fibre rug, was taken up, and for a number of years the market has been supplied with them. The fact that the manufacture of this interesting kind of carpeting dates back only a few years, however, explains why many have not as yet become acquainted with the product, although it has made its way to the front rapidly, and in the face of competition by many different floor coverings.

The simplicity of the process of manufacturing the paper-fibre rug has almost as much to do with the low price at which it can be sold as the cheapness of the material of which it is made. For this reason the methods involved in the process of manufacture are interesting. The paper from which the fibre of the rug is to be made is first dyed while it is still in pulp form. The paper makers furnish great jumbo rolls of paper in the colors desired. These rolls of paper measure from two to five feet in length, and weigh as much as seven hundred pounds to the roll. The first step in preparing the paper for rug making is to cut it into strips suitable for twisting into a thread or fibre. This is done on what is called a slitting machine. One large roll of paper will be cut up into thirty or so long strips of widths varying according to the size thread desired—narrow strips for light-weight goods, wider for the heavy. The same machine which slits the paper also rolls it up again, so that a large jumbo roll several feet wide will be cut up into inch or half-inch widths and re-rolled, but of the same thickness as the original roll. This done, the paper is ready to go through the dampening process, and is stored away in a humidifying room.



The paper thread which comes from the spinning frame on rolls is here rewound on cops suitable for the use of the weaver.

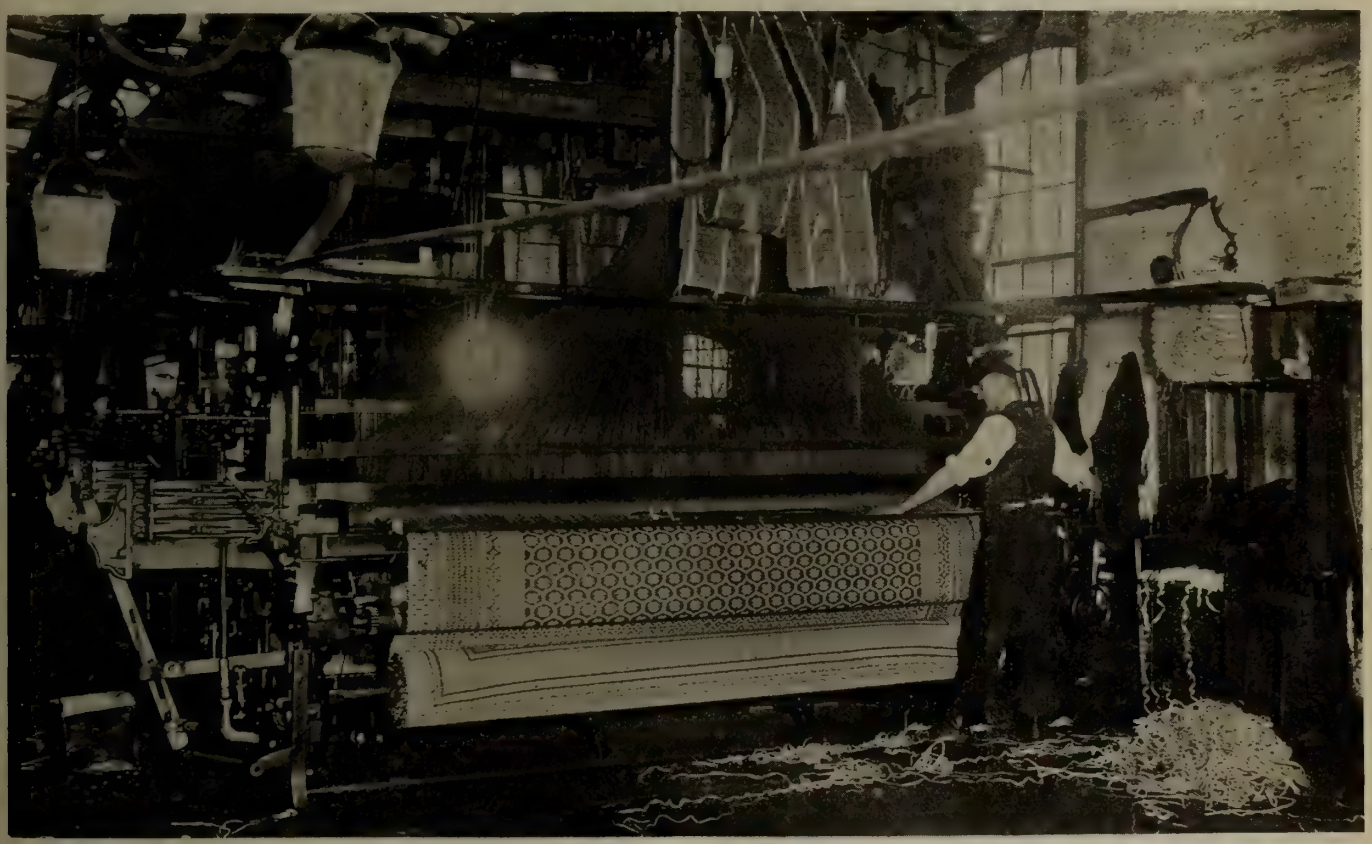
When the paper has been in this room three or four days it is ready to go to the spinning frames. Another humidifier here assures the proper action of the paper during the spinning. As the strips of paper unroll they go through a twisting process and are then rewound upon large spools. The paper is now in the form of a fibre yarn, the strips which went into the machine flat have now come out a round thread, having a polish and looking like a new piece of straw. The spools upon which the yarn is wound hold about a hundred pounds each. At this juncture the fibre, as far as its manufacture is concerned, is ready to be woven into the rug.

Before this can be done, however, the fibre must be rewound once more so as to permit of its being used on the loom. Here, again, a special machine is required for the work. After the spools have been well filled they are taken from the spinning frames and placed on this machine, which winds them into cops to fit the shuttles of the loom. As in the process of spinning the fibre, female operatives tend the machines, taking care of the process from the humidifying to winding the finished fibre upon the cops ready for the shuttles. Male operatives are, of course, necessary for the heavy work, such as operating the slitting machines and doing the actual weaving upon the looms.

The loom for weaving fibre rugs must be of a special kind if the best results are to be obtained. When the loom is ready, and the warps prepared and all drawn in, the design and cards are ready for attention. Here is an important branch of the work as in all carpet weaving. While a design may be very artistic it is necessary to color it with fine shades in order to bring out all of its good qualities. Many a good design has been spoiled for the want of good colors to show it up to its best advantage. And it is here that the adaptability of paper to a wide range of colors makes possible the beauty and attractiveness of the paper-fibre rug. After the suitable colors are selected, the loom is ready for the actual weaving.

In the process of weaving a wide range of effects is obtained, not only by the use of different designs and colors, but by the introduction of wool for the manufacture of the part wool and part paper or fibre rugs previously referred to. In fact, the manufacturers believe that not only are the wool and fibre rugs highly attractive—it being possible to make up elaborate designs and color combinations—but their wearing qualities are greater in that they will not show the wear nor the dirt as quickly as the all-fibre rug. The wool seems to brighten up the rug, leaving the fibre in the ground for its support. The addition of the small amount of wool, however, does not add to the cost or price of the rug as much as would be supposed, the product still being very cheap compared with the usual prices charged for ordinary textile carpets.

After the woven rugs come from the loom, they are run through what is known as a size box containing a mixture suitable for stiffening them and setting the colors more firmly. Leaving the stiffening box, they go over the calenders, several in number, which are filled with steam, and these dry the rugs, making them lie flat on the floor. They are now finished and ready for final inspection before shipment.



The loom, a special kind for the purpose, weaves the fibre thread into a durable rug of attractive design.

In order to supply the demand for the paper-fibre variety of carpeting, manufacturers of the product are now making not only rugs in usual sizes, but also hall runners and bath mats, so that an entire house may be furnished with suitable floor covering of this kind. From bedroom to kitchen and porch there are suitable designs and qualities, differing to suit the needs of each. For example, there is probably no better porch rug made for all-around use than a rug of wool and fibre. Particularly is this so because of its absolutely sanitary character under any conditions of weather or climate. It is odorless, creating no smell in damp weather, and it can be washed, scrubbed and otherwise cleaned as desired. Neither rain nor sun hurt it, for in the case of rugs for porch and outside use there is practically nothing to fade.

CUBA'S ONLY PAPER MILL.

Fabrica de Papel de Puentes Grandes, Habana.

Cuba's only paper mill is located three miles from Habana, at Puentes Grandes, and is owned by Fernandex Castro and Co., whose offices, retail store and printing departments are situated in the city of Habana. The mill is well planned, and its machinery was manufactured in the United States. It has not been run continuously since its establishment, twenty years ago, but since the present high prices have prevailed it has been operated 144 hours a week.

The machinery consists of two Fourdrinier paper machines, one 60-inch and one 70-inch, ten beating machines, one calender machine, one serpentina cutting and printing machine, one toilet paper cutting and winding machine, one envelope machine, and four paper sack machines. The power is furnished by water, steam and electricity, and there is also an auxiliary gas engine for use in emergencies.

The principal paper manufactured is bogus wrapping paper, on which one of the machines is kept continuously. The stock used is old newspaper, jute bagging, colored rag and mechanically ground wood. The first three materials are gathered by Habana junk dealers, who are paid 30 cents per 100 pounds for old paper and 40 cents per 100 pounds for rags and jute. The wood pulp is imported from Norway in sheets. At the present time the mill is having some difficulty in securing pulp.

This bogus wrapping paper is commonly known as "papel de estraza" (straw paper), and under ordinary conditions sells in Habana at about 3 cents a pound; at the present time it is sold at 5 cents a pound. For use in the retail stores it is cut into sheets, 13 inches by 18 inches, folded once, and packed in bundles of 20 quires of 10 sheets, making a short ream of 200 sheets. The counting, folding, and packing are done by girls by hand.

A better grade of wrapping paper is made from sulphite, which is also imported from Norway in sheets, and this grade is used in the manufacture of paper sacks. The four paper sack machines mentioned above have a capacity of 500,000 sacks per day, but the are not run continuously. It is estimated that the output is about 100,000,000 per annum, which constitutes 40 per cent of the consumption of Cuba. Sacks are made with a capacity of from one-half pound to 30 pounds, but the greatest demand is for the 3, 6, 12 and 25 pound sacks. Prices are governed by the imported sack. A small number of kraft sacks are made form paper which the mill produces in limited quantities.

Among the other grades of paper manufactured are a cheap, white sulphite writing paper, which is made into envelopes; a calendered wrapping paper, which has only a limited sale; toilet paper, which is packed into rolls containing 300 sheets; and a heavy tissue paper, which is manufactured into serpentinas. The latter are in great demand in Cuba, and are extensively used during the holidays and at public celebrations. The paper is made from sulphite, and the rolls, 18 inches wide, are run through the printing machine, which prints designs in colors. From this machine they go to the slitting machine, which cuts the paper into ribbons three-eighths of an inch wide, and winds it in rolls 2½ inches in diameter.

The mill is operated 24 hours a day for six days a week, closing from 6 a.m. Sunday until 6 a.m. Monday. There are two shifts of employees, each working 12 hours. There has been a constantly increasing scale of wages. Machine tenders are paid from $25 to $30 per week, while ordinary help around the mill receives from $9 to $12 a week. Boys and girls who tend the sack machines and pack paper receive from $4.50 to $6 per week. The majority of the skilled employees are Spaniards who have learned the trade in this mill, where they commenced as apprentices. They are diligent workers, but have little mechanical ability.

The other operating expenses are somewhat higher than in similar mills in the United States. At the present time the company is paying $9 a ton for coal. All the supplies come from foreign countries, especially the United States, and pay high freight rates and duties. Wood pulp is admitted free of duty. The manufactured paper is hauled by automobile trucks from the mills to the company's warehouse in Habana.

The exact output of the mill could not be ascertained, writes Mr. Robert S. Barrett, special agent for the Bureau of Foreign and Domestic Commerce, Washington, D.C. Its full capacity is 14 tons per day, and it is estimated that the actual production is from 50 to 60 tons per week.

Newsprint used in Cuba comes from the United States, Canada and Norway, but the supply from the first-named country is 85 per cent of the total.

The only rival of the United States in the sale of writing paper in Cuba is Spain. The importations from the latter country are in two grades, a hand-made paper that is used by the notaries public and Government offices for permanent records, and a cheap grade of ruled writing paper that has a large sale among the lower classes.

Writing pads have a good sale and are manufactured in Cuba by printers and wholesale stationers from American writing papers. As a rule they contain from 80 to 100 sheets, and are sold in two sizes, 6 by 9 inches and 8 by 10½ inches.

Since the beginning of the European war the only envelopes imported into Cuba have been of American manufacture. Previous to that time the Germans were very prominent in this branch of the paper industry, and American manufacturers were unable or unwilling to meet the competition which they encountered. It was not so much a competition of price as it was of style and sizes. The American manufacturer, with the preferential duty of 30 per cent, was able to sell envelopes as cheaply as if not cheaper than the German article, but his machines were not equipped to make the envelope which the market required. From early Spanish times the Cubans have been accustomed to use a large, square envelope of the baronial type, and the Germans furnished this in many grades of paper and in a dozen colors.

Every grade of wrapping paper known on the American market is sold in Cuba, and in normal times there was to be found Norwegian, German and Spanish paper.

Paper sacks are growing in popularity in Cuba, and each year sees an increasing number imported, while the domestic supply is also increasing. The great bulk of the Cuban imports are grocery bags of the cheapest variety manufactured in the United States.

The Cost of Hiring and Firing Men

By J. W. MACMILLAN.

It is only within the last few years that the discovery has been made that the renewal of the labor supply in industries is an expensive thing.

Students of social conditions had seen plainly enough that the seasonal occupations were costly affairs for any community. The intervals of activity and idleness of the casual laborer were regarded as one of the prime problems of society. But the cost was assessed altogether upon either the laborer himself or society at large. It was not recognized that the employer of the intermittent labor was a loser as well. Much less was it recognized that the constant inflow and outlet of employees in all occupations was a great and largely needless drain upon the financial resources of a factory or shop. Many a denunciation of the employer's heedlessness of human welfare was based upon the belief that the care and replacing of machinery cost something while the care and replacing of men cost nothing. It was supposed that the worker might be sucked dry, worn out, smashed to bits, kicked out, thrown on the scrap heap, without any interference with profits.

The employer also took the same view. When there was a crowd of unemployed at his gate he held that the labor conditions were favorable. Could he not then at once fire any man and immediately hire another in his place? The machine was geared to a certain speed, and the activity and capacity of the man who tended it was accordingly guaranteed. One large employer of labor in Philadelphia was quoted as saying, "We are not interested in problems of personnel. We have a lot of work but there are always more people to do it than there is work; and if those we have do not wish to work under our conditions, they can go, and we will go out and get others."

The Discovery.

The discovery appears to date from a study of employment problems made by Magnus W. Alexander of the General Electric Company of the U.S.A., made in 1913. In that year the Ford Motor Company hired 54,000 men to keep 13,000 jobs filled. (That was before the men began to get five dollars for an eight-hour day). In twelve factories making machines and metal products, in that same year, whose labor force increased during the year from 37,274 to 43,971, there were hired 42,571 men. That is a labor turnover of 100 per cent. After a careful study of the different elements of cost in this process of replacing labor Mr. Alexander came to the conclusion that the average cost of hiring and firing a man was between $35 to $40.

A similar scrutiny of the same process was made during the following year by W. A. Grieves of the Jeffery Manufacturing Company of Columbus, Ohio. He found that twenty representative factories whom he interrogated took on 69,000 new men during that year to keep a labor force of 44,000 intact. His estimate of the average cost of hiring and firing a man was almost the same as that of Mr. Alexander. He made it $40.

Other executives of big businesses have expressed the opinion that these figures are rather under than over the average for the entire United States. Some do not hesitate to put the average cost of hiring and firing a man at as high a figure as $100. And they say that the average labor turnover for the whole country is not less than 200 per cent.

Pursuing the subject a little farther Mr. Alexander came to the conclusion that more than half of the new 42,571 employees hired by the twelve factories he investigated had been needlessly hired, at an expense to the factories of $831,000. Mr. Grieves, for the twenty factories of his survey, placed the unnecessary cost at $1,760,000.

Employment Managers.

These and similar disclosures made a great impression on the more intelligent manufacturers of the United States. Doubtless the recent scarcity of labor has heightened that impression. One consequence was a gathering in Philadelphia several weeks ago of several hundred "employment managers". This is the new official which the revelations of Messrs. Alexander and Grieves had called into being.

Formerly, the duty of hiring and firing men had been left to the foreman of departments. It was at once seen that foremen are not the right officials for this duty. For foremen are a class of superior workmen whose capacity lies in their technical knowledge and their ability to maintain the output. They are not experts in employment matters. Moreover, their legitimate duties in their department are seriously interfered with by their time being taken up in engaging and dismissing the men under them. One executive who had adopted the new plan said recently:

"One of the first benefits we derived was in freeing the foremen from the daily necessity of looking over men they needed at the factory door. Under the old system the first hour of each morning and the most critical hour from a departmental standpoint was signalized by the absence of the foremen from their departments. The new system automatically changed this, and foremen were free to supervise work in their own departments, rather than lose hours daily in interviewing applicants for work."

Thus each big industry is getting to have its own employment bureau, an expert and efficient department in charge of this one important function, and resulting in the saving of many dollars in the course of the year. So far as these new bureaus have succeeded in organizing their work they have laid down three lines upon which they work, each of which means something for human welfare as well as for profits.

1.—First, the securing of labor from recognized labor markets, rather than from the waiting crowd at the gate. This is a business-like and rational method which stands in sharp contrast with the old unregulated, hit-or-miss, fashion of former times. It is bound to produce employment agencies of a better class than have been common, and may lead to a better relation between capital and labor through a new use being found for the trades unions.

The Round Peg in the Square Hole.

2.—Then comes the fitting of men and fitting them to their jobs. When the foremen did the hiring and firing the laborer was tried in only one department. If he proved a round peg in a square hole there, out he went. Under the new system he is apt to get a second chance in another department, where he may make

good. Under the new system the foreman has no power to discharge. He refers the unsatisfactory workman back to the employment bureau with a statement of his reasons for considering him unsuited to his department. The employment manager then studies his case, with a view to saving the forty dollars or more which the firm stand to lose by the man's discharge, tries him out in some other place, and only fires him when it has become plain that he is hopeless.

3.—The most important of all the functions of the employment bureau is the third, which consists in fitting the jobs of the men. The factory is as human as its staff, and is as likely to require consideration and mending. Thus has arisen what has been called "the new profession of handling men". For it has been discovered that the high labor turnover is not exclusively due to the discharge of the incompetent man. It is also due to voluntary leaving of competent ones. Thus it has come to be recognized as good business not to allow any man to leave without an inquiry into his reasons for leaving. A common device is to make a rule that the signature of the employment manager must be secured before he draws his last pay. This provides for a face-to-face interview between the employment manager and the man who is leaving. One of the members of the recent conference in Philadelphia stated his experience thus:

"When the men quit or are discharged they have no reason for withholding information. Complaints are heard of nagging foremen, lost time in waiting for work, and other complaints bearing on shop efficiency. These are investigated, and if the fault is with us it is remedied.

The Weakness of the Foreman.

"These complaints bring to light the weaknesses of foremen. One of our best foremen had always a 'chip on his shoulder", and approached his men with that attitude. He caused a great deal of friction before the fault was discovered. A talk with our superintendent convinced him that while that attitude may have been all right ten years ago, it can't be done—not now.

"Another case: a man quit, and on being asked for reasons stated that he had to lose too much time waiting for one indispensable tool, and for material for his work. Likewise he was advised that his work was O. K. by one inspector, only to finish it up and have half a day's work thrown back by another inspector. An investigation proved that the man was justified; the case was settled and the man is still with us. As this man was an experienced hand it would have cost us $100 to break in a new man. It looks as though this was a fair day's work."

While the immediate and compelling motive in this movement is the desire for a lower cost of production and consequent increased profits, it is quite plain that these employment managers and the executives who have employed them are well pleased that it means also better treatment for the working force. Every discovery that the interests of capital and labor are identical means so much more harmony, so much less strain in industrial relations, and so much more promise that the great economic battle of the present day may reach a peaceful settlement.—From The Journal of Commerce.

J. M. Finlay, secretary-treasurer of Ritchie and Ramsay, Limited, Toronto, has returned after spending his holidays in Detroit, Jackson and other points in Michigan.

PULPWOOD APLENTY IN NEWFOUNDLAND.

The logging season of 1916-1917 will stand as one of the most successful in the history of lumbering in Newfoundland. The loggers had a good start in the early fall of 1916, with a keen frost followed by a few inches of heavy snow, which remained during all the winter months, even until late this spring. The cut undoubtedly was by far the largest we have ever had, and the different grades and quality of timber the most diversified. There was a considerable falling off in the amount of pit props cut as compared with the previous season, owing to a scarcity of tonnage to convey same to the Old Country, but all the pulp and paper mills increased their stock of wood by some thousands of cords, whilst all of the sawmills increased their output.

The season's cut of pine, spruce and fir was twenty-five per cent. greater than last season's, and with good driving all logs were brought to the mills early, with little or no delay, and with no additional expense. All over the country, the mills are now sawing full time, and some day and night, cutting up the logs into different sizes and grades. There is a ready and an available market with excellent prices for all that has been cut without going outside the country to sell one cargo.

With the advent of the United States to join the Allies in the war, much activity has been revived by parties in that country in connection with the development and utilization of the extensive forests of Newfoundland, Labrador, and it is quite possible that this summer two or more rossing plants will be established in that country. The idea prevailing at present with those who own timber lands in that country is to bark the wood and in that condition ship it to the pulp and paper mills in the New England States. This, no doubt, would be the means of relieving a great want so much felt at present by most mill owners in the United States, as from year to year the difficulty of securing an ample and permanent supply of wood for the manufacture of pulp and paper is becoming more and more acute. In the forests of Labrador quite adjacent to the tidal waters at the head of its great bays and fiords, there are inexhaustible supplies of wood eminently suitable for pulp and paper manufacture and other industrial works. There should be no obstacles in the way of having this wood shipped from the shores of Labrador to the great seaports of Portland, Boston and New York, which would become distributing centres for other and more distant places. The sea voyage would be much less in distance than from New York to any of the European countries; and the risks would certainly be very much less in comparison with those attending shipping on the other side of the Atlantic during the continuation of the war.—J. Wilfrid McGrath, in Canada Lumberman.

PULP FROM PAPYRUS.

It is reported from Christiania that a company is being formed locally to utilize papyrus in the manufacture of paper pulp.

The name of the company is the Walmer Papyrus Pulp Co., Ltd., with a capital of £150,000.

Papyrus growing in North Zululand will be utilized, and it is stated that a concession has been obtained permitting exploitation for a term of 20 years.

CANADA'S WOODPULP RESOURCES

Canada is undoubtedly to become one of the world's greatest sources for the supply of woodpulp and paper. This industry has grown by leaps and bounds during recent years, and further large developments are to be anticipated, both in the east and the west. This will mean a constantly increasing strain upon our forest resources, and must result in careful consideration as to whether very large areas, in which the heaviest cutting is being done or is to be done, are not in danger of depletion.

The ravages of fire have been very serious in our pulpwood forests, and the question arises also as to whether present methods of cutting are sufficiently controlled to ensure the reproduction of another forest on cut-over lands. The area of pulpwood lands in Canada is so great that, if fire can be kept out and the reproduction of the forest secured through proper regulation of the cutting methods, the annual growth will provide the basis for an enormous development of the pulp and paper industry for all time to come. This means the practice of forestry, of which we have as yet in Canada only the beginnings.

The Commission of Conservation has started a study of these fundamental problems. This investigation will have for its objects the determination of the extent to which cut-over pulpwood lands are reproducing valuable species in potentially commercial quantities; the effect of fire on reproduction, and the rate of growth of the reproduction present, to determine how long after cutting one may reasonably expect another crop. The answer to these questions should go far in determining what additional measures are necessary to place the business of pulpwood production upon a thoroughly permanent basis.

The work for this season is under the able direction of Dr. C. D. Howe, of the Faculty of Forestry of Toronto University. A co-operative arrangement has been made, under which the first part of the study will be made upon the limits of the Laurentide Company, whose forester, Mr. Ellwood Wilson, will co-operate in the field investigations. It is expected that similar studies will be made in other sections of the pulpwood forests of Canada during succeeding years. The results will undoubtedly be of the greatest interest to all who are directly or indirectly concerned in the perpetuation of this great industry. — C. L. in Conservation.

THE TRANSPARENCY OF PAPER AND TRACING CLOTH

In response to the demands of several Government departments and of dealers in tracing cloth, the U.S. Bureau of Standards has developed and adopted a standard method for specifying the transparency of paper and tracing cloth.

The purposes of the present circular are to (1) state definitely the form of the specification. (2) explain its significance, (3) describe the apparatus and method of test, and (4) give general information and instructions to applicants for tests in terms of this specification.

The result of the Bureau's investigation is Circular of the Bureau of Standards, No. 63. Copies may be had from the Superintendent of Documents, Washington, D.C. for 5 cents a copy, or by addressing the Bureau.

WHEN IS A WORKMAN IN A MILL?

"Work in Shop, Mill or Factory," Within Meaning of Workmen's Compensation Act as Including Work on Pulp Carrier at Distance From Pulp Mill.

A person employed in building a pulp carrier at a distance of over a mile from a pulp mill is not, it has been recently held in King v. Berlin Mills Co., (N. H.) 99 Atl. 289, at "work in a shop, mill or factory" within the meaning of a Workmen's Compensation Act. The court in the case says: "It was held in Boody v. K. & C. Mfg. Co., 77 N. H. 208, 210, 90 Atl. 859, L. R. A. 1916A, 10, Ann. Cas. 1914D, 1280, that work in a mill included not only the mill buildings in which the business is conducted, but also everything appurtenant to them, such as the dam, flume, yards, and the ways provided for the use of employees—the entire manufacturing plant. But this construction of the statute would not constitute labor performed in erecting a pulp carrier for the defendants more than a mile from their mills work in the defendants' mills. and in no sense a part of their manufacturing plant. To hold that building a pulp carrier for the defendants more than a mile from their mills is working in the mills within the meaning of the statute would lead to results never contemplated by the Legislature. Under such an interpretation of the statute those engaged for the defendants in felling trees and hauling them from the forest many miles from their mills could be said to be working in their mills. Indeed, it is difficult to imagine any manual or mechanical labor that employees of a manufacturing concern could do that might not be construed as work in a shop, mill, or factory. The English Workmen's Compensation Act of 1897 (60 & 61 Vict. c. 37). contained the following clause: 'This act shall apply not only to employment by the undertakers as hereinafter defined, on or in or about a railway, factory, mine, quarry, or engineering work.' This provision is somewhat similar to that portion of our statute that is under discussion, although it is more comprehensive and elastic than our law in that the word 'about' is used. The English courts in construing the above clause have held that employment at places separate and at some distance from factories, mines, quarries or engineering works was not work on or in or about them, but that the employment must be at a place contiguous or in close proximity to them, to bring it within the purview of the statute."—Law Notes.

JAPAN VS. SCANDINAVIA IN INDIA.

A letter in "Papir Journalen" relating to the sale of Japanese pulp in India will interest readers of this Magazine who contemplate entering the Asiatic market.

"We would mention for your information, that we find Japan now competing very severely with Norway and Sweden in woodpulp, and with dear freights from Sweden to India, very high insurance rates, and correspondingly low exchange, the Jap sellers are now able to undercut the Scandinavian pulp prices we put before Calcutta. The position is unfortunate, and is largely caused by the abnormal conditions operating in Europe at present, but it would be well for the Swedish and Norwegian mills to bear this serious competition in mind if they wish to retain any share of the woodpulp orders from India."

LAURENTIDE'S RECORD YEAR

The reports for the year ended June 30th last, to be submitted at the annual meeting of the Laurentide Company at noon to-day, will show the largest profits in the company's history, and should prove most gratifying to shareholders. Net earnings, including returns from the company's investments, amounted to $2,220,660, against the previous record of $1,244,283, reported for the year ended June 30th, 1916. That is, the gain amounted to $976,377, or about 78 per cent over the best previous performance of the company.

The company has reserved the large sum of $268,-181 as reserve against the business profits tax for the year 1916-17. If the earnings on the common stock are estimated after the usual charges for interest, depreciation, etc., then the balance available was $1,988,-193, equal to a shade less that 21 per cent earned.

If the profits tax is included in the usual charges, as most accounts now show it, and as Laurentide in this instance does, the company earned a clear surplus for the year of $1,720,011, against $937,822 the previous year, an increase of $782,189, or better than 83 per cent. On the common stock it represented earnings at the rate of 17.9 per cent and the showing made, in conjunction with Laurentide's usual conservatism in the treatment of its accounts, gives ample justification for the action of the directors in increasing the dividend from 8 to 10 per cent six months ago.

A summary of the profit and loss figures for three years follows:

	1916-17.	1915-16.	1914-15.
Mill nets	$1,841,981	$1,022,005	$943,272
Lumber, etc.	253,627	101,459	91,333
Investment	125,050	120,818	.....
Net revenue	$2,220,660	$1,244,283	$1,034,606
Less:			
Bond interest	$115,797	$226,899	$165,614
Depreciation	116,670	*59,561	*61,799
Profits tax	268,181	20,000	.....
Total Deduction	$500,649	$306,460	$227,414
Profits	$1,720,011	$937,822	$807,191
Dividends	864,000	**672,000	**576,000
Surplus	$856,011	$265,822	$231,191
Depreciation reserve	.....	20,000	20,000
	$856,011	$245,822	$211,191

*Betterments. **After allowing for interest charged to power development during construction, $96,000 in 1915-16, and $192,000 in 1914-15.

Mr. George Chahoon, in a brief report as president of the company, states that:

"The favorable position of the company in respect to its diversity of products has enabled it to materially increase its profits during the past year.

"A large portion of these profits have been derived from the sale of pulp products, which have been developed pending the time when you deem it wise to continue the further development of your paper products."

Pays Banks Off.

Combined with the fine showing in respect to profits is a strong financial position. At the close of the year ended June 30th, 1916, the company was borrowing from its bankers $2,195,080, while for the year ended with June 30th, 1917, bank loans were down to $44,201. Cash on hand and in the banks more than offsets that.

A comparison of the balance sheets of the past two years shows:

Assets.	1917.	1916.
Plant, etc.	$5,995,718	$5,372,509
Realty	680,573	585,137
Timberlands	2,284,638	2,179,743
Investments	1,585,078	3,361,200
Logs, etc.	1,559,634	1,180,942
Mill supplies	589,350	374,657
Merchandise	267,780	203,800
Bills rec.	.....	59,756
Accounts, rec.	686,960	1,349,733
Cash	107,632	133,412
Forestry	.....	87,357
Insurance	28,083	18,979
Def. charges	33,856	6,529
Total	$13,819,307	$14,913,761
Liabilities.		
Common stock	$9,600,000	$9,600,000
Bonds	656,442	706,090
Loans	44,201	2,195,080
Accr. interest	36,000	36,000
Dividends due	240,955	192,709
Accr, wages	36,369	24,171
Accs. pay	100,843	428,841
Bills pay.	3,250	4,900
Contingent acc.	39,305	26,417
Reserves:		
Sinking fund	350,000	354,692
Depreciation	438,358	330,000
Profits tax	288,330	40,000
Miscellaneous	201,792	47,411
Surplus	1,783,458	927,446
Total	$13,819,307	$14,913,761

The reduction in current liabilities has been brought about, to some extent, by the reduction in the company's investments as shown in the statement. It is understood that the company has disposed of a portion of its Power Company's bonds, still retaining, however, the large holding of the common stock. That, it is understood, is being carried at a nominal price in the company's assets.

The company goes into the current year with a much larger supply of logs, mill supplies and merchandise than the previous year, these three items aggregating $2,416,764, as against $1,759,400 last year. This places the company in a position to take full advantage of the unprecedented demand that now exists for its various products.

Calling in Last of Bonds.

As a result of the improvement in the company's finances, President Chahoon notes in his report: "The company's bond issue is due and payable on January 2nd, 1920. The company is prepared to redeem these bonds in advance of their maturity at par and accrued interest, upon presentation of the bonds to the Royal Trust Company, Montreal."

It is also noted that the directors have under consideration the creation of a pension fund and propose to set aside the sum of $100,000 towards that fund.

U. S. GOVERNMENT DEMANDS NEWSPRINT AT TWO AND ONE-HALF CENTS.

(Special to Pulp & Paper Magazine.)

NEW YORK, Sept. 1.

The United States Government practically fixed the price of newsprint at 2½ cents per pound, if an order from President Wilson this week is to be regarded in the light of a former statement to the effect that he intended that the consuming public shall get the benefit of whatever prices are paid by the government. President Wilson's order was issued through Secretary of War Newton D. Baker, to the International Paper Co., commanding this concern to supply the government with newsprint at 2½ cents per pound for the Administration's Official Bulletin, which is published daily. It appears, according to the report, that the International Paper Co. has declined to furnish stock at this price, declaring that it could not do so and make a profit under present conditions. The President's order seems to have settled the question.

On what basis the 2½ cent price was reached by President Wilson is not yet known, but it is thought likely that he has been studying the matter and figures given to the Senate by the Federal Trade Commission. As we have stated some time ago, the Federal Trade Commission is now acting in an investigating capacity for the government in the price fixing scheme. It is generally recognized that, whatever the Commission recommends in the way of price, is pretty nearly certain to be adopted by the government body in charge of the actual fixing.

To the paper manufacturers in the city, the news came as a surprise. Not that they did not expect any price fixing action on newsprint, for it was generally concluded that this would come. But it was hardly thought that, now when the government is involved with the needs of the army and the navy, and the need for urgent attention to the war, it would give any serious thought to the question of paper prices—in spite of all the noise made recently by the publishers. On the other hand, there are some paper men who are not inclined to agree that the order of the President to the International Paper Co. can be interpreted as a price-fixing action. They feel—it seems, however, that they are hoping—that the order will allude only to the particular matter of the Official Bulletin. However, there are some who are looking the matter square in the face, realizing, as they say, that the government will not pay 2½ cents for newsprint for one of its publications and then go ahead and pay more for another use. The chief fear seems to be that the price of 2½ cents will be forced upon the trade as being applicable also to the newspaper publishers of the country.

One thing seems generally agreed on, that, if this materializes as an actual price fixing action, and there is good indications that it will, the next step by the President will be to fix prices on pulp that will make it possible for the paper mills to make a profit on their product at the price stipulated. There is no question that the government intends that every concern shall supply the government—this has already been recognized as one of the most essential things in the carrying out of the war. Therefore, in order to make it possible to get the finished product out at 2½ cents, which a great many manufacturers claim would be at a heavy loss to them, it would mean that the cost of the raw material involved would have to be lowered considerably. It might be stated that this side of the question is not being overlooked by pulp producers in this section, and, while they claim there is nothing to be feared, it has been said that action on pulp is inevitable if the government intends to carry out its order on the International Paper Co., as a general order. It has also been said that the price of 2½ cents may apply only to the International, and the few others which, like itself, are large enough to produce at somewhat lower than the rest of the mills. At all events, it is hoped that the government will not overlook its promises to fix price according to the cost of production as it varied in the different plants—on the products of those mills. The trade awaits developments. The manner in which prices are being fixed on coal, and now on steel and copper, however, leaves little doubt that the Administration is sincere in the threats made that it will continue on this course.

STEELE'S WORK APPRECIATED.

One of the most important events in New York circles—it might well be said in general circles, during the past week, was the announcement that George F. Steele, secretary of the News-Print Manufacturers' Association had accepted the appointment as general manager of the Canadian Export Paper Co., Ltd., of Montreal. Through his connections with the News-Print Manufacturers' Association, Mr. Steele had become known as one of the most important factors in the news-print industry, and one of the best known and most highly esteemed men in the paper trade throughout the country. Despite the unfortunate situation created by the recent investigations of the Federal Trade Commission, it is generally recognized that it was George Steele who was responsible for the development of the news-print branch of the trade into a strong industry, placing competition on a basis where it was founded on reason and cold facts. Mr. Steele was responsible for initiating the excellent accounting scheme which has been installed in a good many of the news mills throughout the country. It is generally recognized that it was through his foresight that the relations between the Canadian and United States industries were more firmly cemented—a fact which has been of indescribable value to the trade and the public at large in this country, during the trying period that they have gone through during the past few years. It is worthy of material note that Mr. Steele was the originator of a scheme of publicity whereby his was the first organization in the industry to give regularly to the trade papers, and the daily press statements regarding the activities of the newsprint association, inspiring confidence in that body and tending to destroy the old feeling that seemed to exist among our trade bodies that everything they did ought to be kept "under cover," and that the trade could not be trusted to interpret things in their proper light.

Mr. Steele has the best wishes of the local trade in his new work. He has a big field in front of him, and it is believed that he is better fitted for the work, perhaps, than any other man available. Canada's future in the paper industry is absolutely without limit, and it seems certain that, after the war, the Canadian Export Co. will be counted as one of the chief factors in the progress of the trade in the Dominion. No successor has yet been chosen to take Mr. Steele's place at the Newsprint Manufacturers' Association, but Robert T. Houck, Jr., will have charge of the office at 18 East 41st street, this city, until such a successor is chosen.

SPANISH RIVER NEWS.

The General Improvements Committee at Espanola has awarded the prizes in the Garden and Lawn Contests as follows:—

Gardens.

First prize, $25.00—Mrs. Harry Cleland.
Second prize, $10.00—Mrs. Geo. Paradis.
Third prize, $5.00—Mrs. Patterson.

Lawns.

First prize, $10.00—Mrs. Patterson.
Second prize, $5.00—Mrs. R. Hubener.

The prizes for gardens at Sturgeon Falls were awarded as follows:

First, $25.00—Mr. W. Hall.
Second, $10.00—Mr. Peter Lauzon.
Third, $5.00—Mr. Charles Pierre.

At the Soo the following committee acted as judges of the gardens which had entered the contest and also for the general appearance of the premises: J. Lockwood, J. Tompson and G. Scott. The prizes were awarded as follows:

1st Prize, $25.00—J. V. Kemp.
2nd Prize, $10 00—Mrs. M. H. Hern.
3rd Prize, $5.00—Louis Lawson.

On general appearances the prizes were awarded as follows:

1st Prize, $10.00—Louis Lawson.
2nd Prize, $5.00—C. L. Guest.

The general office of the company has moved into its new quarters recently vacated by the Steel Company. All of the rooms are large, light and well ventilated. The staff appreciates the change, and as the more spacious offices now seem well filled the wonder is where everyone and everything found space in the old quarters.

The list of accidents for July is shorter than usual. Most of those occurring could have been prevented by a little thinking by the injured man—before the accident.

A NEW COMMITTEE OF THE ASSOCIATION.

President Carruth has appointed the following members a Committee on Heat, Light and Power, in accordance with the resolution adopted at the spring meeting in Neenah, May 24 and 25, 1917:

Committee on Heat, Light and Power.

John H. Thickens, manager of pulp and paper division, Bathurst Lumber Company, Bathurst, N.B., Canada, chairman; George E. Williamson, chief engineer, Strathmore Paper Company, Mittineague, Mass.; H. S. Taylor, engineer, Spanish River Pulp and Paper Co., Sault Ste. Marie, Ont., Canada; W. W. Cronkhite, commercial engineer, Power and Mining Department, General Electric Company, Schenectady, N.Y.; E. Matheson, mechanical engineer, St. Croix Paper Company, Woodland, Me.; C. C. Hockley, engineer, Thilmany Pulp and Paper Company, Kaukauna, Wis.

PULP WOOD SUNK.

They are dredging for two carloads of baled ground pulp at the Ogdensburg docks of the Remington Paper & Power Company just as though the river contained diamonds in the rough. In fact, there is several thousand dollars' worth of property in the bottom there.

Last Thursday morning the ferry was making the dock with several carloads of this precious material when it tipped slightly and a car at either end toppled overboard. Five other carloads remained on the ferry.

SWEDEN vs. CANADA IN ENGLAND.

The World's Paper Trade Review makes the following interesting comment on the Swedish situation, and incidentally compliments Canadian pulp makers.

"Despite recurring rumours concerning the raising of the Swedish embargo on chemical wood pulp the fact remains that nothing has happened save a further tightening of the order. The position is clear enough; Sweden will supply Germany with all the pulp she can take. Other countries are allowed to buy on the strict understanding that Great Britain gets no part of the consignment. Admitting the importance to Sweden of our embargo on the coal supply, while at the same time remembering the reasons for our action, it remains a solid fact that Sweden has ample stocks of pulp which she could sell to us if she was so disposed. After the war Sweden will need our orders; we were always one of her best customers, and the probability is that we shall have an immensely increased volume of orders to place when the war is over. The question is: Will they go to Sweden? At present we have found comparatively fresh sources of supply in Canada and U.S.A. Users say that the quality of the newly received pulp is equal to the Scandinavian product, and so far the price is favourable. Under normal conditions we could not expect the prices to compare. Left to themselves, the way of manufacturers is to buy in the cheapest market, and unless new conditions prevail the Swedish pulp will come to us cheaper than the American or Canadian. The policy which is to prevail after the war should, we think, be so framed as to enable Empire pulp to compete with success against that made in a country which tacitly supports our enemy."

WHALEN SHIPS NOT WHALING SHIPS.

The Whalen Pulp & Paper Company, which is engaged in establishing the largest industrial plant on Vancouver Island at the new town of Port Alice, near the head of the Southeast Arm of Quatsino Sound, will lay down two keels at a time and will keep on building ships until it has enough of them to handle its export trade.

Ships being so scarce, and being of a self-reliant sort of disposition, the Whalen Company decided to guard against all emergencies that might arise to hinder the shipping of the millions of feet of lumber and the products of its pulp mill, by arranging to build its own ships, which are to be of approximately 2,500 tons, and of a standard type almost identical with the boats building in Victoria and North Vancouver for the Canada West Coast Navigation Company.

In addition to the Port Alice plant, the Whalen Pulp & Paper Company now owns the B.C. Sulphite Fibre Co. plant at Mill Creek, and the Empire Pulp & Paper Mills at Swanson Bay.

ALBERT E REED & CO. PROSPERED.

The report of Albert E. Reed & Co. for the year ended 31st March last states that, after writing off depreciation on buildings, machinery and plant, loss on investments and interest on debentures and loans, the accounts show a net profit of £46,540. Adding the balance brought forward, and deducting interim dividends, there is an available balance of £82,650. The directors propose placing to reserve fund £10,000, and paying a final dividend of 7 per cent. on the ordinary shares, free of tax, making 10 per cent. for the year, tax free, leaving to be carried forward £55,550.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Paper Clothing.—The Wood Pulp Maker, Sup. to Paper Maker & Brit. Paper Trade J. **54** (1917), No. 1, p. 38. Experiments have been carried out by paper manufacturers in France, under the auspices of the French Academy of Sciences, with the object of producing a suitable paper for underwear. Such a paper it is said, has been found, and is suitable for making vests and plastrons for soldiers; it is soft, watertight, antiseptic, tough and durable. The paper is backed with cloth by a patented process. It can then be folded and brushed without breaking, and by varnishing made impermeable to water. The Vidalon paper mills employ a novel formula for this purpose, based on the idea of blending with a concentrated solution of gelatin fats and a high percentage of drying oils. The paper, after drying, is placed in an antiseptic solution composed of a mixture of formaldehyde and eucalyptus oil.—E.K.M.

Brewer's filter pulp. W. A. J. Foster. J. Inst. Brewing **22,** 413-4 (1916).—The raw materials which have been used for the manufacture of brewers' pulp are cotton, linen, jute, wood, and wood fibres and sometimes small quantities of asbestos; cotton usually forms the main constituent and the best pulp is made from this alone. A pulp possessing a good white color and guaranteed unbleached, can only have been made from clean cotton fibre. The moisture content of such a pulp should not exceed 10%, or moldiness may develop. The ash content should be less than 1% unless asbestos has been added. The author does not recommend the addition of asbestos. The pulp should contain no substances soluble in hot or cold water, or alc. and should impart no flavor to these liquids. A cake of pulp should disintegrate readily in boiling water and give rise to a flaky and homogeneous mass. The commonest defect in pulp is the formation of knots or balls. This may be due to the use of unsuitable fibres or their improper treatment during manufacture, but it is often produced by wrong methods of handling, especially during washing. Apparatus for washing pulp should not be fitted with paddles or wheels for churning the material. The pulp should be washed with cold water until free from yeast, and then for an hour with water at 75-85°, and afterwards again with cold water. Boiling water or live steam should never be used.—L. W. Haas, in Chemical Abstracts.

Useful Pulp-Saving Machine. — Paper Makers' Monthly J. **55,** No. 7; p. 212. A machine designed to collect pulp which would otherwise go to waste in the waste waters from paper mills. It is fixed in a bricked out chamber, or cast iron cistern, set in the course of a drain, and automatically collects the pulp, raising it on to a tray above the water level. A circular screen consisting of bronze gauze of fine mesh, supported by strong perforated metal plates fixed to a cast iron frame, rotates across the flow of water. A vertical board is fixed close to, but not touching the gauze, the pulp in the water is caught between the board and the gauze screen and lifted, by the rotation of the latter on to the tray. All dirt passes forward through the screen. The screen rotates against a machined back plate which prevents the water passing other than through the screen. Power consumption under ½ h.p. for a 4 ft. diameter screen which will deal with from 5,000 to 6,000 gals. per hr. The machine is supplied by the patentees Messrs. Chambers & Hammond, District Bank Chambers, Huddersfield.—E.K.M.

The Photomicrography of Paper Structure.—Millard B. Hodgson. J. Ind. & Eng. Chem. **9** 782 (Aug., 1917), also **Photomicrographic Study of Paper.**— Edwin A. Hunger. Paper 20, 14 (July 18, 1917). These two articles by different authors, are identical in subject matter, although the former gives the greater detail. They have identically the same illustrations. Both are descriptive of a process developed in the Eastman Kodak Co. of Rochester by which cross sections of paper 0.001 to 0.05 mm. in thickness are cut and from which photomicrographs are made. Some very interesting reproductions of these photomicrographs are given.—A.D.C.

Recovery of Free SO_2 in Sulphite Cooking. Paper Vol. **20,** No. **24;** p. 13-14. Sulphite mills working with fine pyrite in mechanical roasters should have liquor reservoirs large enough to cover two days consumption in order that the operations may not be suspended in the event of troubles in the liquor department. Arrangements must be provided for the complete utilization of sulphur dioxide from the gases and liquor blown off. Three different types of arrangement for dealing with the blow-off gases are described in a paper by A. D. J. Kuhn. (Wochenbl. Papierfabr., 1916. 2139, 2179, 2233 and 2270, abstracted in Jour. Soc. Chem. Ind., June 30, 1917) (1). Those in which the blow off gases and liquor are taken off together, cooled, and conducted to the absorption plant which is full of liquor. (2) Those in which the blow-off liquors are discharged from the digesters separately from the gases. (3) Those in which the separation of the gas and liquor is effected in a special vessel outside the digester. One of the last-mentioned type has a special gas separator by which the gas is conducted to an absorption tower with Raschig rings or blocks of wood, the clear liquor which is separated at first, is cooled and passed over limestone for conversion into fresh liquor, and the impure liquor which comes over later is run to the waste liquor tank. The hot water which results from the cooling of the blow-off gases is pumped to an upper tank and utilized for washing the pulp in the digester. A case was quoted in which the sulphur dioxide content of the fresh liquor was raised from 3.43 to 5.58 per cent., while the lime was reduced from 1.07 to 0.99 per cent.—E.K.M.

Insuring Standing Forests. — Amer. For., **23,** No. 284, p. 499. — Results secured by the Timberlands Mutual Fire Insurance Co. in New Hampshire indicate that forest insurance on a mutual basis will soon be as popular in America as it is abroad. Insurance is written on no tracts which are not adequately protected from fire. No tracts are accepted which contain or adjoin recent slashings or which are otherwise exposed to undue danger from fire. Merchantable timber is insured on the basis of its stumpage value per thousand feet or per cord, while young growth and plantations are covered on an agreed value per acre. For the current year the company has established a base rate of the two per cent. premium deposit, which is several times the average annual percentage of loss experienced over a number of years. Insurance of this kind not only increases the loan value of merchantable timber but guarantees owners the money value of young growth or plantations should they be destroyed by fire.—H.N.L.

UNITED STATES NOTES

Frank Shattuck, of the Kimberly-Clark Co., and Joseph T. Alling, of Alling & Cory Co., paper wholesalers, are going into army Y. M. C. A. work with all of their vigorous enthusiasm.

A new steel wood stacker will soon be in operation at the Lincoln, Me., mill of the Eastern Manufacturing Co.

It is estimated from these reports that during the month of July savings in space were effected by the shippers which increased the number of cars available for freight traffic by practically 120,000. Shippers all over the country are making every effort to load cars to capacity or as near it as the nature of the material will permit.

The announcement has been made that the Cheboygan (Mich.), Paper Company is now being operated by the Union Bag and Paper Corp., whose head office is 233 Broadway, New York.

A report just issued by Bradstreet's giving the index numbers for various commodities for the month of July, shows that paper prices for that period marked a decrease over those of the month previous.

A quarterly dividend of two per cent was declared by the International Pulp Co., at a meeting held in Troy, N.Y. This concern, which has its chief offices in New York City, has been progressing very well, doing what is generally considered a flourishing business.

According to a report here, the Eastern Manufacturing Co., has just added to its facilities for the sawing of its pulp wood supplies, through the acquisition for this purpose, of the Phenix mill, Machias, Me. The Eastern Manufacturing Co., which is located at Bangor, Me., is among those concerns that have practically unlimited pulp wood resources in the woods of Maine. The chief problem that this concern is facing is that of securing the proper labor to make it possible to utilize its resources.

The plant of the Commercial Box and Envelope Co., formerly located at Chester, Pa., will be completely transferred, it is understood, to Manayunk, Pa., which is close by to Philadelphia, after building operations now in progress have been completed. According to a report, the work of the concern will be carried on in a bigger scale than heretofore and, to make this possible, it is planned to merge with some other concern. It is understood that full details of the prospective enterprise will be made known soon.

The Kalbfleisch Corporation, of 31 Union Square, this city, announces that it will be well represented at the exhibits at the National Exposition of Chemical Industries, to be held at the Grand Central Palace, during the week of Sept. 24. The Kalbfleisch concern has come to the front, during the past years, as one of the big chemical supply centres for the paper trade. It has grown rapidly, continually increasing its capacity for the production of the various materials which it manufactures. For paper makers, the Kalbfleisch people specialize in sulphate of alumina in all forms, casein, satin white, calcined sulphate of soda for kraft pulp, sulphuric acid and many other chemicals.

This week was the occasion of the sixth annual outing of the agents and jobbers of the Hammermill Paper Co., at Erie, Pa. This is known as the largest affair given by any individual mill, invariably being anticipated by elaborate arrangements of every sort conceivable. This year's affair was no exception to the rule. As a matter of fact, it was regarded as the largest and the most successful of any that had been held. Fully 125 paper men were present at the business meetings and social gatherings that were held. Many big men in the trade made addresses, discussing conditions, as well as the future policy to be pursued by the company. As usual, the golf tournament was one of the big features of the outing.

Steffanson & Co., the well known pulp brokers at 30 East 42d street, announce that they have acquired the services of Fred Enders to be associated with their sales department, spending most of his time on the road. Steffanson & Co. have several big mill accounts and have been carrying on their business on a big scale. Their new salesmen, Mr. Enders, is well known to the trade, having formerly been with Bulkley, Dunton & Co., in their pulp department, and also with Charles T. Howe, who is doing a big business in casein.

United States paper makers are looking forward to experiencing conisderable difficulties in getting sulphur supplies in the future. In some sections, it has been said that even the Canadians will feel this difficulty despite any grants which the government may make allowing the export of the material over the border. It is stated that even if the embargo were never declared, Canada's prospects for getting sufficient supplies were not very bright. This seems to be true in the face of the fatc that the sulphur resources of the United States are unlimited. and are the greatest in the world. All that is needed to get the chemical to the paper mills is steamships. Up to the present time, the Union Sulphur Co., regarded as the largest sulphur operator in the country, has been doing its best, having been able to buy, at very high prices, ships to compose a fairly respectable fleet, to carry the material "up north." Now, however, it is understood that the government has taken over the largest ship of the fleet, and is contemplating taking other of the boats.

In the last export embargo order issued by the Exports Administrative Board, news-print, and various paper making chemicals were put on the prohibition list. This, it will be remembered, had been predicted in these columns some time ago, inasmuch as the consumers (publishers) were clamoring for such action. The Board has given manufacturers to understand that they will be able to get licenses for the export shipment in most cases, but that the embargo is a sort of precautionary order, whereby it will be able to protect the domestic trade, in the event that conditions demand.

F. J. Sensenbrenner, first vice-president of the Kimberly-Clark Company, has been serving as chairman of the exemption board for Winnebago County in connection with the draft for the National Army.

PULP AND PAPER NEWS

A charter has been granted to Rolph, Clark, Stone, Limited, Toronto, with a capital of three million dollars, to carry on the business of printers, lithographers, stereotypers, electrotypers, paper, envelope, paper bag and box makers, stationers and makers of calendars, novelties, etc. The new company is an amalgamation of the Rolph and Clark, Limited, and Stone, Limited, both of which have been doing business in Toronto for many years.

A charter has been granted to the Winnipeg Sales Book Co., Limited, with headquarters in Toronto, and a capital stock of ten thousand dollars, to publish, sell and deal in account books, newspapers, counter check books, loose leaf systems, paper bags, etc. The incorporators are L. M. Appleford, of Hamilton, Wm. S. Morlock, J. J. MacLennan, A. L. Malone, R. H. Parmenter, and J. N. Black, all of Toronto.

George Pauline, of Manchester, Eng., who is well known to the Canadian paper trade, which he has been visiting regularly for over thirty years, is spending a few weeks in Canada, and was the guest of F. A. Ritchie, of Ritchie and Ramsay, Toronto, at his summer home near Orillia. Mr. Pauline's son, George W., is sales manager for Ritchie and Ramsay. For a long period Mr. Pauline, Sr., represented Robert Fletcher & Sons, of Manchester ,and sold a large amount of their product in Canada before the war. He is now in business for himself, and this is his first trip to the Dominion in three years.

The Parker Pulpwood and Timber Co., Limited, has been granted a federal charter to carry on the business, and to take over as a going concern the Annual pulp, pulpwood, paper, etc. The capital stock of the company is forty-nine thousand dollars, and the headquarters in Montreal.

The Canadian Annual Review, Limited, with a capital stock of seventy-five thousand dollars, and headquarters in Toronto, has been granted a federal charter to carry on a general publishing and printing business, and to take over as a going concern the Annual Review Publishing Co., Limited.

Lundy Scott, Limited, is a new concern with a capital stock of fifty thousand dollars, and headquarters in Niagara Falls, Ont. The company is empowered to manufacture all kinds of collapsable and non-collapsable boxes, crates, and carriers, made of paper, split wood, etc.

Extensive improvements have been carried out at the plant of the Interlake Tissue Mills, Limited, at Merritton, Ont. Among these is a new sizing system with large concrete storage tank, mixing and emulsifying vats, pumps and forcing chamber, a new vapor extracting system for the driers, a modern save-all system and Toledo platform scales at the receiving and delivery end of the mill. An auto call system has been placed throughout the building, and a new self registering tachometer on the Fourdrinier machine.

The Wayagamack Pulp and Paper Co. at Three Rivers, Que., have installed a locomotive for shunting cars in their own yard.

Russel D. Bell, of Greenshields & Co., stock brokers in Montreal, has left for the United States, where he has received a commission in the new army. He has been in Montreal for half a dozen years, coming from New York. Mr. Bell has been closely associated with the financial side of the paper business in Canada, especially in connection with the Wayagamack Pulp and Paper Co., and the Brompton Pulp and Paper Co.

The pulp mill of the New Brunswick Sulfate Fibre Co. at Millerton, which was burned and rebuilt, is now operating again. The production is 15 tons daily. About 100 men are employed, and this number will probably be increased.

Canada is well represented amongst those giving addresses at the annual convention of the National Safety Council, which takes place in New York September 10th to 14th, inclusive. Dr. John S. Bates will speak on "Manhood Conservation in Munition and Chemical Plants in Canada"; F. G. Lovett, on "Rip Saw Accidents and their Prevention"; C. A. Gilkerson, on "Standardizing Statistics"; A. P. Costigane, on "Turnover of Labour in relation to Accidents"; and N. B. Bastian on "Switching and Transfer Tables."

The Canada Box Board Co., Limited, have recently carried out a number of improvements and extensions to their plants on Basin St., Montreal, and at Frankford, Ont. At the former mill on the Lachine Canal, without in any way interfering with the manufacturing end of the business, a new beater building of steel and brick has been erected, and two new beaters installed. A new boiler has also been put in along with Jones underfed stokers, with forced draft. New Waterous flat screens have been installed and the board machine, which is 82 inches wide, has been improved at the wet end, and new plunger pumps placed in position for lifting the stock. The output has been increased by fifteen per cent., and the capacity of the plant is now thirty-three tons a day of chip board and chip specialties. The adjoining property has also been secured, affording a storage capacity of 22,000 feet, while a five and a half ton Packard motor truck, painted a battleship grey, and resembling an armored car, is now used for delivery purposes. At Frankford, another press has been installed on the 93-inch board machine, as well as a Millspaugh suction roll. A new Waterous flat screen has been placed in position, and the wet end of the cylinder machine rearranged. The capacity of the plant has been augmented by 20 per cent.. production now being 50 tons a day of straw board and wood filled board. New sidings, which necessitated some heavy cutting, have been laid, greatly facilitating loading, and a new concrete room, 80 x 60 feet, is in course of construction.

Rev. Dr. Briggs, who has been Book Steward of the Methodist Book and Publishing House, for 38 years, will on Sunday next, Sept. 9, celebrate his 81st birthday. Dr. Briggs is still hale and hearty, and works with as much vim and energy as ever. He was one of the veteran guests of the Canadian National Exhibition in Toronto on "Press Day."

Work in changing over the Crabtree paper mill from news print to high-grade writing paper is progressing satisfactorily, and the company expect that the mill will be i noperation by the first of the year. This will double the present capacity of the company, as the Beauharnois plant has an equal capacity. Despite the slight lull in orders during the summer months, the Howard E. Smith Paper Mills are still behind on deliveries, and have orders on hand that will keep them working for months. A big increase in demand is looked for this winter.

A charter has been granted to the Midland Free Press, Limited, of Midland, Ont., with a capital stock of forty thousand dollars to engage in a general printing and publishing business.

A. F. Cayford, secretary treasurer and manager of sales of the Wayagamack Pulp and Paper Co., Three Rivers, Que., has resigned, and his duties have been assumed by C. R. Whitehead.

The recent strike at the Lybster mill of the Lincoln Paper Mills Co., Merritton, Ont., has been settled satisfactorily, and it is expected that the plant will resume operations at once.

OTTAWA NOTES.

From what can be learned from usually well informed circles at Ottawa there does not appear to be much likelihood of the present prevailing price of newsprint paper—$2.50 per hundred pounds—being revised or changed this year. Commissioner Robert A. Pringle, K.C., who is conducting the newsprint inquiry during the last week of August, recommended to the Minister of Customs that the price of two and one-half cents per pound for newsprint be extended for two months more—i.e., from the first of September to December 1st. With this recommendation, which has practically no chance of being disregarded by the Minister of Customs, there appears to be hardly a remote possibility of the price of newsprint being changed before 1918.

Mr. Pringle will in all probability commence his investigation into book, writing, and other grades of paper exclusive of newsprint some time during the month of September. Several of the reports from the members of the staff of Mr. Geoffrey Clarkson, who are going through the paper manufacturers' books and records, have reached the Commissioner. Their contents are absolutely private for the time being. No hint has been given or comment made one way or the other as to what the reports of the auditors show. Apparently the first intimation or knowledge that the paper manufacturers or the public will get as to what the mill records show will be when the newsprint probe resumes, which will not likely be for some considerable time.

An optimistic and generally confident outlook for fall and winter business is the feeling of the Ottawa retail paper trade. Covering the whole field with the exception of newsprint, the 1917 fall and winter business is forecasted to be better than last year, and one of the best trade markets since the war began.

The Beaverboard Company at Beaverdale expects a good fall season. The coal situation with this plant is considered fairly satisfactory, though all of the winter reserve has not yet been stored. The demand for Beaverboard continues good, and compares very favorably with last season.

Lieut. Forest Millen Pratt, M.C., engineer of the E. B. Eddy Company, who was wounded last month has returned to active service in France.

Work on the big new sulphite mill that John R. Booth is erecting at the Chaudiere has been speeded up lately, and is now going ahead in a very satisfactory manner. All of the machinery, it is stated, has already been contracted for, and it is expected that the mill will be finished and in operation by the beginning of March or April, 1918.

Working conditions at the Booth and Eddy paper plants are proceeding as usual, and with a tendency toward good fall business. Orders for the various grades of paper manufactured by the Eddy plant have shown a very slight falling off on account of slack season, but such a drop takes place every year. "We cannot tell anything at all just at present as to the outcome of the sulphur situation. We will have to wait until a more definite course is shaped by the authorities at Washington," said Mr. George H. Millen, head of the E. B. Eddy Company, in discussing the outlook for sulphur supplies. The coal situation with Eddy's is showing an improvement, and part of the winter reserve stock has been stored. The freight situation at present is causing little or no concern with this plant regarding paper shipments.

Coal is costing the Booth interests from four to five dollars per ton at the mine, to which has to be added fifty-three cents per ton duty, and an additional tax of seven and one half per cent. and freight charges, bringing the price up to between six and seven dollars per ton, where formerly it used to cost from between $4.50 and $5.50 per ton at Ottawa.

THOROLD'S INTERSWITCH.

A rather hurried meeting of the Thorold Board of Trade was called on Tuesday last, at which the manufacturing heads were well represented. The cause of the meeting was to discuss what should be done regarding the interswitch for the town, as according to the order issued by the Dominion Railway Board on June 5th, plans should have been filed within thirty days, and in this the Grand Trunk have failed to comply. Not only have they disobeyed the mandate, but have commenced a campaign of writing letters and excuse making, the purpose of which is to place the town under the conditions that in case the switch did not prove to be of financial benefit to the Grand Trunk, the town should pay the expense of the switch.

Mr. Jas. Battle stated that the real reason of their objection is that they do not want to haul the heavy pulpwood and other cars up the hill. If the switch is put in at Thorold, the Grand Trunk will have the heavy haul. Much discussion followed regarding the Railway Board in allowing their order to be ignored in this manner, and the meeting resulted in the following telegram being forwarded to the board:

"The town of Thorold, the Thorold Board of Trade, and the manufacturers assembled, urgently insist that your board enforce its order of June 5, directing the Grand Trunk and the N. S. and T. companies to provide interswitching facilities between the railways at Thorold. The volume of freight has increased since the order was made, and the manufacturers are suffering. It is vitally important that this work be undertaken and completed before winter sets in.

JOSEPH BATTLE,
Mayor.
C. J. BROCKBANK,
Pres., Board of Trade."

The Markets

CANADIAN MARKETS.

TORONTO, Sept. 4, 1917.

The newspapers of Canada are so well pleased with the inauguration of a national news service, after seven years of effort, and a substantial grant on the part of the Federal Government to enable the accomplishment of the great end, that they have very little, if anything, to say on the news print question at the present time. The achievement is certainly a great one, and the Canadian Press, from one end of the Dominion to the other, will furnish a service in every city of importance.

Every newspaper office in Canada has been receiving for months past the Official Bulletin from Washington, which is the medium of the United States Government. Now that sheet will, by order of President Wilson, be printed on news print, the price of which has been arbitrarily fixed by Uncle Sam's Chief Executive at two cents and a half. Under the National Defence Act, the American Government has the power to commandeer supplies needed for war purposes. Whether the action will have any effect in fixing the figure for news print across the border is not yet known, but publishers are hopeful.

Mills on both sides of the line contend that labor, coal, pulp, freight rates and other charges, not to say the increased cost of equipment, make it practically prohibitive to supply news print, at a profit, less than three cents. This is the amount, which Canadian producers hope, will be named by Commissioner Pringle if the official investigation which has been hanging fire for many weary weeks now, is ever completed. In the meantime, the demand for news print increases from all quarters, and many orders have to be turned down by Canadian plants.

The growing importance of the industry is demonstrated in the appointment by George F. Steele, late secretary of the American Newsprint Manufacturers' Association, as general manager of the Canadian Export Paper Co., with headquarters in Montreal. This, means that Canada is becoming the great centre of the news print production of the world and, as straws show which way the wind blows, so the selection of Mr. Steele is evidence that Canadian producers of news are going after bigger business, and will make print paper a mighty factor in the upbuilding and expansion of the Dominion, industrially and commercially.

Now that the summer dullness is past, and September has arrived, all pulp and paper men are looking forward to a large trade this fall, and business is already improving. There may not be the unwonted activity and mad desire to buy in great quantities, which was apparent on all sides during the last few months of 1916 and the first few in 1917, but there is little fear but that all plants will have all the orders that they can attend to comfortably and promptly, and present prices are likely to be maintained. There may be no increases, at least, until after the first of the year, but everything is expected to hold to its present level. If sufficient labor can be secured, and also coal in the necessary quantities, operations will be carried on to the full. A serious perplexity, which threatened to prove a barrier, has, all are pleased to note, been removed. That is the embargo on sulphur which was placed on the commodity by the United States. The Bureau of Export Licenses of the United States has authorized the United States customs collectors to pass sulphur shipments to Canada which were en route on or before August 27, and prior to the coming into effect of the new American export regulations. All mills who want supplies in future will have to take out special licenses which will be granted by the Deputy Minister of Trade and Commerce, and, after being passed by him, they will be sent to Washington. Another cheering bit of information is that sulphur is to be produced by new processes by recovering it from sulphur dioxide in smelting gases, at $12 to $13 a ton.

The production of news print in Canada during July was the largest of any month this year, with the exception of May, and stocks on hand were reported to be about eleven thousand tons.

In the matter of getting out pulp wood, wages are being offered men from $45 to $50 a month, where the scale a few years ago was from $20 to $28, and in addition it costs three times as much to board the men. Some concerns will not open any camps this year, while others will undertake only a limited number. They preper to trust to the open market, and pay for what quantities of wood they require rather than assume the huge outlay for operating camps. One large pulp and paper concern is reported to be paying its men as high as $60 a month and board in order to retain them. The labor problem is growing very acute with the mills. A representative of a large pulp wood company, who has just returned from Northern Ontario, says that the great difficulty is in getting cars for shipping out wood along the Transcontinental railway. His firm has still nine thousand cords beside the tracks, out of a supply of forty thousand that was on hand this spring. The prices prevailing for rough wood range from $6.25 to $7.50, and the output by the settlers will be a little larger than last year. Many buyers are making their appearance and bidding for supplies is rather lively.

The number of orders for sulphite, both easy bleaching and news grade, is improving and the outlook is for an even greater pressure on the mills. Prices keep up well, and there has been a little stiffening in quotations for mechanical pulp. Coating mills are getting busier and paper box factories are now running on a much larger output of business. Toilet and tissue plants declare that conditions are improving, and the outlook for fall turnover is excellent. A new paper bag has appeared on the market for use by both grocers and confectioners. It is a wedge shape bag, made in manila and white sulphite, and has been well received. Owing to the less paper used in its make-up, it sells at fifteen per cent. less than the ordinary bag. Board plants assert that there is a decided turn for the better in the affairs, and look forward to an active fall, with present prices holding until the end of 1917.

Now that the holiday season is over, conditions in the paper arena are becoming more fixed, and printers are getting busier, while envelope factories and wrapping paper plants are feeling the impetus of new activities after a rather quiet summer. Water conditions continue good, and the release of workers from munition plants may improve the rough labor situation at the mills, and keep wages at any rate at their present level.

It is rumored that prices are softer on book papers, but no price changes have been reported.

TRADING IN CANADIAN PAPER STOCKS.

During the week beginning Tuesday last, the following sales of pulp and paper stocks were reported:

	Shares.	High.	Low.
Brompton	183	45½	44¾
Laurentide	198	171	171
Spanish River	75	15	15
Howard Smith	13	70	70
Riordon	60	118	118
Wayagamack	767	55	50

Spanish River Bonds, $2,000 at 81¾.

NEW YORK MARKETS.

New York, N.Y., Sept. 1.—Demand for chemical pulp continues on a restricted scale and actual business is confined to transfers of rather small quantities of fibre. Paper mills in many sections are said to be beginning to increase their operations, but apparently are not yet in any immediate need of pulp supplies and are buying conservatively. Prices have been firmed on the basis of the sulphur situation. A better demand for soda pulp has been reported. Book paper mills are said to be increasing their operation and finding it necessary to seek extra supplies of pulp in the open market, are freely inquiring for such quantities as they are in immediate need of. Prices being quoted by domestic mills range about 6 cents with some sales reported at 5¾ cents, yet with other producers demanding as high as 6¼ cents. With regard to the market in general, it is understood that the shading of prices is now being practised only in cases where domestic manufacturers have certain lots of sulphite which they are anxious to move. In another article printed in this issue, will be found the relation of this market to the action of the Government in fixing at 2½ cents, the price of newsprint paper. A very interesting report was issued this week by the United States Government Bureau of Mines, which, if it materializes, and there seems to be every reason that it will ,will have considerable influence on the future course of the chemical pulp markets. The Bureau claims it has discovered a way of producing sulphur for $12 a ton, whereas it is now selling—and pulp makers must pay the price if they want the material —for $55 a ton, and $80 for the refined sulphur. It is understood that the sulphur in question would be suitable for the use of the pulp manufacturers and would thus reduce the cost of their production considerably. The scheme that has been discovered is a reclaiming process for the recovery of sulphur from sulphur dioxide in waste smelter gases, and the indications are that, at least in some localities, the process can be applied on a commercial scale "and sulphur recovered at a cost that will allow a profit."

There seems to be no material change in the groundwood pulp market from that reported in last week's issue. Business is said to be going on in a moderate way and quotations are being sustained fairly well. Newsprint mills and other consumers are buying in comparatively large volume, while grinders are as insistent as ever in getting what they ask for stock. About the most common figure asked is $42 per ton at the pulp mill, and few sales of any real size are being made at lower prices. Grinding plants are having increased difficulty in securing raw materials and experienced workmen, a fact which is said to have contributed materially to a curtailed production of groundwood pulp. The freight question is now looming up stronger than ever. In some of the grinding sections, it is said to be impossible to get pulpwood because of embargoes issued by the railroads which are doing their best to clear the roads and to give all of the cars possible to the Government, thus insuring the greatest speed for war equipment being sent to destinations in all parts of the country. If the government does not step in and fix the price of groundwood, as is thought likely soon, the quotations will have been forced way up because of the wood and the freight difficulties. Eastern grinders continue to ask between $41 and $44 a ton at the pulp mill. In the West, producers are quoting up to $46 per ton, with $44 the most common figure asked.

The rag dealers maintain that they know the stocks held by the felt mills are far below normal and that the manufacturers are really in need of supplies rather than being loaded up as some are trying to lead dealers to believe. Dealers' quotations rule steady and mixed satinets are still fetching up to 2 cents. New England mills are said to be offering 2¾ cents delivered for repacked thirds and blues, and yet dealers or brokers are said to be finding it practically impossible to get such stock at below 2½ cents, while many holders are asking considerably more. Street soiled whites are quoted up to 2¾ cents; No. 1 whites, up to 5 cents.

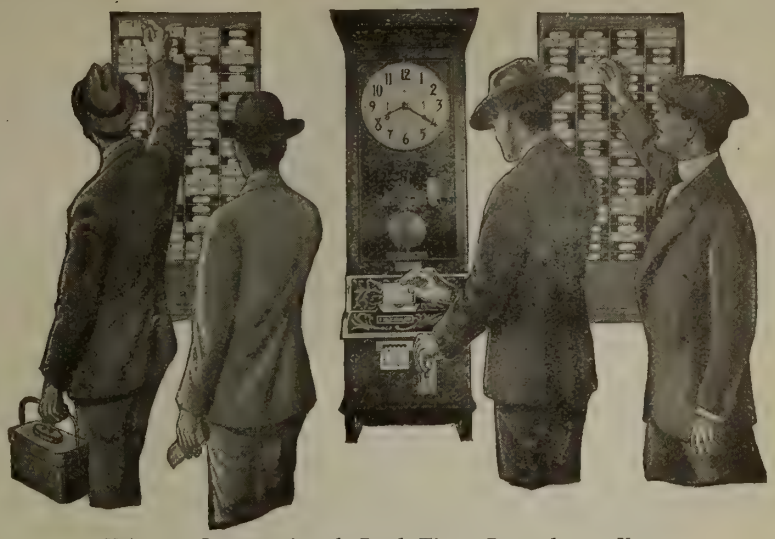
The market for new cotton rags is steady. Most paper manufacturers have fair supplies of rags on hand. Prices being quoted to mills on No. 1 white shirt cuttings range to 9½ cents and higher. Fancy shirt cuttings are moving in some quantity and at steady quotations, up to 5¾ cents; washables also are in fair demand up to about 5½ cents.

Waste papers are in moderate demand, the lower grades continuing in greatest call. In some sections of the market, dealers state that they can discern the beginning what they believe to be the stimulation of trade that usually occurs about this time of the year. Manufacturers are buying news, mixed and other similar qualities of paper in good quantity and are offering attractive values. No. 1 hard white shavings are quoted at as high as 4¾ cents; soft white shavings range up to 3½ cents; colored shavings up to 2 cents; heavy books and magazines, up to 1¾ cents; over-issue magazines, up to 2 cents; ledgers and writings, up to 2½ cents; No. 1 manilas, up to 1¼ cents; No. 1 krafts up to 3¼c cents; folded news, up to 1 cent; bogus wrappers, up to 1½ cents; over-issue news, up to 1½ cents; mixed papers up to 80 cents a hundred.

Bagging is dull. Roofing bagging seems to be finding considerable interest, however, and is going well, with quotations holding strong. Gunny is quoted at as high as 4 cents; bright bagging, up to 3½ cents and a little higher; sound bagging up to nearly 3 cents; mixed bagging, up to 2½ cents. The old rope market retains its firmness. Manufacturers are placing scat-

TIME

is the essence of the contract. Everything depends on the use you make of the working time your men deliver—yes, but the first essential is to be sure you get the time you are paying for.



Using an International Card Time Recorder. Very speedy and flexible. Just one style of many we make.

International Time Recorders

If you use a human time keeper and a time book you must expect "human" results. If you use an International Time Recorder you employ a cold-blooded, deadly accurate machine that has no brains so it cannot "think" and cannot make mistakes. Every employee makes his own time record so he knows it must be right. Amongst many other successful mills using Internationals are:

Abitibi Power & Pulp Co.
Belgo Pulp & Paper Co.
Laurentide Pulp & Paper Co.
Gulf Pulp & Paper Co.
Brown Corporation.
Chicoutimi Pulp & Paper Co.
Empire Pulp & Paper Co.
St. Maurice Pulp & Paper Co.
Wayagamac Pulp & Paper Co.

These Mills' Labor Costs are Accurately Defined



A modern International Dial Time Recorder. Very simple--can be used by anyone who can read a number.

They get the original pay-roll entry printed by the employee himself. It's bound to be accurate, indisputable and represents solid working time only. These mills may be amongst your competitors. If International Time Recording equipments pay them —it will at least pay you to investigate.

Internationals are made in Canada, by Canadians, with Canadian capital and wherever possible with Canadian materials. They are used in hundreds of the best known mills in Canada.

Let us send you our latest illustrated folders---very interesting.

The International Time Recording Co. of Canada, Limited

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Office and Factory
Toronto, Canada

Also at Montreal
Winnipeg, Vancouver

tered orders, having fair stock on hand. Freight embargoes are holding up quite some trade. Quotations are firm up as high as 6¾ cents.

Of course, the most interesting feature of the market this week was the order by the Government to the International Paper Co., to supply it with newsprint at 2½ cents, as is told elsewhere in this issue. Upon the status of this order, it is believed, depends the immediate future of the market in general. For example, the government is a large consumer of book papers. It seems plausible—as a matter of fact, it seems inevitable—that, if a price should be fixed on news, it is likely the same will be done with book paper. The report of the Federal Trade Commission handed to the Senate, to which reference was made last week, stated that the book mills were making an unreasonably high profit. As the President relies on the Trade Commission for his price fixing information, it is thought that he will act accordingly. In view of what has been done in newsprint, even the conservative book paper men feel that something is coming. Tissues remain unchanged. There is very little demand for this paper, with manufacturers finding their efforts to maintain prices rather futile. In wrappings, some activity is reported, but it is said that concessions are being made in order to stimulate trade. For the present appearance of things, it is not at all unlikely that the dealer will lose considerable of this business during the coming season, for it is known that the various consuming trades are getting together with the co-operative buying idea in their heads—which means that they will be able to buy in large enough quantities to go direct to the mill. Boards may be affected in a similar manner, inasmuch as the clothing trades are reported to be considering such a scheme as that just mentioned. At present, the market shows considerable improvement.

New York Quotations.

(These are a nominal range of prices):

Groundwood, f.o.b. mill	$42 to $46 ton
Foreign bleached, sulphite, ex-dock, N.Y.	9¼c*
Foreign easy bleaching, ex-dock, N.Y.	5¾c*
Domestic bleached sulphite, f.o.b., pulp mill	6c*
Foreign unbleached sulphite, ex-dock, N.Y.	5½c*
Foreign unbleached sulphite, No. 2, ex-dock, N.Y.	5¼c*
Domestic unbleached sulphite, f.o.b., pulp mill	3½c*
Kraft pulp, f.o.b., mill	5¾c*
Foreign kraft pulp, ex-dock, N.Y.	6c*
Bleached soda pulp, f.o.b., pulp mill	5¼c*
Mitscherlich unbleached	5¾c*
Foreign unbleached soda pulp, ex-dock, N.Y.	5½c*
Ledger papers	10c*
Regular superfine	19c*
Best Grade Writings	21c*
Bond paper, sulphite	10c*
News, contracts, f.o.b. mill	3c to 3¾c
News, spot lots	3¼c to 4½c
News, side runs	4½c
Book, super	7½c
Books, coated	3½c*
Books, m. f.	6¾c
Tissue, good sulphite, bleached, per ream	$1.00
Tissues, ground wood, manila, per ream	$1.00
Kraft, domestic	7½c
Kraft, foreign	8c*
Wood manilas, No. 1	6¼c*
Wood manilas, No. 2	5c*
Jute manilas	9c
Newsboard, per ton, f.o.b., New York	$55.00*
Strawboard, per ton, f.o.b., New York	$50.00*
Chip board, per ton, f.o.b., New York	$50.00*
Binders Board, per ton, f.o.b., New York	$65.00*
Wood Pulp Board, per ton, f.o.b., New York	$77.00*

(*)—And higher. R. W. JOLLY.

NEW YORK CHEMICAL MARKET.

The chemical supplies market on the whole is steady in tone, despite the lack of demand for many descriptions of goods and the restricted manner in which the large majority of paper and pulp mills are now buying. Casein is in much lighter request. The domestic production has fallen off greatly, and very little casein is being imported. For the domestic product the quotation is 22 to 28 cents. The supply of rosin seems altogether inadequate to the prevailing demand. Quotations for the E. and the F. grade are about $6.10 per 280 pound barrel, and for the G. grade, $6.20 per barrel. The market for soda ash is stronger and an active inquiry is reported. For 58 per cent, in bags, prices range up to 4 cents. Caustic soda has strengthened in value, dealers and producers now asking as high as 8½ cents for 76 per cent for immediate shipment.

The newspapers announced this week that schedules in bankruptcy had been filed by M. Helfgott & Son, Inc., paper dealer of 132 Nassau street. The schedules showed liabilities of $17,502, and assets of $15,100. The concern went into bankruptcy a short time ago.

There has been interest shown in the fact that the New York State College of Forestry at Syracuse, N.Y., is now equipped and prepared to take care of a Department of Forestry—generally regarded as keenly needed in this section. The research work of the new department will be under the direction of Dr. S. F. Acree, formerly associated with the Forest Service laboratory at Madison, Wis.

Word was received in Appleton paper mill circles last week to the effect that William H. Goodenough for a number of years superintendent of the Shattuck and Babcock Division of the American Writing Paper Company at Depere, has been appointed general superintendent of the Crown-Willamette Paper Company at Camas, Washington.

Edward H. Hall, treasurer of the American Writing Paper Co., and Joseph B. Woodruff, purchasing agent, have resigned. Mr. Hall's place will be filled by W. C. Wharfield, assistant treasurer, until the Board of Directors meets.

The U. S. Department of Commerce finds that paper containers are meeting their purposes in good style. In an announcement just issued on this subject, the Department says, in part:

"It is understood that the utilization of fibre and paper cans as substitutes for the ordinary tin cans has been quite successful, and that our European Allies are considering their availability to meet the shortage in those countries."

EMBARGO INCLUDES PAPER.

"News-paper, print paper and wood pulp," are included in the new embargo order that was issued last week by President Wilson. "Print paper" is supposed to include book paper.

Tel Address: Stancliffe, Two-Dales, England
Lieber's 5 Letter Code

THE STANCLIFFE ESTATES CO., LIMITED

DARLEY DALE, ENGLAND

BEST ENGLISH PULP STONES

from our celebrated DARLEY DALE Quarries, as supplied to the World's Pulp Mills

What do you do for Foam Trouble?

Repeat orders testify to the value those acquainted with CONCENTRATED VEGETABLE TALLOW place upon it. It is a more effective foam killer than the old methods, and does not cause oil spots nor affect the sizing. It absorbs and neutralizes the foam-causing elements—gas, chemicals or colors—and acts upon them only.

PAPER MAKERS CHEMICAL COMPANY,

Western Paper Makers Chemical Company.
Easton, Pa. Kalamazoo, Mich. Holyoke, Mass.



FRESH MILK THO A 100 MILES FROM THE NEAREST COW

KLIM is all the food value of pure separated and pasteurized milk in powder form.

The cooks like Klim because it gives them a ready supply of sweet cooking milk.

The men like Klim because it makes possible many appetizing dishes which they have to forego when milk is not available.

The Boss likes Klim because it costs little, bulks small, keeps sweet and fresh, and there is no waste. Order Klim from your Supply House.

CANADIAN MILK PRODUCTS, LIMITED

10-12 WILLIAM STREET, TORONTO.

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Also stocked by:
W. H. Escott Co., Limited, Winnipeg, Calgary, Regina, Saskatoon, Edmonton.
Kirkland & Rose, Vancouver, B.C.

Bleached and Unbleached

WOOD PULP

of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y

MACHINERY MEN, ATTENTION!

Communications have been received by the U. S. Forest Products Laboratory of the Forest Service from the Technological Museum of New South Wales, at Sydney, Australia, and from the Forest Research Institute, of India, asking for plans and specifications and estimates of cost of experimental paper-pulp plants.

Mr. Richard T. Baker, curator of the museum at Sydney, states that an investigation of the pulping qualities of Australian hardwoods has been undertaken, and he desires to communicate with manufacturers of needed machinery. His address is: The Technological Museum, Harris Street, Sydney, New South Wales, Australia.

Mr. William Raitt, of the Forest Research Institute and College of India, states that the branch of the service that he represents is contemplating a large extension of its practical work and that the installing of a plant for the production of paper pulp is among the projects undertaken. He desires illustrations and descriptive matter on the subject and invites estimates from manufacturers. He favors a drying machine on the Fourdrinier principle, but with no shake on the wire. The raw material to be used comprises bamboo and Savannah grasses digested by the soda method. The institute also intends to fit up small plants for the treatment of resins, gums, etc., cracking of oils, tanning extraction, and timber creosoting. Mr. Raitt may be addressed at the Forest Research Institute and College, Dehra Dun, United Provinces, India.

TAX ON SECOND CLASS MAIL PROTESTED.

The United States Senate has thrown out the pro vision for an increase in first class postage rates fro 2 to 3 cents per ounce, and also struck out the pro posed publishers' tax of 5 per cent. on incomes ove $4,000. An amendment was adopted which will put tax on second class matter, in addition to postage, o 1 cent for zones 1, 2 and 3; 2 cents for zone 4; 3 cent for zone 5, etc. The third vote will be taken Sept. 1

This action is strongly opposed by all publication newspapers, magazines, trade, technical and scientifi journals, who are already suffering from the war an whose profits are not at all incresed because of it. The are quite willing to pay taxes on profits, telephone telegraph, incomes, etc., that others pay, but protes being put in class to be unfairly treated.

HAS THE BLACK FOREST GONE?

The handling of the Black Forest by German for esters has been held up for years as the ideal of fores conservation. It furnishes not only a large amount o fir, pine, spruce and larch, but provides locations fo many sanatoria. The story of this forest is told b Lieut. John B. Woods, of the Forest Regiment, i American Forestry. It is rumored that the German have been forced by the war to overcut this woodlan to a serious degree.

ACKNOWLEDGMENT.

L'Air Liquide Society wishes to acknowledge th courtesy of the Jenckes Machine Co., St. Catharines Ont., for the illustration of the former's advertisemen in the Pulp and Paper Magazine, August 23.

Parties in Nova Scotia, controlling 60,000 ACRES OF FIRST CLASS PULP LANDS are desirous of communicating with parties who would be willing to install a Pulp Mill. Water power and shipping facilities most advantageously located.

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MORE NEWS.

The first of the output of paper cartons by the Continental Bag and Paper Company is expected within the next seven or ten days. Up to the end of August the company was installing or trying out the new machinery which it has installed for its entrance into this field of production. Ten persons will be employed at the start to look after the machines turning out the new product. Two of the principal styles of manufactured product will be paper pails, and folding boxes. Though paper boxes will be manufactured, it is not expected that the product will cut into the field covered by the Ottawa Paper Box Company. The Ottawa branch of the Continental Bag and Paper Company views the coming fall business with optimism, and in comparison with a corresponding period in 1916 thinks the 1917 fall and winter market will show a big improvement over the preceding year, inasmuch as the market is not of such a fluctuative nature as regards selling prices and cost of supplies. In short, it is viewed by this concern as a more reliable market and outlook than last year. Business and working conditions appear good, and the report is that stocks are normal and that purchasers are not overstocked.

Business continues good with the Ottawa Paper Box Company, and prices are holding firm. Orders are about the same as last year, considering the usual aftermath of the midsummer lull. The principal demand for boxes comes from the hardware trade, and though prices went up some time ago the same steady demand continues. The Ottawa Paper Box Company expects a good fall and winter business.

The ups and downs of the coal situation is not having a great deal of effect on the Bronson and Company plant, which manufactures small quantities of groundwood, as water power is principally used.

Mr. R. G. Marshall, boss finisher at the Montrose Division of the Provinical Paper Mills Co., Ltd., at Thorold, has resigned his position in order to take up a similar post with the Berkshire Paper Mills at North Adams, Mass.

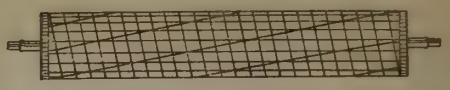
FREAKS OF WORKMEN'S COMPENSATION.

In consistencies of the workmen's compensation law as administered in some of the States are pointed out by the National Industrial Conference Board, an organization of manufacturing interests, in advocating a permanent, scientific and uniform system of compiling accident statistics.

The committee, after a thorough investigation, cited an instance where the Ohio Industrial Commission awarded compensations, to the dependants of a stenographer, because, when taking dictation from her employer, she was murdered by a jealous suitor. Another instance was noted where the New York Industrial Commission awarded compensation for the death of a street railway process server from gangrenous diabetes, alleged to have resulted from having his toes trodden upon by a fellow-passenger in a car of the company which employed him.

The report says uniform laws would go far toward determining definite standards of liability and equitable compensation rates, and would enable legislators to judge the real hazards of various occupations and "permit the just extension of the compensation principle to many workers now arbitrarily excluded from its terms."—New York Evening Sun.

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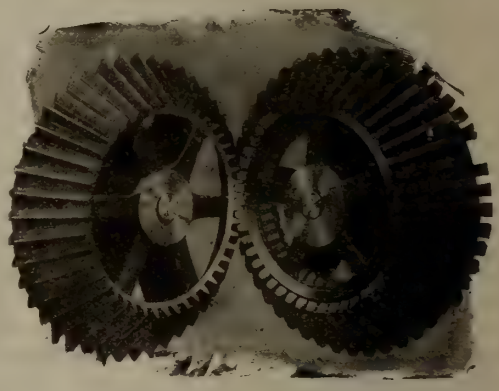
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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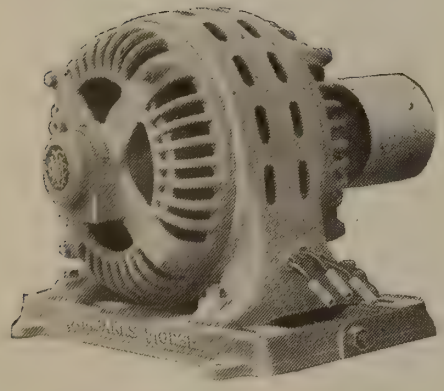
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EDITORIAL

USE CANADIAN SULPHUR.

It may seem strange to refer to Canadian sulphur when attention has been so forcibly directed by the recent American embargo to the almost total dependence of Canada on outside sources of supply. There are a few scattered deposits of pure sulphur in the Dominion, but these are so small as to be insignificant. Canada is really quite extensively supplied, however, with sulphur in the form of pyrites and other metallic sulphides. Enormous quantities of sulphide ores are roasted for their metallic content, the sulphur being entirely wasted and the gas evolved by present methods of roasting constituting a very considerable nuisance. It is a question whether this operation can be conducted in such a way as to make the sulphur economically available.

Iron pyrites occurs in many parts of Canada. Except for mills in New Brunswick and the Lake St. John region, there is not a sulphite mill in Canada but what could conveniently obtain this material with a short rail or water haul from a producing mine or a promising deposit, and these are not out of reach. It appears that with possibly one exception, no Canadian mill has attempted the use of pyrites for making bisulphite of lime. Two mines were in operation in Quebec in 1912, and five in Ontario. The output was used in making sulphuric acid. Some was also brought in from New Hampshire. The domestic production last year was 309,400 tons at an average cost of $3.50. No doubt the production could be largely increased if pulp mills were to take up the matter of using it.

There has been a lot of talk about using Canadian materials, especially along the line of increasing the value of our raw materials and of our exports by at least partial manufacture in Canada. This movement has been attended with notable success in case of pulp wood. Whereas it was once the rule to ship enormous quantities of raw wood from Crown lands to be manufactured elsewhere, now this is largely converted into a higher priced material by converting it into pulp or paper. At the same time, Canadian labor is given profitable employment. In the making of sulphite pulp from this wood, it is necessary to use large quantities of sulphur and this has always been imported, almost wholly from the United States. Italian and Japanese sulphur is practically unobtainable because of shipping difficulties. The American sulphur deposits in Texas and Louisiana are very extensive, but the present requirements of the explosive industry make it necessary to conserve the production. To this end an embargo has been placed on exports of sulphur and Canadian pulp mills may obtain supplies only on licenses approved in Washington. While it is not anticipated that any mills will be shut down on account of this action, it can be readily imagined that some inconvenience may be experienced before the war ends.

A mill operating on domestic pyrite—it might even have its own mine—would be free from any such embarrassment. It would be helping the Dominion by keeping in Canada the money that now goes elsewhere and this would be giving additional employment to Canadian labor.

Enormous quantities of pyrites are used throughout the world in the manufacture of sulphuric acid, the first step in which is the making of sulphur dioxide. This is also the first chemical reaction in the manufacture of sulphite pulp. The formation of sulphur trioxide, which is desirable in the former is quite the opposite in the latter. By the proper use of a suitable furnace for burning the pyrite, this difficulty can be avoided and a very satisfactory gas, containing 8 to 12 per cent SO_2 can be obtained, as compared with a 12 to 16 per cent. gas from brimstone. The former will contain less oxygen. It is said to require more complete cooling before absorption takes place. There is, of course, the extra freight and handling of the cinders, which yields no gas, but the hauls are shorter. In fact, pyrites can often be delivered for less than the freight charge alone on brimstone.

In his report to the Mines Branch in 1912, entitled "Pyrites in Canada," Dr. A. W. P. Wilson cites an extensive trial, where it was shown that 22.5 tons of pyrite containing 47 per cent. of sulphur is equivalent for pulp making to 10 tons of sulphur. With the former costing $5.00 and the latter $27.25, at the mill, there was a balance of $113.50 in favor of the pyrite, taking all items of expense into consideration. This amounts to a saving of $11.35 per gross ton of sulphur, or $30,000 annually on a 50 ton pulp mill.

A pulp mill in New York State has been using pyrite averaging only 30 per cent. sulphur, about the limit at

which it will burn without extra fuel. Canadian pyrite seems to run better than this and in some localities might carry valuable metals that would make the cinder marketable. Pyrites is a bi-sulphide of iron and, when pure, contains 53.34 per cent sulphur. It is sold on the basis of so many cents per unit. If the quotation reads 16 cents for 50 per cent. pyrites, the price per ton is 50 times $0.16, or $8.00. A mining engineer has supplied the following table, proposing a scale of prices which amounts to a fair price on a low grade ore, with a bonus for better material.

Proposed Scale of Pyrites Prices f.o.b. Cars at Mine.

Percentage of sulphur.	Cents per unit.	Dollars per ton.	Cost per lb. of sulphur content. cents.
35	11	$3.85	.55
37½	12	4.50	.6
40	13	5.20	.65
42½	14	5.95	.7
45	15	6.75	.75
47½	16	7.60	.8
50	17	8.50	.85

More expensive equipment is required for burning pyrites than for burning sulphur and where sulphur burns completely, pyrites not only leaves all its non-sulphur content, but the iron adds weight in taking on oxygen during the burning or roasting. This non-sulphur content involves a freight charge to the mill and an expense item in disposing of the cinder. All of the sulphur is not consumed, about 2 per cent. remaining in the cinder. These are the principal economic difficulties. The principal chemical difficulty is in impurities that are injurious to process or pulp. Of first importance is the presence in the ore, of arsenic or selenium. It is unfortunate that Dr. Wilson's report does not give analyses of typical Canadian deposits. Some of the material mined in St. Lawrence County, New York State, is quite free from injurious chemical impurities. No doubt, there are deposits in Canada that are quite as suitable for pulp making.

A number of European pulp mills are finding it profitable to use pyrites. In fact, if it were not for this material, most of them would be shut down, because of the difficulty in obtaining sufficient quantities of sulphur. There is a critical point in the price of sulphur, beyond which a mill should find it advantageous to install equipment for burning pyrites, provided the proper grade is available. Just now it is doubtful whether enough Canadian pyrites is mined to make very much pulp. A few five year contracts from pulp mills, would, however, be an attractive inducement for owners of pyrites deposits to develop them. We believe there is a future for Canadian pyrites in the sulphite pulp industry, although it may not be desirable to even think of entirely displacing sulphur for this purpose.

HOW TO GET TO HOLYOKE.

There will undoubtedly be a considerable number of Canadian pulp and paper makers at the joint meeting in Holyoke of the Technical Section, with the American Technical Association. The program, printed on another page (878) is certainly a great inducement to visit the "Paper City." Fortunately paper men are beginning to see the advantages of meetings of this kind and attendance is becoming an excellent habit.

In order that there may be no disappointments or delays involved in getting over the line **and back again**, the secretary of the Technical Section has very thoughtfully sent the following letter to members of the section:

Dear Sir:

I would remind those of you who purpose attending the Convention at Holyoke, on Thursday, Friday and Saturday, September 27th, 28th, and 29th, that it will be necessary for you to obtain a permit to leave Canada, which is in the nature of a passport, and containing full details. You will also need credentials authorizing you to go to this convention as a representative. This passport will then be O.K.'d by the immigration authorities, and then accepted by the U. S. immigration authorities. I would suggest that you advise me immediately if you intend to make this trip so that I can send you the necessary form to be filled in with your photograph in order that there may not be any undue delay in respect to the granting of such permit.

Yours truly,
A. L. DAWE, Secretary.

DON'T GET EXCITED.

The Fourth Estate frequently prints material of great interest to the pulp and paper industry. The last issue contains an editorial entitled, "How Long is Canada to be our Paper Dictator?" This is intended to arouse anxiety in the minds of Americans that Canadians may take an unfair advantage of their neighbors in the matter of newsprint paper. If such action ever was contemplated, the best chance in history has been passed up.

Attention is called to the report of the Director of Forestry (published in the Pulp and Paper Magazine for August 30), with the observation that because of the wood, pulp and newsprint sent to the United States, that country really made only 20 per cent of its newsprint from home grown material.

The plea of our contemporary is for the newspapers to get vigorously behind the Walsh, Small and Shields Bills, whose passage, it is claimed, will provide an inducement and encouragement for the establishment of a pulp and paper industry in the Western States, where wood and power abound.

This is a commendable and patriotic endeavor on the part of the Fourth Estate, but there need be no apprehension across the line in regard to the attitude of Canadian pulp and paper makers, many of whom are Americans anyway. They believe the poorest way to make a friend or retain a customer is to hit him in the eye or choke him.

Electricity in the Pulp and Paper Industry*

By W. W. CRONKHITE,
General Electric Company.

The paper and pulp industry was one of the pioneers among large manufacturers to realize the benefits of electric drive. The use of the electric motor in the paper and pulp industry has grown so rapidly that at the present time a conservative estimate of the motors installed in these mills in the United States is close to 300,000 h.p. Electricity is the only practicable power distributing agent that allows the centralization of the power generating apparatus in one efficient station and, at the same time, affords the flexibility of distribution necessary to allow the layout of the plant to be made entirely with a view to its manufacturing efficiency. However, electricity is more than a convenient agent for distributing power; its assistance in the economical application of power direct to the machine is also of great importance.

There are many special applications of motors to pulp and paper making machinery that enable the



Fig. 1.—15-h.p., 750-r.p.m., 440-volt Form K Induction Motor driving 5-ft. barker. Kimberly-Clark Company, Kimberly, Wis.

manufacturer to get the maximum production from his mill. In applying motors, both group and individual drive must be considered and the choice determined by the conditions. Motor drive assists the manufacturer in re-arranging or adding machinery to take care of an increasing business.

To cover the complete engineering end of the industry would involve much technical data; therefore this article will make only general recommendations and in the briefest manner.

*Courtesy of the General Electric Review.

See also "Electric Drive in a Roofing Paper Plant", by William H. Easton in Paper, June 6, 1917. This article describes the installation of the Barrett Co. at Elizabeth, N. J. Abstracted in Pulp & Paper, p. 765.

See also, Individual Drive vs. Group Drive, page 880, this issue.

Wood Conveyor.

Fig. 2 is of a wood conveyor which is driven by an induction motor located in the frame building to the left of the picture. Tests which have been made would indicate that wood conveyors take 1½ h.p. per 100 feet of length when running at 100 feet per minute. Some paper and pulp companies, however, make a practice of running their conveyors up to nearly 200 feet per minute and allow 5 h.p. per 100 feet of length. This may result in a motor that is a little larger than necessary, but it is an insurance against trouble due to high peak loads that may be encountered if the wood jams in the trough; it also insures ample starting torque if the conveyor is started with the trough full of wood.

Barkers.

Individual drive is an ideal method for driving barkers. Fig. 1 shows an induction motor on a 5-foot



Fig. 2.—Motor-operated Wood Conveyor, Finch, Pruyn Company, Inc., Glen Falls, N. Y.

barker installed in a Wisconsin mill. The power consumption varies somewhat with the material, and of course with the speed. Tests which have been taken on a 5-foot barker driven by a 15-h.p., 720-r.p.m. direct-connected moter show a maximum requirement of 12 h.p. and a minimum of 7 h.p. Squirrel-cage motors are to be recommended, but inasmuch as starting conditions are severe, due to heavy loads to be accelerated, it is important that an indestructible type of rotor construction be used. There may be conditions when group drive would be best. Fig. 3 shows such a drive in a pulp mill in Maine.

Grinders..

Fig. 4 shows 1200 h.p. motors each direct-connected to two four-pocket grinders, one on each end of the motor. This same arrangement with two stones on each end of the motor has been adopted in some mills. The reason for placing half of the stones on one end

and half on the other is that in case of accident to a stone the coupling can be opened at that end of the motor and the stone or stones on the other end operated. This arrangement may not be of very great practical importance, and many installations are being made with all the stones on one end of the motor. This latter arrangement allows the motor and controlling apparatus to be placed in a separate room, free from dirt and slush, and also permits of easier handling of the wood. The power required to drive grinders varies considerably with the pressure. Tests taken on a 1,200 h.p. motor, driving four three-pocket grinders with 54-in. diameter by 27-in. stones at 255 revolutions full-load speed, and with a water pressure of about 55 pounds per square inch in 18-in. diameter cylinders, showed that 104 h.p. was required to drive the four stones light with no wood in the pockets; and, as each pocket was filled with wood and the pressure applied, the power was increased by an average of 105 h.p. per pocket. On this basis, allowing 26 h.p. for windage and bearing friction, a three-pocket grinder should quire 341 h.p. The power consumption would crease or decrease proportionately as the speed a pressure increased or decreased. It must be borne mind, however, that in driving a group of grinders is seldom that all the pockets are full at one time; the test referred to it was found that it took 40 to seconds for the attendant to fill a pocket with wo and at the time between successive fillings was son times as low as four or five minutes. During this peri the power consumption drops off. Therefore, inste of 1364-h.p. being required to drive four three-pock stones, the average load actually would not exce 1250-h.p. because there would be an average of mo than one pocket empty all the time.

There seems to be some uncertainty, even among t manufacturers, about the best speed for grinders. V have motors on this work, ranging in speed from 2 to 257 r.p.m. Some paper mill engineers believe th 257 r.p.m. is too high, and a few even advocate spee



Fig. 3.—Barking Room in Pulp Mill, Great Northern Paper Company, Millinocket, Me.

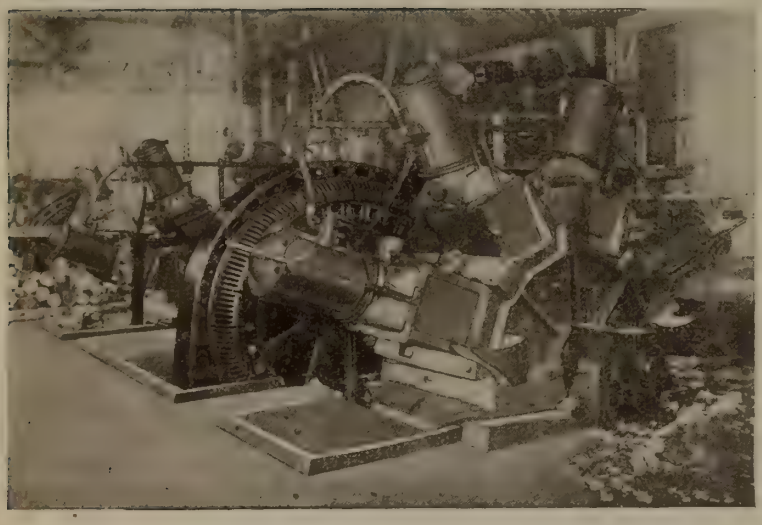


Fig. 4.—Two 1200-h.p., 240-r.p.m., 440-volt Synchronous Motors, each motor direct-connected to two 4-pocket grinders. Inland Empire Paper Company's Plant, Spokane, Wash.

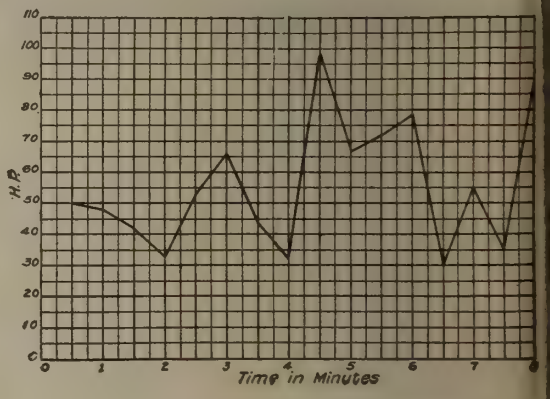


Fig. 5. Test on 5-ft. Chipper Working on Spruce—2-ft. lengths.

low as 219 r.p.m. Others believe that 257 is not ly satisfactory but gives increased production.

Both slip ring type induction and synchronous mo- rs are operating successfully on grinders. In certain zes the synchronous motor will work out a little low- in cost and better in power than the induction otor.

Screens.

Screens require such small amounts of power that e will not dwell long on them. The flat bed screen test on a group of three eight-plate screens, show- a power consumption of about 6 h.p., or ¼ h.p. per ate. This we believe is a fairly accurate estimate r figuring motor capacity.

Group drive is the proper thing for flat screens. otary and centrifugal screens consume more power. e find that power requirements vary for the differ- ent makes from 12 to 20 h.p., and for one centrifugal, which is somewhat larger than the others, 30 h.p. is required. Centrifugals may be belt driven, using a quarter turn belt, or a vertical motor may be direct-connected to the screen shaft at the top.

Chippers.

Fig. 5 shows test results on a 5-foot chipper working on spruce in 2 foot lengths. The average load was 56 h.p. Evidently a 75 h.p. motor would be ample to drive a chipper of this size. The load fluctuates and the motor is subject to high peaks due to irregularities in the size of the wood fed into it. Tests on an 87 in. chipper show a maximum peak of 115 h.p. and an average of 75 h.p. Chippers should never be direct-connected to motors.

(To be continued.)

Reaching the Human Factor*

By C. A. GILKERSON,

Safety Engineer, Spanish River Pulp and Paper Mills, Ltd.
Sault Ste. Marie, Ont.

When analyzing accident reports as to the re- onsibility for accidents I divide them into three asses, viz: Physical Conditions of the Properties; ie Human Factor, and the Unavoidable Class. When started my work with the Company with which I am ow connected, the Spanish River Pulp and Paper ills, I made an analysis of the accidents which had curred in the mills during the years 1915-1916. In is analysis I found only two of the above named asses of responsibility, namely: the Physical Con- itions and the Human Factor. I analyzed four hun- red and twenty accident reports and was unable to nd any which I could call Unavoidable. I have notic- d in some statistical reports of accidents, and I be- eve in the recent report of the Secretary and Safety ngineer of this organization, that several accidents ere charged to trade risks. As I have not been in the ulp and Paper business a sufficient length of time to now all the detail of the work I am as yet unadvised s to what the trade risks of this industry are, but I ould assume that they are such accidents as I have ormerly classified as Unavoidable. It is likely, how- ver, that some of the accidents which I have classified s being chargeable to the Human Factor may have een classified by our worthy Secretary as trade risks. owever, it is not with the scope of this paper to dis- uss this subject.

The result of my analysis showed only twenty per ent of all the accidents analyzed to be chargeable to he Physical Conditions (I include under this heading ll mechanical conditions, the absence of guards, un- afe floors, runways, etc., and any other conditions hich can be remedied by mechanical means) and ighty per cent were chargeable to the Human Factor.

Viewing the Human factor in its broadest meaning, it of course includes all of the human element from the Manager, or even the Board of Directors, if they determine the policies of the Company, to the most humble workman. In this broad sense there would be only the one class as all hazardous physical conditions could be charged to management, but in the analysis of the accident reports only those accidents for which either the Foreman, the fellow workman or the injured were responsible to the Human Factor. But in order that we may broadly cover the subject of this paper, I will begin with the management and discuss it but briefly as I assume from the fact that you are here present, that your Managers are in favor of carrying on all effective means of Accident Prevention.

The Manager is interested in Accident Prevention for two reasons, namely: the humanitarian and the financial. The day when the Manager sought only to produce financial returns for his Company without regard for the welfare of his employees is past, at least, if there still remain any such Managers their days are numbered. Surely in this day of advanced humanitarianism there is no Manager who would wilfully expose his employees to extreme hazards for the sake of saving the few dollars which would eliminate those hazards. Most Managers are willing to spend money to reduce the physical suffering of employees and anxiety of the families which result from accident, without expecting any return, if they are shown how that money can be expended so that it will produce the desired results. If it is possible that there is still a Manager who is not a humanitarian and who is looking only for financial results we can show him that the money invested in the Safety Movement will produce big dividends.

1st—By reducing hospital and medical expense.

2nd—By reducing the compensation paid.

(For these two reasons I favor the merit system of assessment.)

3rd—By reducing the temporary and probably permanent loss of trained men.

4th—By reducing the time lost due to the disorgan-

*Address delivered at the meeting of the Ontario Pulp and Paper Makers' Safety Association, held at Niagara Falls, Ont., June 29, 1917. This is the last paper of the series that began in this Magazine—August 2.

ization of the force of a Department when a serious accident occurs in that Department.

5th—By reducing temporary idleness of the equipment on which the injured man was working, and

6th—By reducing the cost of employing and training a new man for the job.

Other advantages accrue to the employer who has a well developed and efficient safety organization, namely: the securing of a better class of workmen; the development of more efficient workmen; a more perfect co-operative organization and better satisfied and more loyal employees. When the Manager is satisfied that these results can be obtained through the safety organization, the next thing he wants to know is how they can be obtained.

The next in line is the Superintendent and he is generally the most difficult man to reach. He is working under a stress of production and he is probably exerting every effort to make his mill pay. He is urged on the one hand to keep down expenses and on the other hand to make improvements. In the present



A Grinder Room of the Spanish River Pulp and Paper Mills.

scarcity of labor he is at his wits' end to keep a sufficient operating force and it is likely that discipline is lax because of the possibility of losing a man. He can be reached in the same ways as the Manager; he has the same humanitarian instincts and he is interested in the financial results. It may that he is still of the old school type of Superintendent who is trying to make paper regardless of the newer humanitarian methods. If he is of this type he can be shown that in addition to the saving of suffering to his employees that there will be financial returns as a result of the Safety Movement it is very likely that he will give his consent and his co-operation, which is essential.

The Foreman is next in rank of the human element. He is more likely to accept the work on a humanitarian basis. He is the one who takes the injured man out of the belt, pulley or the gears, or picks him up when he has fallen; who calls the doctor, probably renders First Aid, witnesses the suffering of the man, and who, on account of being nearly on an equal wage basis, understands more fully what the loss of time and the probable loss of future wages due to permanent disability will mean to the injured man and his family. He is also more intimately acquainted with the workman and if he is the right kind of Foreman he knows something of the home conditions and can appreciate just what the accident means to the injured and his family. He is **also** interested in producing results but not to the extent that the Manager and Superintendent are, and, therefore, an appeal to the Foreman on a financial basis does not meet with the ready acceptance that the appeal in the humanitarian basis meets with. Frequent meetings of the Foremen to discuss accidents which are occurring and ways and means of preventing such accidents are essential. Many of these meetings may be held on the Company's time and occasionally a dinner may be given at which there will be talks on the subject of Accident Prevention by the Manager or Superintendent and by the Safety Supervisor. It is also well to have round table meetings for open discussions of the foremen's problems. These meetings should be definitely kown as Safety meetings, and other subjects, unless directly related to the Safety Movement, should not be discussed. These meetings should be held regularly on a certain day of the month, and at a certain hour of the day so that arrangements can be made beforehand to attend the meetings. Attendance at the meetings should be considered a part of the regular work and only in extreme emergency cases should the meetings be postponed or the absence of a Foreman excused.

The most difficult problem, of course, is to reach the working man, especially at the present time when the turn-over of labor greatly exceeds that of normal times. The first thing that the Company can do is to show its willingness to do its share in the prevention of accidents by remedying the physical conditions and eliminating the physical hazards insofar as it is possible to do so. This has two results, first: it eliminates the classes of accidents charged to the physical conditions, and second: it has a wonderful moral effect upon the men. If a Safety Supervisor should go into a mill in which the physical hazards were many and obvious and call a meeting of the men for the purpose of instructing them regarding their work and careless habits, his efforts would probably not be very successful, because at first it is a little difficult to teach the men that they receive the direct benefits of the Accident Prevention Movement. Any new movement is likely to be looked upon as something which is going to benefit the Company. We cannot blame workmen for taking this attitude because the older men have been trained in it from their earliest apprenticeship, it being the policy of many of the older Companies to turn everything into dollars with the least posible outlay. The result is that the workmen will say "Why do you ask us to help prevent accidents when you do nothing to remedy the conditions?" They, of course, not understanding as yet that only twenty per cent of the accidents might be prevented by the remedying of the physical conditions. So my first efforts looking towards a Safety organization in a mill would be to remedy the most obvious hazards about the mill, something which everyone recognizes as a hazard, and for which the remedy probably has been suggested by the employees for some time. It is not necessary to spend large sums of money at first, but only to do something that will attract the attention of the workmen to the fact that the Company is willing to do its share in the prevention of accidents.

When this first step is taken the Safety Supervisor may then put into effect a more definite Safety Organization. Hold departmental or group meetings at

which the recent accidents are discussed by the Safety Supervisor and the workmen and try to bring out if possible the primary course of the accident and suggestions from the workmen as to how the accident could have been prevented. At the first general meeting for the working men they should be told of the great number of accidents that are occurring in their own industry, in all industrial work, and of public and home accidents. Only those who are giving this subject considerable study as we who are gathered here have any idea of the number of accidents that occur annually, the large majority of which as we know can be prevented. Having only recently come to Canada I am not familiar with Canadian Statistics, and I have not as yet been advised where I can obtain them, but in the States there is an annual total of eighty thousand lives. This is based on the mortality statistics of the Census Bureau of the United States Government, and it can be shown that a large percentage of those who lose their lives through accident are workmen or members of their families. Another surprising statement is to the effect that more accidents occur in the homes than in the industries, and that most of these can be prevented. It is not the purpose of this paper to go into detail of the subject matter which shall be presented to the workmen at their Safety meetings. Suffice it to say that they must first be interested in the Safety Movement at large, and then shown where they fit in individually, and the effect of the accident upon the injured and his family.

Of course the workman can be approached only upon a humanitarian basis except where his own financial interests are concerned. It would be useless to tell a group of men that they are expected to prevent accidents that the revenue of the Company might be conserved, but if they can be shown that by preventing accidents they are saving themselves physical suffering and their families much anxiety the appeal will produce the desired results. The workman may also be shown wherein he is financially interested; in the loss of forty-five per cent of his salary for the term of disability; the possible loss of reduction of his potential earning power through permanent disability, and possible loss of the entire income to his dependents in the case of a fatal accident. These are the facts in which the working man is vitally interested, and when he is shown his part in the Accident Prevention Movement he readily accepts it and willingly does his share.

At the periodical meetings of the workmen I have found the stereoptican to be a very effective means of interesting the men, and of illustrating to them how accidents have occurred. I have reproduced accidents which have occurred and photographed them showing all the conditions, and then again showing the proper way in which the work could have been done. It is of very little use to show a group of workmen a set of slides reproducing pictures of mechanical safe-guards, the use of which is obvious. I should only use such pictures where there is a possibility of the guard being cast aside by the workman and where the value of the guard can be illustrated to him by the picture. Of course, moving pictures are more effective than the stereoptican, but they are much more difficult to obtain, and more expensive, and while I have borrowed some moving pictures for occasional use, I have practically confined my work to the stereoptican. Another way of interesting the men at the meetings is to demonstrate with the actual equipment or with a model. A blackboard may be used effectively to illustrate certain points. There are many other features which I have not touched upon, which have been found effective, but which time will not permit going into in detail. Each Safety Supervisor will find his own conditions just a little different from those of someone else, and the only thing we can do is to suggest ways and means and then leave it to the ingenuity of each one to develop and adapt them and to make a thorough study of his work, so that he may be able to cope with the continually changing conditions.

An important factor which has a considerable bearing upon the Safety Movement is the large turn-over of labor. As soon as we think we have a man filled with the Spirit of Safety and working along these several lines which have been outlined, for some reason or other he decides to leave the Company and he must be replaced by a man who has not had the special training in this work. Therefore, after the Safety Organization is well developed within the mill the new employee is the problem. In the analysis of the accidents of our Company, I found that during the years 1915-16, thirteen and seven-tenths per cent of all the accidents occurred during the first week of employment, and thirty-nine per cent of these occurred on the first day. The new employee should be properly introduced to his work, and should be shown by a competent workman how to perform the work. Where many new employees are coming in almost daily I am in favor of employing a man especially for this instruction work.

It should not be left to the Foreman, as he has too many other duties to perform to give it the attention it should receive. The new employee should be made to feel at home in his new surroundings as early as posibly which with careful instruction regarding his work will tend to make him a satisfied employee as well as guard him against possible accident. I am planning to establish an instruction department for new employees. If many men are employed daily, before entering the mill for their work they will receive instructions by means of the stereoptican and a lecture on the general mill hazards, and on the general hazards of their work. In this lecture they will be told that their safety is the first consideration of the Company, and they should make it their first consideration; that they will not be expected to take chances and, in fact, that they will be expected not to take chances where their safety is concerned. Where only a few men are being employed this lecture will be given perhaps twice a week.

I will not go into details as to the value of bulletins for posting as I believe we are all agreed on that subject, but I have a word to say on the care of the bulletin board. Some responsible person, preferably a member of the Safety Committee, should be appointed to take care of the bulletin board, and it should be inspected frequently by the Superintendent. It should be located where every employee will be sure to see it without inconvenience, in such places as locker rooms, where men congregate for lunch, etc. It is not advisable to locate the bulletin board near the time clock as usually when men pass the time clock either in or out, they do not stop to read the bulletin. It is important that the board be properly lighted and set so that the centre is on the level with the average man's eye. Many boards are placed too high. The glass door should be kept clean at all times even if it is necessary to wash it daily. To be most effective the

bulletin board should not be crowded; not more than two of the regular shop bulletins, such as are distributed by the National Safety Council should be displayed at a time. Where there are several bulletin boards about a mill the bulletins may be circulated from one board to another. If the boards are numbered the bulletins will then appear on all of the boards, and without repetiotion. Newspaper clippings of accidents are of considerable value, and every employee can take an active part in furnishing these. They should be handed to the Superintendent or the person in charge of the bulletin board for his approval. Photographs and cuts are valuable. Care should be taken that material of this kind does not remain on the board too long; a week should be sufficient. A well kept bulletin board is an important factor in Accident Prevention work, and the good derived from it is in direct proportion to the interest taken by the person in charge with the assistance of every employee.

I firmly believe in giving all accidents the fullest publicity and advising the employees of the accidents as soon as posible after the yoccur. We have just recently started publishing a Company paper, and in this paper we are advising the employees regarding the accidents.

Certain classes of workmen are reached by the competition plan and by offering prizes to either individuals or departments which make the best scores. In starting a competition plan I would not offer prizes at first, but I would endeavour to start in on the basis of records. However, the matter of records should be kept secondary to the primary reason for prevention of the accidents, which is the humanitarian reason.

Another difficult problem is the non-English speaking employee. I speak only the English language, but I have held many meetings of non-English speaking employees with excellent results. We are not likely to have many employees who do not understand some words of English, and if the talk to them is put in the simplest language, not necessarily in good English but in terms which they use, they will catch the idea. At these meetings the stereoptican is very valuable. If the speaker uses a pointer freely he can explain to the men by pointing out on the picture just how the accident occurred and how to prevent it. It is likely in every group of men there will be found at least one man who speaks English fairly well, and who will interpret what is told him to the others. Our accidents when analyzed showed a large number occurring to labor. It is, therefore, essential that this Department be given special attention. When holding group meetings throughout the mill I would not under any circumstances slight the non-English speaking men. They appreciate being called together and hearing the talk even though they do not understand all of it. They will at least catch the idea and learn that the object of the meeting is to prevent accidents to them. Probably many of these men are housed together in boarding houses, or there are several boarders in one family and they discuss these matters. One man even though he does not understand all of it will get some points and another man will get some others, and together they will probably get a large part of the talk that was given. It is difficult to get these people to attend an evening meeting, in fact I have had very little success in evening meetings unless they are held in some of their halls or churches. The best way is to hold a meeting some time during or right after the lunch hour, and at their place of work. A record must be kept of all these meetings as to the tour on which the men are working, so that each tour will be recorded during the month or at more frequent intervals if considered necessary.

Where there are many non-English speaking employees an interpreter should be employed. It may not be necessary for this man to devote all his time to this particular work. He can be employed at any other work about the office, or as a mill watchman or even at any other occupation from which he could be called on short notice. It is desirable to have such a man as a watchman and to be directly connected with the Safety Department. When on his regular rounds as watchman he can be observing conditions and practices and call the attention of the various employees to their hazardous practices. He is then really a Safety Missionary and does good wherever he sees the opportunity.

Another way of reaching the non-English speaking employee is through his priest. The priests readily take up this matter when it is fully explained to them, and they will discuss it with their people individually, and give talks on it to their congregations.

All employees including the non-English speaking men may be reached in still another way, and that is through the schools. I presume that in the last two years I have talked to over fifty thousand school children, telling them of the hazards of the playground, of the street and of the home, and how these accidents may be prevented by their watchfulness. I also explain to them that other accidents occur in the mills, and it is quite likely that many of the children will have some relative who has been injured in the mill. I tell them that these accidents in the mills can be prevented by the same watchful care as the accidents on the street or in the home can be prevented. Anything new in the school is talked about in the home, and if we can teach the children that accidents can be prevented it has not only the direct effect upon our present employees but we are developing the next generation who, when they come into our mills in a few years, will be more careful and thoughtful employees.

In our meetings with the workmen I frequently talk about the accidents which occur in the homes and other places outside of the mill. By this means we give the men information which they would not otherwise obtain, and they also learn that we are in the Safety work for other than selfish reasons, and that we want to do everything we can to help them and their families.

Suggestions should be encouraged and received from all employees. When the first call for suggestions is made, the suggestions received will apply to physical conditions only, but the men should be encouraged to make suggestions on unsafe practices which they observe. It, however, takes time to do this, and the physical conditions must all be made safe before many suggestions on unsafe practices can be expected. The suggestions may be handed in to a committee in each Department. This committee may be a committee of one who will be known as the Safety man of that Department for thirty or sixty days, or they may be sent directly to the Safety Supervisor. I have tried out the suggestion box with very little success. I believe that when suggestions are handed to someone, the one who makes the suggestion seems to think that it will receive attention whereas if dropped in a box it is probable that is the end of it. All suggestions should come to the Safety Supervisor, and be acknowledged by him

her personally or in a personal letter. If the sug-stion is unpractical or for any reason cannot be car-d out the full explanation of this reason should be de to the maker of the suggestion. The Depart-nt Safety man who received the suggestions should wisely chosen. He should be one if told about nething should not say to the men who is telling n "Go write it down and hand it to me", but who uld accept the verbal suggestion and write it him-f, giving credit to the one who made the suggestion. ny of the best suggestions come from men who can-t write and, therefore, verbal suggestions should be eived by the Department Safety man.

Committee for inspection of conditions and practices d investigation of accidents are advisable. These mmittees should be encouraged in their work in a terial way. For instance, if the committee which rks on the day tour on a certain day of the week kes its inspection the hour after the tour is finished, from four to five o'clock, they should be given uble pay for the time thus spent. While it is desir-e to keep this work on a "good fellow" basis, we d that the men take it in better spirit if they are ly compensated for their time even though it is for ir own benefit. These Department Committees uld rotate, serving terms for three months, and if committee is composed of three men, each month a w man shall be appointed to the committee, the old-man then acting as chairman of the committee. The rk of this committee shall be to make a weekly in-ction of all physical conditions in the Department d report any hazardous conditions which they may d. They should also observe practices and if any safe practices are noticed, devise a safer means of ng the work, and then suggest it to the workmen, d discuss it at the meetings. If an accident occurs the department it shall also be the duty of this com-ttee to make an investigation of the accident, and ort their findings and suggestions to the Safety pervisor immediately. If they find that any em-yee is deserving of discipline because of the acci-t this committee shall act as the jury, and deter-ne with the Safety Supervisor what the discipline ll be.

Another problem to be met in some of our mills is t of the female employee. Special meetings for the men should be held. They have special hazards due their clothing, hair, etc.. which do not apply to the n. It is sometimes difficult to get the women to e the proper precautions and wear suitable cloth-g because of appearances but when the matter is tak-up in the right way they can be shown that an ac-dent would probably result disastrously to appear-ces. and it is better to be careful and to wear the oper kind of clothing for the work than to be injur-.

There are many other details which we might have ntioned but which time will not permit. As I have ove stated, each Safety Supervisor must cope with own and ever changing conditions, but I hope that u are impressed with not only my own opinion, but result of my experience after seven years of study Accident Prevention, that the best way to reach the man factor is to make an appeal to him on the hu-nitarian basis. In all my experience I have found y few men who could not be reached in this way. If y are careless of themselves they may be thought for their families. and for their sake they will be eful while at their work, or for the sake of their fellow workmen. We are not here to argue that Safety works pays. We are well agreed on that and many men after having regularly attended Safety meetings for one or two years have expressed themselves to me to the effect that it has made them much more thoughtful about their work and of their families, and through their being taught to think of their own and others safety they find themselves more thoughtful men, more efficient in their work, kinder in their homes, and more valuable to the community in which they live.

Friends, this is your work, my work, our work, and in the words of the poet "Let us breathe the world thought, do the world deed, think hugely of thy brother's need."

GENERAL DISCUSSION.

The Chairman:—There being no discussion on Mr. Gilkerson's paper, I would now ask for a discussion on any matter of interest noted during our visits to the mills.

Mr. Carruthers:—I might say this—and I am talking freely, not casting any reflections or aspersions on those who so very kindly allowed us to enter their plants, I do this more freely because my Company is just as open to criticism as any other Company — in visiting the ....., and in view of the requirements that an elevator should be safe, it struck me they were rather negligent in allowing that freight elevator to be unguarded from the top, and as on the side where a log might roll down and come down on a man, and also not being boarded up to a reasonable height to keep a man from falling off. That was one of the most negligent things that we saw.

Mr. Beale—There was one point particularly I noticed on some paper machines; as to changing the winders on the paper machines, and run out instead of in. I think the winders should run out, not in.

Mr. Richardson—I think the difficulty is running the splice on a roll. I think it should be as Mr. Beale says.

Another thing I have noticed. You take where they have an elevator and there is not enough work to keep a man employed constantly at that elevator—I haven't noticed that any particular person should operate that elevator. I think that should be necessary. I think you should have either one or two persons responsible for that elevator.

The Chairman—Would you suggest that the operation of an elevator should be confined to two employees only?

Mr. Richardson — Yes. I would say that is a difficulty we have been up against a long time—the expense of keeping a man at an elevator, but on that subject, I think if a well understood system of signals was installed either in the form of bells, push buttons, or in the shape of bells such as is hung on the handle of the lever at the Interlake Tissue Mills, I think that it would fairly well cover the requirements of a small mill. Of course, in the larger mills they have a special porter for the elevator.

Mr. Cushing—I think more accidents are caused due to the carelessness of the fellow who is on the elevator. There should be more carefulness on his part. A man on an elevator will thoughtlessly put his foot out or something of that sort.

Mr. Beale—I would like to speak further about what Mr. Cushing has said about winders. Besides not having any guard for the winder on the machine we have reference to, I noticed 4 or 5 set screws sticking out,

It is very handy for some one to get wound up and badly hurt. I would like to find out what objection there would be to having the winder running the other way.

Mr. Richardson—I might say that I asked every one of the hands why they did it that way, and they said, "Oh, well, that is the way we always do it." That is all the information I got.

Mr. Daverin—I believe that having the winders run that way is merely a matter of convenience. The machines nowadays are running along much faster than they used to run. I believe that these winder manufacturers build these winders so that the boy can get these rolls passed as quickly as possible and get his winder going away again and keep out of the way of the machine. If you reverse that winder it would be a very difficult thing to make the splices, you would be losing a great deal of production. I myself really do not know why the paper couldn't be wound the other way. There have been a great many accidents through boys being caught in the winders. They have guards of course to prevent that. This is a great deal safer proposition than it was a few years ago. I really believe, as I said before, it is more as a matter of convenience running the winder that way than anything else—simply so that the boy can run the machine to its full capacity and get the paper out of the way.

It was then moved by Mr. G. M. Beale, and seconded by Mr. D. Daverin, that Mr. F. M. H. Cushing be appointed secretary for one year. The motion was carried.



Plant of Spanish River Pulp and Paper Mills, Ltd., at Sault Sainte-Marie, Ont.

Attractive Program for Holyoke Meeting

All arrangements have been completed by the local committee at Holyoke, Mass., for the joint convention there on Thursday, Friday and Saturday, September 27-29, of the Technical Section of the Canadian Pulp and Paper Association, and the Technical Association of the Pulp and Paper Industry. An unusually large attendance is anticipated which makes it necessary that the chairman of the hotel committee be notified by members at as early a date as possible regarding the probable day and hour of their arrival in Holyoke and the duration of their stay; for if the attendance should exceed a certain number it might be necessary to put two in a room, or to provide hotel accommodations in Springfield. Raymond S. Hatch, of the Crocker-McElwain Company, Holyoke, is chairman of the hotel committee, and he asks that members who are willing to "double-up" at hotel headquarters signify this in communicating with him.

As previously announced, the Hotel Nonotuck, Holyoke, is headquarters for the convention. The executive committees of the two associations will hold a meeting there on Wednesday, September 26, for the transaction of pending business, as well as arrangement of details pertaining to the management of the convention and for visits to mills. Communications for officers of the convention and members of the association may be sent to the Hotel Nonotuck after September 23.

The business meetings will take place in Knights of Columbus Hall, Holyoke, the opening sitting being scheduled to start promptly at 10 o'clock on Thursday morning, September 27. The convention will be opened by President Henry P. Carruth with the introduction of the Hon. John J. White, Mayor of Holyoke, who will deliver an address of welcome. The response for the association will be made by Martin L. Griffin, of the Oxford Paper Company. The selection of Mr. Griffin is especially appropriate, seeing that he was one of the first chemists to be connected with a paper mill in the Holyoke district. His reminiscences and notes of progress in the industry, since he first hung out his shingle as a paper mill chemist, away back in

the Eighteen-Eighties, are likely to be entertaining and instructive.

After the customary welcoming speeches and responses, the formal business of the convention will be taken up and occupy the greater part of the forenoon. Reports of officers and committees will be presented as follows:

Address of the President, by Henry P. Carruth.

Report of the Executive Committee, by Ernst Mahler.

Report of the Secretary-Treasurer, by Thomas J. Keenan.

Reports by the Chairman of Convention Committees.

Reports of Progress by the Chairmen of Standing Committees on: Sulphite Pulp, Soda Pulp, Sulphate Pulp, Groundwood, Standard Methods of Testing Materials used in the Manufacture of Paper, Abstracts of the Literature, Paper Testing, Dyestuffs, Bibliography of the Pulp and Paper Industry, Vocational Education, Standard Specifications for Purchase of Wood, and Heat, Light and Power.

The forenoon sitting will be adjourned for luncheon at 12.45 p.m.

Interesting Addresses.

The afternoon sitting will be called to order promptly at 2 o'clock, in Knights of Columbus Hall. At this sitting a number of formal papers and addresses will be presented and illustrated by lantern slides. The papers now in hand include the following which are named in the order in which they will be presented:

1—An Investigation of Stresses in Digester Shells, by Prof. H. O. Keay, of the Laurentide Company, Grand'Mere, P.Q., Canada.

2—Clay Retention: Influence of Clay Concentration Alum Concentration and of Alum and Size, by Prof. John D. Rue, of the Fletcher Paper Company, Alpena, Mich.

3—Some Observations on the Retention of China Clay by Paper Pulp, by Dr. Otto Kress and George C. McNaughton, of the Forest Products Laboratory, Madison, Wis.

4—A Review of Different Processes for Causticizing Sodium Carbonate Liquors and the Separation of the Sludge, by Martin L. Griffin, of the Oxford Paper Company, Rumford, Me.

The afternoon sitting will be adjourned at 6 o'clock.

At 7 o'clock in the evening a grand banquet for the members and guests of the Technical Section of the Canadian Pulp and Paper Association, and the Technical Association of the Pulp and Paper Industry will be held at the Hotel Nonotuck. Hon. Arthur C. Hastings, President of the American Writing Paper Company, will preside as toastmaster, and responses to toasts will be made by C. A. Crocker, Treasurer of the Crocker-McElwain Company; H. A. Moses, President of the Strathmore Paper Company; William Judd, Treasurer of the Hampshire Paper Company and of the Carew Manufacturing Company; James G. Taylor, President of Taylor-Logan Company, papermakers; Robert B. Wolf, of the Spanish River Pulp and Paper Mills, Ltd.; Henry P. Carruth, of the American Writing Paper Company; Dr. John S. Bates, Chairman of the Technical Section of the Canadian Pulp and Paper Association; Henry E. Fletcher, Secretary-Treasurer and General Manager of the Fletcher Paper Company, Alpena, Mich., and others.

Friday, September 28, will be Visitation Day, an interesting program of visits to paper mills, papeterie plants and allied industries having been provided for members and guests. The list of mills, factories and special installations which the members of the two associations have the privilege of visiting and inspecting during the period of the convention is as follows:

American Writing Paper Company—Department of tests, new laboratory; cover and specialties, Crocker division; central power station; new machine installation, G. C. Gill division.

White & Wyckoff Manufacturing Company—fine stationery.

National Blank Book Company—loose leaf systems, blank books, etc.

Franklin Paper Company—Bristol boards.

Taylor-Logan Paper Company Papermakers—covers and writings.

Newton Paper Company—carpet lining, roofing, etc.

Chemical Paper Manufacturing Company—specialties and Erfurt sizing system.

Linden Paper Company (A. W. P. Co.)—loft-dried writings and Barber dry loft.

Parsons Paper Company—high grade bonds and ledgers.

Crocker-McElwain Company—bonds and writings, carrier system in loft, Crane system of steam control on machine.

Buchanan & Bolt Company—Fourdrinier wires and dandy rolls.

Holyoke Machine Company — papermaking machinery.

Paper Makers Chemical Company—rosin size.

U. S. Envelope Company—envelope manufacturing.

Carew Manufacturing Company—papeterie papers and specialties.

Hampshire Paper Company—high grade bonds.

Strathmore Paper Company (Woronoco mill, the newest paper mill in the United States)—Barber drying system, Wallace Mason hydraulic beater control.

Smith Paper Company, Lee—tissue papers.

Crane & Company, Dalton—money paper.

Byron Weston Company, Dalton—high grade ledger paper.

Plans for the automobile trip to mills outside of Holyoke were given in the Pulp and Paper Magazine for August 30.

The managers of the National Exposition of Chemical industries have set apart Wednesday, September 26, as "Paper Day," at the exposition in the Grand Central Palace, Lexington avenue, and Forty-fifth street, New York city, and members of the Technical Association of the Pulp and Paper Industry and the Canadian Technical Section are invited to call and inspect the exhibits of apparatus, machinery and chemical products used in the manufacture of pulp and paper. A representative of the Technical Association will be in attendance at the association's booth to receive visitors and give any needed information.

THE LABOR SITUATION.

According to the Labour Gazette, there has been no case of unemployment in the unions of the pulp, paper and fibre industry since December, 1915. No labor disputes occurred in this industry during July. Mills are reported busy all over Canada, with difficulty in obtaining help in some places.

Review of Recent Articles of Interest to the Pulp and Paper Industry

CLASSIFICATION OF ABSTRACTS.

The Committee on Literature for the Technical Section is making an effort to develop a simple designation of the subject under which an abstract might be classified so as to be readily found in a filing system. With such a designation included in the title of an abstract, this could be clipped for pasting on a card or inserting in an envelope and filed for reference. The scheme proposed would not conflict with the methods now in use by individuals, nor would it interfere with filing the magazine or the abstract pages and using the regular index.

The committee request a frank discussion of their scheme. For example: **6m. Paper Clothing,** would mean that this abstract should be filed under Paper, subdivided as By,products and Uses.

1. Chemistry and Testing. — a. Raw material; b. Pulp; c. Paper; d. Cellulose; e. Oil; f. Coal; g. Other.

2. Apparatus and Machinery. — a. Description of mills; b. For paper; c. For pulp; d. Experimental; e. Other.

3. Mechanical Pulp. — a. Wood preparation; b. Grinding; c, Pulp preparation (screening, thickening, etc.); d. Drying; e. By-products.

4. Sulphite Pulp.—a. Wood preparation; b. Acid making; c. Cooking; d. Pulp preparation; e. Bleaching; f. Drying; g. By-products; h. General.

5. Soda and Sulphate Pulp.—a. Wood preparation; b. Acid making (and recovery); c. Cooking; d. Pulp preparation; e. Bleaching; f. Drying; g. By-products; h. General.

6. Paper.—a. Boiling; b. Bleaching; c. Beating; d. Coloring; e. Loading; f. Sizing; g. Screening; h. Machine operations; k. Finishing; l. General; m. By-products and Uses.

7. Engineering.—a. Mechanical; b. Electrical; c. Civil; d. Transportation; e. Structural; f. Safety; g. General.

8. Forestry.—a. Lumbering; b. Protection; c. Reforestration; d. General.

9. Raw Materials. — a. Fibrous; b. Mineral; c. Chemical; d. Other.

10. Miscellaneous.—a. Addresses; b. Bibliographies; c. Statistics; d. Markets; e. General.

It is suggested that the three pulp divisions could be consolidated in one main head, in the necessary subdivisions, as wood preparation, grinding, acid making, etc., cover all major processes.

Water Supply of the City of Port Arthur. L. M. Jones, Trans. Can. Soc. Civil Eng., **30,** (1916), pp. 433-458. Previous to 1903, water was hauled in tanks from wells or from Lake Superior. Pipes laid from lake had to be removed. A new line of 2-24″ pipes was laid to pumping station in 1903 and 1909 lead to a well and pumping house. A Leon H. Jackson & Co. chlorinating plant is installed for safety. Pumps are motor driven centrifugals, taking power from the Current River and Hydroelectric Stations. A booster pump maintains fire pressure. The article describes the construction and materials, illustrated with tables, maps and diagrams.

Static Electricity in Paper.—By Thomas R. Butler, Paper Makers Monthly, **55,** No. 4; pp. 103-104. From Pulp & Paper Mag., 15, p. 91.

Fungus Discoloration of Wood Pulp. Two forms of Penicilium have been isolated at the U.S. Forest Products Laboratory, from discolored ground wood pulp sent in for examination by a paper company in New York. Inoculation with this fungus on normal wood pulp was made to determine which form is responsible for the discoloration. A cultural study of the forms is under way for the same purpose.

Individual Drive vs. Group Drive. — By W. W. Cronkhite Paper **20,** No. 24, p. 11-12. Group drive involves a long line shaft and many belts which results in belt-slippage causing varying speeds which affects the character of the product and cuts down production. In individual drive power consumption ceases when production stops. Shafting and belting have no part in producing pulp and paper. Direct-connected motor driven machines maintain their speed. Many motors run over 90 per cent. at their rated load. The average motor used in the paper mill does not require special foundations, and as the adoption of motor drive eliminates long shafts and heavy hangers and belts required for mechanical drive, their cost and maintenance should be considered when comparing the initial expenditure required by the two systems.—E.K.M.

The Clark Tree Cross. — West Coast Lumb., **32,** No. 381, p. 40. — "Tree Cross" perfected by Prof. E. T. Clark of the Univ. of Wash. found to be very serviceable in determining diameters of standing trees especially those of large diameter, and in actual use is far more practicable than the tree caliper or regular diameter tape. Tests show that this device speeds up work in woods. In principle the tree-cross is an improved Biltmore stick. It differs from the latter in that the sliding graduated cross bar is held on a pole at exactly 45 inches from the tree being measured. The pole extends past this point just 15 inches, so that as the tree-cross is held against the tree with one end on the cheek below the eye of the observer, the two triangles formed by the pole, the stick and the tree are always in exact proportion. Any possibility of error is thus avoided. Method of using the tree-cross is illustrated.—H.N.L.

Reproduction in the Coniferous Forests of Northern New England.—Barrington Moore, Bot. Gaz., **64,** No. 2, pp. 149-58.—Results of a detailed investigation on Mt. Desert Island, Maine. On northeast side annual precipitation is 48.3 inches; mean annual temperature 44°F. Forest associations are five in number: (1) spruce, (2) white pine, (3) cedar, (4) pitch pine, (5) grey birch-aspen. A striking feature is the preponderence of balsam fir under spruce. Experiments with different types of soils disprove the theory that an acid soil is required by the fir or favors the fir against the spruce. The relation of growth in general of root systems and of fungous attacks to the different soils is given. Dryness due to interception of precipitation by crowns of spruce is stated to be cause of lack of vegetation under spruce; i.e. moisture rather than light is often the important factor. Reproductions of spruce, balsam fir and white pine become established only at intervals of several years, while cedar comes in every year. Reason for this is probably the seed supply and not the climatic conditions. Other factors seem to influence the fir. Duration of growth; balsam fir June 1 to July 10, spruce and pine June 5 to August 20.—H.N.L.

UNITED STATES NOTES

The annual convention of the Kalamazoo Loose Leaf Binder Co., of Kalamazoo, was in session during the past week. A number of the members of the local trade were among those present and reported that this affair was one of the largest and most successful of its kind ever held. It must be remembered that the Kalamazoo Loose Leaf Binder Co. is, perhaps, the largest concern in its field, and is regarded as an enormous consumer of paper. Considerable time at the sessions was devoted to efficiency work. Trips to many of the paper mills in the section were very interesting.

The trade was interested to note, during the week, the incorporation of the Eastern Paper Makers Chemical Co., of Easton, Pa., with a capital of $100,000. This concern is well known in the industry. Charles K. Williams was given as the incorporator.

Among the many paper makers who have been taking an active interest in war relief work, is Hon. Winthrop M. Crane, of Crane & Co., who has recently been made an assistant director to supervise the canteen services of the various chapters of the American Red Cross.

The latest reports of local trade men who have enlisted in the army, are as follows: Francis B. Plascyk, of Charles F. Hubbs & Co., in the Quartermaster's Department of the regular army; Arthur Whitney, Jr., also of Charles F. Hubbs & Co., in the second officers' reserve training camp at Plattsburg; Yale Stevens, of the Japan Paper Co., just made a captain in the Officers' Reserve; Launcelot Tynam, a second lieutenant in the same corps; and Joseph Eaton, also of the Japan Paper Co., in the naval militia; Charles Cohen, of the Royal Card and Paper Co., in the 12th New York Infantry, and Michael Topp, of the same concern, in the Ninth Coast Defense Command.

The regular meeting of the National Association of Waste Material Dealers, which was to have been held on September 19, has been postponed to October 16 and 17, because of the Jewish holidays, which would have made it impossible for a good many of the members to attend on the former date. It is understood that many important matters will be taken up at this meeting.

It is understood that several big paper men are interested in a despatch received in the city during the week to the effect that the Marley Paper mill is to be sold at public auction on September 25. As is known, this mill is situated on the Little Elk Creek, near Childs, Md. The mill has had quite a career.

An important meeting of the American Sales Book Manufacturers' Association was held during the week at the Hotel Traymore, Atlantic City, N.J. Various matters with regard to the paper situation, the labor problems and other pertinent topics were discussed. The general opinion seemed to be that the business in this line had been good and that the indications were that they would continue to be so for some time.

Parker & Young Mfg. Co., of Lisbon, N.H., have taken over from Henry & Sons Co., at Plymouth, N.H., the mills of the Livermore Falls Pulp Co. These mills have a capacity of 75 tons of finished paper, daily, the sulphite pulp mills, a daily capacity of 50 tons, and the wood pulp mills a capacity of 25 tons daily. The saw mills can turn out 20,000 feet of sawn lumber every 24 hours. Adjacent to the mills, there was included in the transaction, 300,000,000 feet of spruce and vast quantities of hardwood, hemlock and old growth pine.

Sydney R. David, formerly manager of the New England district for the W. Beckers Aniline and Chemical Works, Inc., has been appointed sales manager for the National Aniline and Chemical Company, Inc., with his offices in New York. Mr. David has been identified with the dyestuffs trade for about twenty years, his first connection being with the Farbenfabriken, of Elberfeld Co., from 1897 to 1911, first having charge of their laboratory and later doing demonstration work. During 1911, he was connected with the selling force of F. E. Atteaux & Co., Boston, and since 1912 was identified with the selling end of the Beckers organization.

To elevate the use of the Trade Acceptance to a place of dignity equal to that of such national questions as food conservation and price fixing will be one of the features of the War Convention of American Business, to be held at Atlantic City, September 17 to 21, under the auspices of the Chamber of Commerce of the United States. It was said the War Convention will be one of the most important steps which the nation has yet taken toward the winning of the war. In some way or other, it is expected that every kind of business in the country will be adequately represented and a gathering of business men will result of such magnitude as to prove to friend and foe that American business is squarely behind the American government. Naturally, it is said that the most helpful thing business men can do is to aid the country in raising the billions which must be forthcoming. This will undoubtedly be the keynote of the convention and, from opinions that have been expressed, the trade acceptance has been chosen from all other means of conducting business and will be presented to the hundreds of influential business men at the convention as the one and only solution of the gigantic problem which will soon confront every one of them.

The Kalbfleisch Crporation will occupy space Nos. 527 and 528 at the coming National Exposition of Chemical Industries, Grand Central Palace, New York, week of September 24th. Besides a full line of acids and heavy chemicals, samples will be exhibited of Papermakers' Alum, both the pure (free from iron), and the commercial grades. Visitors are cordially welcomed to the exhibit.

Reports received from the Northwest indicate that the fire situation is more dangerous than at any time this year. In Montana and northern Idaho two thousand men are fighting the flames under the direction of the Forest Rangers. In these two States alone approximately $170,000 has already been spent this season, and that figure is increasing by approximately $15,000 a day.

PULP AND PAPER NEWS

A. A. MacDiarmid, of the Publishers Paper Company is at Grand Falls, supervising shipments. He reports everything satisfactory at the mills and says conditions on the island are prosperous. The rumor of a new mill project at Grand Falls was evidently based on news of a shipment of spare parts and mill supplies.

Word comes from Port Arthur that the first digester will be ready for lining in about two weeks, and the rest of the mill is proceeding very rapidly in view of the difficulties which are continually met in the labor market. Quite a lot of machinery is on hand ready for installation, and unless they strike some serious difficulties between now and November, the mill will probably be operating during that month.

Among the most unique visitors to the Canadian National Exhibition, Toronto, last week, was Louis Vincent Bouvier, who is ninety-eight years of age, and the father of L. P. Bouvier, of the firm of Bouvier and Hutchison, envelope manufacturers, Toronto. Mr. Bouvier, Sr., had not seen the Exhibition for thirty-five years and its development was a marvel to him. He tramped all over the grounds without becoming fagged and for one within two years of the century mark, he enjoys remarkable vigor. Mr. Bouvier reads without glasses and keeps closely in touch with the progress of the war.

C. F. Mansell, sales manager of the Toronto Paper Mfg. Co., left for Winnipeg this week to attend the annual meeting of the Sovereign Great Priory of Canada, Knights Templar, of which body he has been Grand Treasurer for the past ten years.

The 136 inch machine of the Provincial Paper Mills Co., at Mille Roches, Ont., is again in operation after being shut down for a few weeks while alterations were made changing from a rope drive to a direct shaft one, and several other improvements were being carried out.

Alex. Buntin, of Buntin, Reid and Co., wholesale paper dealers, Toronto, has returned after spending some weeks with his family at Kamouraski, Que.

Mr. Savoy, of the National Blank Book Co., Holyoke, Mass, which firm some time ago acquired the Berthierville Stationery Co. of Berthierville, Que., now known as the Dominion Blank Book Co., spent a few days in Toronto last week calling upon the trade.

T. J. Stevenson, of Montreal, sales manager of the Riordon Pulp and Paper Co., and family, have returned from spending their holidays at Bretton Woods.

The annual meeting of the Spanish River Pulp and Paper Mills Co., will be held in Toronto, on Tuesday, September 25.

The Howard Smith Paper Mills Co., Limited, have removed their offices from 124 Richmond Street West, Toronto, to 120 Bay Street where they have central and very conveniently located quarters.

The Canadian Northern Railway, which will soon be taken over by the Federal Government, made an interesting and varied display in the Transportation Building, at the Canadian National Exhibition, Toronto, and, in a prominent position, announced that fifty-three per cent of the pulp and paper mills of Canada were reached by the C. N. R. system, and sixteen per cent by water. It was pointed out that Ontario had sixty per cent of the total capacity of the pulp and paper mills, Quebec sixty-four per cent and Nova Scotia fifty per cent along the points touched by the company.

Paper Sales, Limited, of Toronto, have been appointed Canadian selling agents for the Ideal Coated Paper Co., of Brookfield, Mass., makers of gummed labels, gummed hollands and sealing papers. Paper Sales, Limited, have also recently added to their line greaseproof, glassine and parchment papers for which they report a good demand.

Joseph G. Mayo, assistant general manager of the Mattagami Pulp and Paper Co., Smooth Rock Falls, Ont., spent a few days in Toronto recently. He reports that the slasher of the company, which has been in operation for some weeks, has a capacity of about twenty-five hundred cords a day and a pile of over twenty thousand cords is already stacked. By the end of the present month this will be increased to thirty-five thousand cords, which will be sufficient wood to keep the plant in operation for the coming season. The first cook will take place next month when the two digesters will be fully completed. The third digester is expected in the near future. The new brick offices of the company are finished and by fall over sixty houses, many of them able to accommodate several families will be finished. There will then be total housing facilities for one hundred and twenty-five families at Smooth Rock Falls.

Mr. D. Fenton has been appointed boss-finisher at the Provincial Paper Mills, Thorold.

Mr. and Mrs. Ralph Emery, Mr. and Mrs. S. B. Monroe and Mr. Dewing, all of Kalamazoo, accompanied by Mr. G. Carruthers, of the Interlake Tissue Paper Mills, Merritton, also R. J. Findlay, of the United Paper Mills Co., Ltd., Toronto, accompanied with his sales agent, Mr. Paul, were visitors recently at the Provincial Paper Mills at Thorold. It might be worthy of note here that Mr. Findlay has a double interest in visiting the plant, as many of his earlier days were spent here. It may be recalled that Mr. Findlay's father was the owner when it was known as the Montrose Paper Mill, while he himself was superintendent. Since then many changes have taken place as was expressed by Mr. Findlay, although he had greeted four of the employees who were then in his employ. Some of the older paper-makers might remember that the late Mr. Findlay was the inventor of the cutting machine now manufactured by the Hamblet Machine Co.

EVERYBODY'S GOING.

(See pages 870 and 878).

Mr. W. Gorman, of Montreal, has been visiting in Thorold, at the home of W. V. Grant, accountant for the Montrose Division of the Provincial Paper Mills.

Mr. F. M. H. Cushing, chief electrician for the Montrose Division of the Provincial Paper Mills Co., Ltd., left Sunday to attend the National Safety Council Congress, to be held at the Hotel Astor, New York, from September 11th to 14th, inclusive.

OTTAWA NOTES.

No date for the resumption of the newsprint probe, or the sulphite and groundwood inquiry, had been announced by Commissioner Robert A. Pringle, K.C., up to the beginning of this week. The date for the commencement of the book and writing paper inquiry has not yet been set though it was generally expected at Ottawa that such an inquiry would open some time this month. Progress, the Commissioner reports, is being made in the examination of the mill books and records, but when the auditors examination will conclude the Commissioner cannot say. Of the reports received by the Commissioner from the auditor, nothing has been revealed and it seems very probable that the newsprint manufacturer will have to keep on marking time until another session of the inquiry is held.

Lieut. Forest Millen Pratt, M.C., former engineer of the E. B. Eddy Company, and grandson of Mr. George H. Millen, has been wounded for the second time in France. The official casualty list carried his name for the second time on Monday. A private cable states that his second injury is not serious and that he is remaining on duty. During the last week of July Lieut. Pratt was wounded for the first time though not seriously, and after a short period in an English hospital returned to Flanders during the latter part of August. On September 2nd he was wounded the second time. Particulars as to the casualty have not been received.

Any day or period between now and next June will be moving day for John R. Booth if the City Council grants him an extension of time in the Bronson Ave. piling ground trespass dispute. His letter to the Board of Control is in part as follows:

"I have been informed that the building inspector is being pressed to proceed against me on account of the lumber remaining thereon (the Bronson Ave. ground); and as I do not want to put him to the unpleasant task of hauling me before a Police Magistrate, and to relieve your Board and officials of any embarrassment in this matter, I will agree to remove my lumber from the said property by June 1st, 1918." The question of granting the extension is still in abeyance.

Recently Mr. Booth purchased the Evans lot and building situated in a dangerous position in the piling around and tore down the old building. The cost of these operations cost Mr. Booth around $4,000.

Mr. William Feeley, formerly an employee of the E. B. Eddy Company, died last week at his home in Hull.

Work on installing the machinery at the new sulphite mill being erected by Mr. John R. Booth, at the Chaudiere, is proceeding favorably. What the cost of the new mill will be is being reserved as a business secret by the Booth interests. "He (John R. Booth) keeps that under his hat," replied Mr. Jackson C. Booth, when the representative of the Pulp and Paper Magazine queried as to the cost of the new plant.

The coal situation with Ottawa paper mills and paper using plants has shown considerable improvement during the past two weeks. The Eddy plant is making fair progress in putting away a reserve supply, and the Booth interests are also getting along pretty well in this direction.

Spruce and balsam pulpwood are being taken out by W. L. and J. C. Hunter, of Pembroke, Ont., who are owners of 50,000 acres of pulpwood in Ontario and Quebec, situated near Klocks Mills. A small sawmill will be installed on the Klock limits and also two barkers to peel pulpwood.

Having for its object a larger attendance and tending toward more intimate mingling among their members it has been stated at Ottawa that the annual meeting of the Canadian Lumber Manufacturers Association, The Canadian Forestry Association, and the Canadian Forest Protective Association will be held in Montreal around the first week of February. From what can be learned each association will hold its own meeting, but the three annual meetings will very likely be held in the same hotel and may finally terminate in a banquet with members of all the associations in attendance.

The name of the Lower Ottawa Forest Protective Association has been changed to the Ottawa River Forest Protective Association. Additional powers have been granted the new association extending the territory on which the forest fire protective system will be maintained. The new territory is situated west of the original land, and is bounded south and west by the Ottawa River and the inter-provincial boundry between Ontario and Quebec. The expense of fire fighting in the Grand Lake Victoria region will be borne by the timber lands in that territory alone. The curtailing of the manufacture of munitions in Canada will more or less affect the retail paper trade as the Imperial Munitions Board were large users of book, writing, tissue, carbon and other grades of paper.

DEAN BAKER EMULATES ANCESTORS.

Dr. Hugh P. Baker, dean of the New York State College of Forestry, has been ordered to report at the Second Officers Training Camp at Fort Sheridan, Ill., for a course of instruction. Dean Baker, who is widely known as a member of the Technical Association of the Pulp and Paper Industry, was in Tacoma, Washington, on his way to China, on a forestry expedition, when war was declared with Germany. He did not feel right about going to China when there was an opportunity to serve his country in its greatest crisis, so he took the physical examination for the camp at Vancouver Barracks. There is possibly a bit of sentiment connected with his decision to join the army, as his father was an officer in the Civil War, his grandfather an officer in 1812, and his great grandfather commanded one of the companies of the Green Mountain Boys in the War of the Revolution.

HOISTING MACHINERY BULLETIN.

A 115-page descriptive bulletin and price list No. 2000, has been received from the Shepard Electric Crane and Hoist Co., Montour Falls, N.Y. Data are given for a great variety of monorail and double rail hoists, crane trolleys, winches and motors. Special attention is given to D. C. equipment, but mention is made of numerous types that are also supplied with A. C. motors. Illustrations, specifications, etc., are included.

The Markets

CANADIAN MARKETS.

TORONTO, September 10.

There is still much uncertainty about the future of the pulp and paper conditions for fall, with the exception of news print, which keeps up in demand. The manufacturers of news are hoping for higher prices, and one of the leading members of the trade has predicted that he believed that the figure would be fixed by the Federal Government at three and a half cents. Others do not credit any such a happy culmination, and would be pleased to get three cents at mill in place of the two and a half, which has been prevailing in Canada for the past six months. How much longer it will take Commissioner Pringle to make his report is not known. Unless he hastens it appears as if there will be no Parliament to submit the report to for approval, and nothing would certainly be done during the agitation and strife of an election. However, there is a feeling in the air, and it is not denied by publishers, that an advance in news print is due sooner or later. The price of scribblers for school children, which are made mostly of news print, is now double the figure that the kiddies paid for them last season, or the books are very much reduced in number of pages. In the meantime, trade is passing through a rather trying condition, with so much federal action threatened.

Jobbers report that many lines are picking up and anticipate a good fall trade, but even they are not entering the market to buy in any large quantities. All specialty mills are rather quiet, and the labor problem is still acute, while transportation difficulties are growing more perplexing all the time. It is not known to what extent conscription will affect Canadian plants, and wood is growing scarcer and higher. Timber limits are becoming more costly and no mills are undertaking any extensions. For the past four months it has been a sort of mark time period for most of the Canadian plants who keep going, in which respect they differ from a number of concerns across the border, where machines have had to be closed down. Many American mills are looking for business in Canada, and are cutting prices at a terrific rate. That things are bound to break for the better in the near future is the expression heard on many sides, and, in the meantime, nothing startling is developing.

Business in the book and writing paper arena continues rather quiet, and has not picked up to the extent that it was hoped, but manufacturers declare their belief that a good fall trade will be done. Big firms are as yet disposed to hang back owing to what they think is a falling market, and prices are perhaps a little easier than they have been for some time. Some jobbers are said to have been cutting on cheap bonds and cover papers reducing the price from one to two cents in order to secure business. A leading firm remarked this week that they had been asked for an order by a large book and writing concern for the first time in many months, showing that some of the mills, which have had all the contracts, and more than they could attend to, are again on the aggressive.

Sulphite pulp prices are holding up fairly well, and there is no disposition on the part of the manufacturers to make any substantial reduction in view of the sulphur situation and labor and coal proble Reduced figures would, they assert, not bring th any more domestic business, as they can sell so m in Canada, and no more, no matter what the quo tions are.

The work of converting the Crabtree mill from news print mill into one making high grade papers proceeding satisfactorily, and it is expected that changes and extensions will be completed about first of the year. Then Price Bros. are adding other unit to their mill at Jonquiere, which will g an additional production of news print of some fif five tons a day, and the machine will be in operati in the near future. This will more than counterb ance any loss in production of news by the change the former plants.

Ground wood is still comparatively quiet, but t outlook is good, and one large concern will shut do a few days in order to give their plant a much need overhauling after an unusually active season. quiries are beginning to come in in larger volume, a just how high prices will go cannot be foretold. O man's guess and judgment are as good as another's the present unsettled state, and the rather gloomy o look for sufficient quantities of pulp wood.

There is a smaller supply of pulp than ever reachi America from foreign ports and shipping is being ti up more and more. Some shipments to England Canadian sulphite mills are going on, but stocks hand are growing, notwithstanding abnormal con tions, the reports of pulp and paper companies as su mitted at annual meetings show large earnings, and satisfactory outlook, but it is noticeable that few n developments are contemplated and a number of ganizations, which intended branching out, are ho ing back and will wait until the sky clears and w conditions across the line get on a more substanti footing.

R. J. Younge, general manager of the Export A sociation of Canada, who has just returned to Mo real, from an extended trip of four months to t principal cities in South Africa, inquiring into the p sibilities of Canadian trade with that country, sa that one of the most promising lines is paper. Eve pound of paper that is used in South Africa has to imported, writing, book, tissue, kraft as well as ne print. There is considerable export trade done no by Canadian mills, and, with our unlimited supplies pulp wood, Canada should be able to develop ve largely her present trade in news print, at all events

Several African firms in the pulp and paper lin have sent notices to Canadian customers that, owing the Federal Act to prevent interstate commerce in t products of child labor, which went into effect on Se tember 1st, all their paper and pulp are made in stri accordance with this law, and that their papers ha been so made for years.

Another leading firm has written that the unse qualities of paper are often more important than tho which are seen. The average purchaser who is n very familiar with paper, will take two pieces, o cheap and one made of new rags, and if they happe to be similar in thickness, color and finish, will sa

there is no difference between them. Durability, the unseen factor, is often lost sight of. By a recent mechanical test, it was shown that a new rag paper would wear four or five times as much as an old rag paper, and fifty to one hundred times as much as a sulphite bond. The firm then points out that the difference is so little apparent to the man on the street, and yet so enormous in reality, that the facts should be of real interest to salesmen.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) two tons and over	$3.50
*News (sheets) less than two tons	$4.00
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	13c to 15c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c to 20c
Half bleached greaseproof	16c to 22c
Bleached greaseproof	18c to 24c
Genuine vegetable parchment	23c to 30c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Straw board	$70.00
Chip board	$70.00
Filled wood board	$80.00
News board	$75.00
Manila lined folding board, chip back	$82.50
Pulp folding board	$90.00
Jute board	$70.00
Tag board	$150.00
White patent coated board	$110.00 to $125.00
Grey folding board	$100.00
Pasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$65.00 to $70.00
Sulphite (bleached)	$120.00
Sulphate	$110.00 to $115.00

Rag and Paper Stock.

Business in all lines is very quiet and not much buying is being done by the mills which indicates that they are not rushed. In rags the market is about the same. The demand is still fair for roofing rags.

No. 1 hard white shavings	$4.00
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.75
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.25
No. 1 printed manila	$1.25
Folded news	70c
Over issues	$1.00
Kraft	$2.75
No. 1 clean mixed papers	50c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
Thirds and blues, repacked	$2.85
Flocks and satinettes	$2.10
Tailor rags	$2.10

NEW YORK MARKETS.

New York, Sept. 8.—The order of the government, described last week in these columns, commanding the International Paper Co. to supply newsprint paper for the OFFICIAL BULLETIN at 2½c was still the subject of much discussion. Letters of Mr. Dodge, president of the International, which were made public, to the effect that it was impossible for any mill, regardless of its size, to manufacture newsprint and sell it at this price and still make a profit, was supported by the various concerns having representatives in this city. Inasmuch as the president has strictly placed himself on record, time and time again, as desirous of avoiding anything that is confiscatory, and of seeing to it that all sales to the government are at a profit, it is felt that the International, which states it will supply the paper demanded at the price asked UNDER PROTEST, will finally win out its protest. The point has been reached where the entire trade is interested for, if a precedent were established in newsprint, where paper had to be sold below cost, it would have a decidedly bad aspect with regard to the other markets, especially the pulp markets.

Interest in chemical pulp fails to show any improvement and business is still restricted to small volume. Dealers and importers, however, expect that some marked change in the seasonal quietness will occur very shortly now and are becoming more and more firm for quoted values on what accumulations of pulp they have on hand. Domestic pulps are moving in a way although sales, as a rule, are small. Domestic unbleached is bringing about $70 to $75 per ton at the pulp mill, while some transactions in bleached sulphite at about 6 cents per pound are being recorded.

The demand for soda pulp is moderate, but is much improved over that of a month ago. Sellers ask between $100 and $110 a ton, f.o.b. pulp mill, for the domestic bleached soda stock.

Groundwood is fairly active, and the market is attended by the same degree of steadiness with which it has been lately characterized. About $42 a ton at the grinding plant is the most common price named by manufacturers, and it is very questionable whether any large tonnage can be obtained below this figure, notwithstanding reports to the contrary. Sellers have no bulky quantities of unsold stock and are not particularly anxious to dispose of what they have at below current prices. An idea of the way the market stands is given in the following: For the East, $41 to $44 per ton, f.o.b. pulp mill; for the West, $43 to $46. Judging from reports, the freight question is already having an effect on the market, and will manifest itself more strongly as time passes. It seems that everywhere throughout the cutting districts, cords of wood are waiting for transportation to the grinding plants, but the facilities are lacking. In the next few weeks, when the demand for groundwood is expected to show a material increase, it is likely that the transportation situation will be more acutely realized than it is to-day.

The demand for roofing rags is stronger than was reported last week. It is said that few felt mills will let offering of rags go unnoticed. Manufacturers are reported to be starting out inquiring freely for stock, giving an idea that they are in a position to do a bit, at least, in the way of buying. Thirds and blues are in slightly stronger call, yet prices that buyers offer are such as to prohibit any concerted movement of stock. Dealers expect at least over 3 cents for their stock. White rags are not active, being restricted almost entirely to the low qualities of packing. The quotations on these range as high as 5 cents. Strect soiled whites are quoted at about 2¾ cents. New cotton cuttings continue in restricted demand and, while sales are being accomplished here and there by dealers, there is no concerted interest shown by manufacturers, who seemingly have their immediate requirements provided for. Reports from out of town sources state that mills are buying in better volume than local sellers are able to confirm, which would imply that manufacturers are acquiring supplies from the smaller dealers and are keeping out of the New York market as much as possible. Dealers here maintain that this will result merely in their being unable to secure stock when mills enter this market and will have the effect of sending prices skyward on what accumulations of cuttings are now available hereabouts. White shirt cuttings are sought in some quantity, but the values offered are very unsatisfactory to the dealers. No. 1 white shirt cuttings are quoted over 9½ cents; fancy shirt cuttings, at 5¾ cents; new light silesias, at 6¼ cents.

The paper stock market is attended by moderate activity, with a good demand reported in general. Low qualities are still mostly sought, although a number of local packers declare that they are having nc real difficulty in marketing all of their high grade packing of the better grades of waste papers. Shavings are steady in price and appear to be moving in somewhat larger quantity than of late. Shavings (hard white) are quoted up to 4½ cents; soft white shavings, at up to 3¼ cents; heavy books and magazines, up to 1¾ cents; over-issue magazines, up to 2 cents; ledgers and writings, up 2½ cents; manilas, up to 1 cent; old krafts up to 3 cents; bogus wrappers, up to 1¼ cents; strictly over-issue news, up to 1¼ cent; strictly folded news, up to 1 cent; mixed paper is holding up to 65 cents per hundred pounds.

The market for bagging is fairly quiet. Roofing bagging alone is sought and the felt mills are absorbing supplies of this grade in a very guarded way. Gunny is quoted at up to 4 cents; bright bagging, at up to 3 ½cents; sound bagging at up to 3 cents; mixed bagging at up to 2½ cents. Old rope is moving into consumption in limited volume, the bulk of business being confined to deliveries on old orders. Rope is quoted at up to 6¾ cents.

Being a fairly short week, on account of the Labor Day holiday, business was not what it might expected to have been during the first week of September. However, jobbers say there are indications that trade will assume better conditions in the near future. Business in other lines has already shown a "pick-up" tendency, and it is thought to be only a matter of a short time before this state of affairs will be reflected in the paper trade. Newsprint is reported to be fairly active.

According to a statement issued, the cost of producing newsprint is tending upward very sharply. It is estimated by one authority that, at prices prevailing for pulp wood for the 1918 season, it will cost $33 per ton of newsprint for the bare wood that goes into it. A 2½ cent per pound selling price means $50 per ton. It obviously costs more than $17 per ton to make paper from the wood stock. In fact, the cost of production with prices for wood which are now in sight, will be not less than $50 per ton for next year. There is probably no phase of industrial activity in this country or Canada where lack of labor is so acute as in the supply of lumber jacks. The newsprint industry is a question of wood. It seems strange that official bias against the newsprint producers has a curious abiding persistency both under the Republican and Democratic administrations. There is not much change in the other paper markets. Slight revival is noted in tissues, but not much. Wrappings are a little better. Boards have picked up some. The book market is quiet.

Changes in New York quotations are reported as follows:

(These are a nominal range of prices):

Ground wood, f.o.b. mill, ton .....$41.00 to $46.00
Foreign bleached sulphite, ex-dock, N.Y.....9¼c
Foreign easy bleaching sulphite, ex-dock, N.Y....5¾c
Other prices remain as quoted last week.

PAPERMAKERS SAY 2½ CENTS IS UNFAIR.

Unqualified disapproval of papermakers in many sections of the United States is expressed over the recent demand on the International Paper Co. for newsprint at 2½ cents. President Dodge, of the International, has replied that the demand will be complied with on grounds of patriotism, but protests that the price fixed is not fair, just, nor reasonable, and is not based on present manufacturing conditions. The belief is general in Watertown that no mill in New York State can make newsprint at a profit for 2½ cents a pound. Frank P. Glass, vice-president of the American Newspaper Publishers Association thinks the price of newsprint has broken. His opinion is not shared by those who know the present and can anticipate the future conditions.

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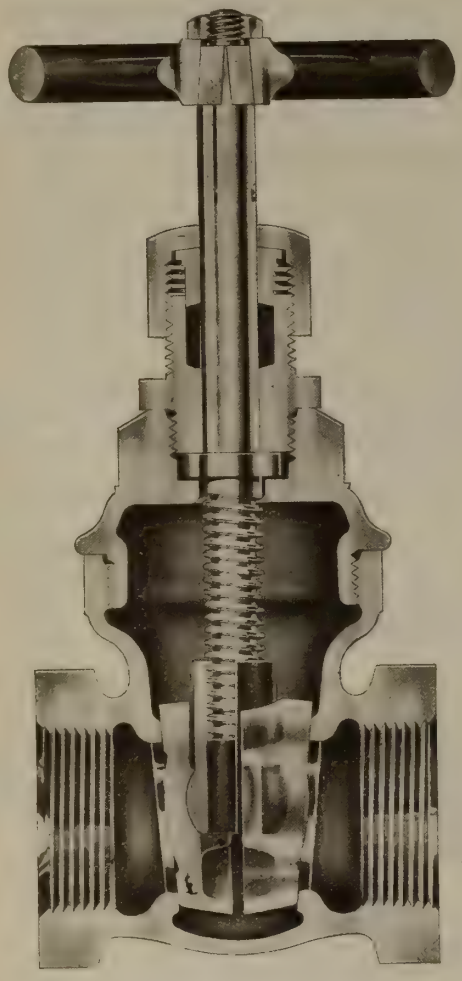


Fig. 300 SECTIONAL VIEW

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WORST LOG JAM IN HISTORY.

A misfortune altogether without precedent has befallen those branches of the woodgoods industries which obtain their raw material, logs, from the Glommen river district. The director of the association under whose management lies the floating of the logs in the river Glommen has sent the newspapers for publication a letter which he has addressed to the association of forest owners. Various circumstances: that an immense quantity of logs should this year be floated down the river, a late spring and a rapid thaw have caused a quantity, estimated at about 450,000 dozens of logs, to be piled up at Bingfoss lock, tied one with the other almost inextricably in an enormous height, and it is only possible to extricate the logs one by one with immense work and difficulty. Instead of employing usually about twenty to thirty men, the association has now 130 men engaged who work day and night to try to loosen this mighty mass of timber. Although everything has been done to stop more timber from coming down to Bingen the river still carries a great deal of timber, and the quantity at Bingfoss is thus steadily increasing.

"As the situation now is," says the director, "it is hardly probable that we shall be able to clear the timber quantity at the Bingen lock in a shorter time than two years, and there is no prospect of being able to release this year much more than one-half of the quantity of timber which has been marked this season for being floated in the Glommen river."

This very serious situation will prevent not only the mills, but also the many parishes who have bought timber in lieu of coal, from receiving the timber which has been cut and marked for their account for being floated in the Glommen river. And still more, it will not be advisable for the mills to contract for logs in the autumn for cutting during the coming autumn and winter and for floating next spring. It is therefore more than probable that the saw, cellulose and mechanical woodpulp mills which receive their timber by floating in the Glommen will be compelled to stand idle for one year, as soon as they have used up their present stocks of timber.

This is an event which is without any parallel in the very long time which has elapsed since floating of logs in the Glommen river commenced, and it will affect the planing mills at Fredriksstad, among other cellulose mills the large mills belonging to the Kellner Partington Paper Pulp Co., the Greaker Cellulose mill, and all the other mills which are situated by the Glommen river, but more or less all pulp mills in the south of Norway will be inconvenienced by this stoppage, for all of them obtain at least a part of their log supply from the Glommen river district.—Farmand.

STATIONERY FOR THE SOLDIERS.

Paper dealers and manufacturers are manifesting considerable interest in a campaign to supply our "Sammies" at the front with supplies of writing paper and envelopes, so they will have every convenience in keeping in touch with their folks at home. Arrangements have been made whereby the United States Envelope Co., will make into a combination envelope and letter head, all of the paper that is contributed by the various paper manufacturers of the country. Paper and any donation (in the way of money) that are to be made, should be through C. R. Gibson, 873 Broadway, New York.

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MISUNDERSTANDING REGARDING SWEDISH EMBARGO.

The following letter on this subject is quoted from the Paper-Trade Journal.

Royal Consulate General of Sweden,
New York, August 30, 1917.

Editor Paper Trade Journal:

On account of reports that have appeared in the press that the embargo on Swedish chemical wood pulp to England has been removed, I beg to inform you that, according to information received from the Royal Foreign Office in Stockholm, this is not the case, although license for shipping of wood pulp to England is at the present time granted. Buyers in United States of such wood pulp from Sweden shall, however, still deliver a guarantee that the goods will not be re-exported from this country.

Yours very truly,
MAGNUS CIARHOIM,
Consul General.

"A CHAIN OF EVIDENCE."

Morse Chain Co., Ithaca, N.Y., have issued an interesting booklet on small power drives, entitled "A Chain of Evidence." Diagrams show in detail the design of the link and rocker joint, and the positions assumed in approaching and running on sprockets. Among the illustrations of installations, paper makers will be interested in a beater drive, triplex pump, air compressor, blower, and connections of motors to line shafts. A companion booklet on "Large Power Drives" has also been issued.

WORKERS SCARCE FOR "HAND MADE."

In conversation with one of our most prominent hand-made papermakers the other day, we learned that difficulties have so accumulated as to make regular business almost an impossibility. Above all other classes of paper manufacture, the hand-made is one in which it is difficult to introduce substitution.

Female labour has always been employed on operations which would permit it, but even in this sphere is a serious lack of labour. The inducement to make munitions or replace male labour elsewhere is, of course, responsible for the depleted female staffs in hand-made mills. As regards the most essential features of the business, viz., the making and couching of the sheets, drying, sizing, etc., it is an accepted fact that competence is not acquired until after many years of careful training. The position at most of the mills is that there is no lack of orders and in fact the chief difficulty is to fulfil same. Apart from labour, material is extremely scarce and cost is enormously increased. Notwithstanding this, it is remarkable that some of the hand-made people have only advanced their prices 5 and 10 per cent. On the other hand there are cases in which hand-made paper has advanced in accordance with the best class machine-made. Current conditions do not favour the continuance of the small increase and there would appear every reason for co-operation among the hand-made people in this matter of price.—Paper Maker, London.

The process for the recovery of methyl alcohol and acetone from esparto black liquor is being commercially developed in England.



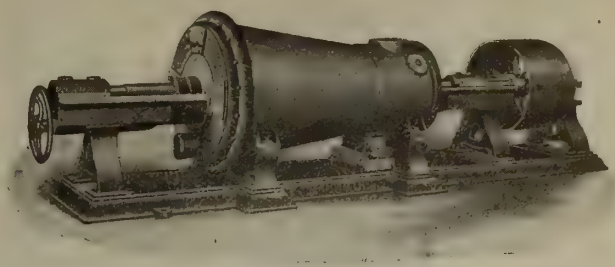
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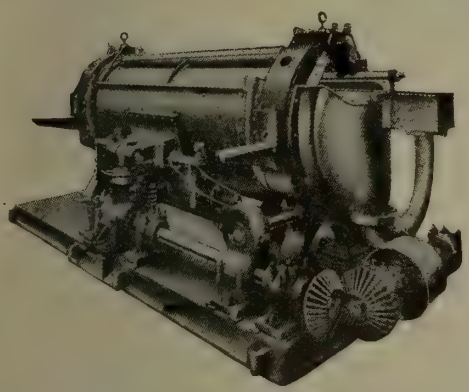
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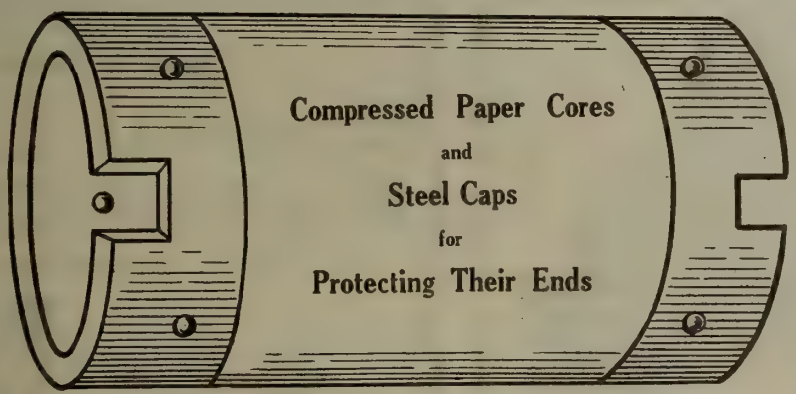
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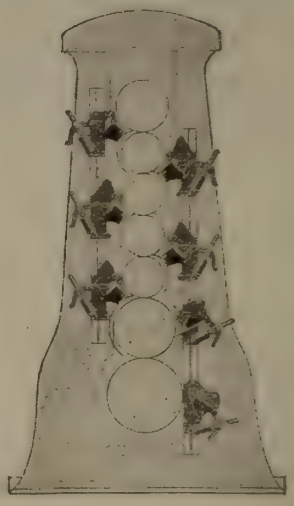
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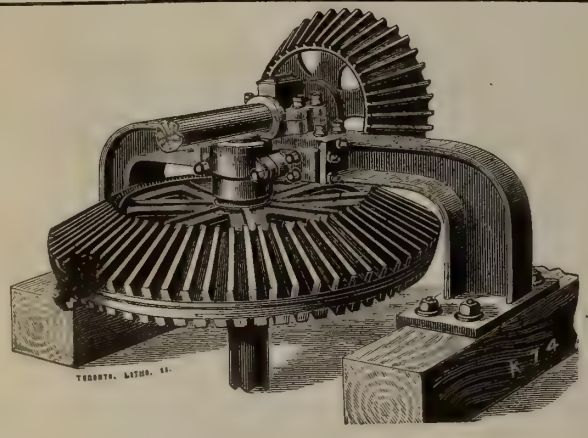
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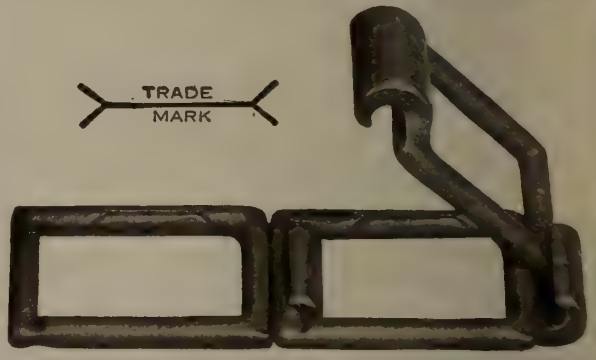
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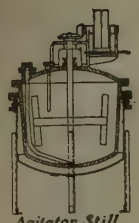


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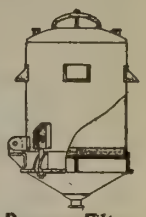
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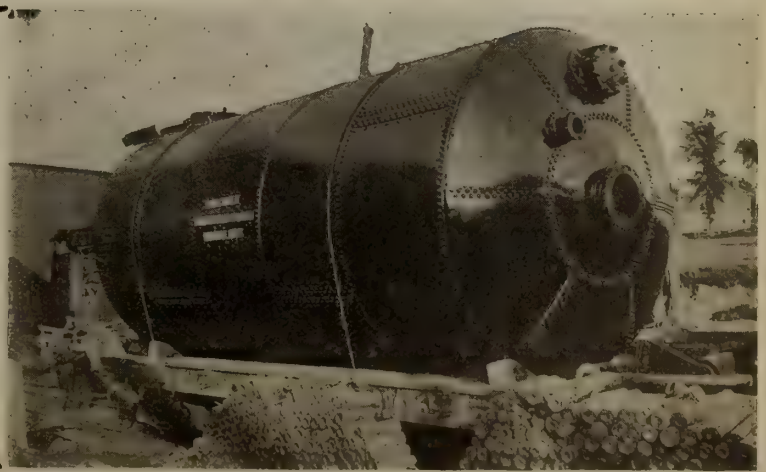
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CAUSTIC SODA
SODA ASH
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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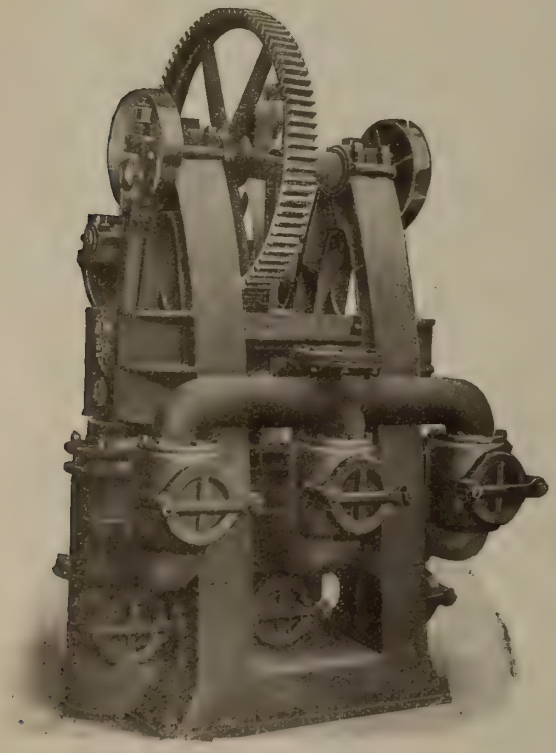
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EDITORIAL

FOOD.

The principal phases of the food problem are to get food and to pay for it. On this side of the Atlantic there is no difficulty in being able to get food although a considerable part of the population finds eating an expensive necessity. On the other side of the ocean there are great numbers of people to whom food is not available in quantities needed for bare subsistence, not to mention nourishment. The supply of food in practically all European countries is not enough to go around. It is hard for us to realize this when the baker comes to our door with several different kinds of bread, the butcher has plenty of all kinds of meat, and the grocer's shelves present an attractive display of provisions. Many a dog is fed good meat that is simply unobtainable in many places in Europe. The food dictator's job is not an easy one, yet he is a necessary factor in the life of Europe. In Canada and the United States, the title "food controller" is used, referring to Mr. Hanna and Mr. Hoover.

These gentlemen cannot create food, nor can they regulate the price of food without limit or without due regard to justice. Their principal effort seems to be with the object of educating the people to prevent all waste of food and to substitute other foods for those which are most needed and most easily sent to our Allies. This change applies particularly to wheat, white flour, beef, bacon, butter and sugar. To conserve fats would mean largely the use of jelly, etc., on bread and a less frequent use of the frying pan, which medical men look on as an abomination anyway. There are many who would profit both economically and gastronomically by eating less. Dining cars and hotels have been serving unnecessarily large portions. One railroad has, out of patriotism, cut its servings about in half, but has absent-mindedly neglected to reduce the price.

The food controllers tell us to eat graham flour, to make better use of oatmeal, corn products, rye, etc., and to eat more fish. To do this is no hardship to anyone. The main point to remember is that every bit of food we waste, either by throwing it away or by over-eating means that **someone in Europe is just that much nearer starvation.** This is a fact that is slow of realization in this land of plenty.

The conservation of food will be accomplished to a certain extent by a process capable of almost infinite possibilities—dehydration of fruit and vegetables. There are several very important advantages to this process. It requires nothing but heat. It renders naturally perishable materials almost immune to decay or freezing. The dried product has only about 20 per cent. of the original weight and occupies a much smaller volume. This means cheap freight from producing areas hitherto out of reach of markets and that waste vegetables, because damaged or small, may be preserved for use by simply drying them. The reduction in weight and bulk and increase in keeping qualities will commend dried vegetables to the company cutting its own pulpwood or running a mill boarding house or hotel. Dried milk is another wholesome and useful product that is beginning to receive the attention to which it is entitled.

There is a touch of ridiculous irony in the Canadian food situation that our American friends may find it hard to appreciate. A ban is put on bacon, and we are told to go easy on butter in order to save on edible fats. Many of our people cannot afford butter and do not get enough fat as it is; others must pay a price for butter that is so high as to make it a luxury. Yet oleomargarine, a standard, accepted article of food in every other civilized country is denied the Canadian people. The utter nonsense of such a situation is one of the most incomprehensible phases of Canadian legislation. There is certainly no economic, gastronomic or intellectual reasoning to support the suppression of oleomargarine. Let the government use a little more sense in this matter, while it very properly enlists our aid in the conservation of food.

The old saying: "It is not what you earn, but what you save," may be paraphrased to: "It is not what you eat but what you waste," that will starve someone in Europe.

PARLIAMENT PROROGUED AND NO NEWSPRINT REPORT.

An Irish lady rose one morning and remarked, "Well, to-day is Monday, to-morrow Tuesday and the next day is Wednesday. There's half the week gone and nothing done yet." One time in the dim and distant past there was in Ottawa a finance minister who was besought to relieve the desperate position of the

poor publishers by giving them cheaper newsprint paper. Strenuous and unfortunate circumstances had made it necessary for the manufacturers to charge more for their product than in the days when they had difficulty in giving it away.

The plea of the press was so strong, however, that the manufacturers were compelled, by an order-in-council, to sell their paper in Canada at 2½ cents per pound. They were given the promise, that if at the end of three months, this price proved unremunerative, a higher figure would be permitted. At a hearing before the Commissioner appointed to investigate the matter, the manufacturers proved that this figure was even below the cost of manufacture in some cases. The accuracy of figures submitted was doubted, and an accountant was appointed to investigate this phase of the matter. His work is not done yet. The report of the commissioner cannot be made ready in time for consideration by the present parliament, which will be prorogued when this is in the reader's hands. Action on the report can be taken by the cabinet and another order-in-council issued.

The last action in the matter was not founded on any reported basis of fact. Any subsequent decree will at least have the investigation of the commissioner for a foundation.

What the outcome will be can be hoped for but not foreseen. We don't want to see the publisher "stung," but we do want to see the manufacturer properly recompensed.

Nine months have gone and nothing done yet.

FILL THE FREIGHT CAR FULL.

There seems to be two reasons for freight congestion; lack of empty cars and lack of motive power. The latter in one sense depends on the first. If the contents of three cars could be put into two, the engine must haul an extra car to no useful purpose. Furthermore, it may be that this freight car, duplicated many times, is tying up transportation because cars are lacking. Of course, a broken down engine cannot haul its full quota of freight. It is even a menace in the amount of fuel it wastes. If bigger loads were put into cars, more goods could be moved, trains might be shorter and run faster, with less strain on the engines. There would be a relief of rolling stock and motive power that would enable roads to make repairs promptly.

If munition work dies down this winter it will be of immense advantage in releasing labor and equipment that should be of very material assistance in keeping the railroads up to scratch. The pulpwood situation in same quarters is really serious, largely on account of transportation difficulties. Any relief here will benefit the whole industry. Paper and pulp mills can help matters, not only by shipping full cars themselves, but insisting that their supplies come in cars loaded as near the limit as possible.

The situation is summed up in the following letter to the "Montreal Gazette":

"Canada is suffering from car shortage. During the year 1916 the Canadian railroads handled 109,659,087 tons of freight in 5,248,119 cars, or at the rate of 20.9 tons each. The loading of half of these cars averaged 32½ tons per car, therefore, the loading of the other half of them, or over 2,600,000 carloads, only overaged slightly over 9 tons per car.

"With just a little effort on the part of the railways and the shippers the average loading on the Canadian railroads can be made at least 27 tons per car, which would reduce the number of cars needed to handle the business of Canada by 23 per cent., in other words, if the cars had been fully loaded the Canadian railroads would have only had to move 77 per cent. of the number of loaded cars which were actually moved in handling the business of 1916.

"Your paper can do a very great public good by pointing out the importance of fully loading every freight car to the people of Canada."

Yours truly,
C. S. SIMS,
Resident Vice-President, Delaware & Hudson Ry.

"CONSERVATION."

The Commission of Conservation is doing a service by sending out a monthly publication of four pages, containing many short, interesting and timely articles which are a help in forming public opinion along this line. About 1,200 copies are sent to newspapers and other publications and so reach practically every one in Canada. This newspaper edition is printed on but one side of the paper, so that any article may be clipped without mutilating another. This is a great advantage to the newspaper.

The extra cost of printing in this way is about one-fourth cent per copy. The last copy of "Conservation" received was printed on both sides and at once gave trouble in clipping. If the commission wants to accommodate clippers and at no extra expense, we accept their invitation to make suggestions, and offer the following:

1. Print the newspaper edition, at least, on newsprint paper. It would not cost more than about half of what the grade now used is worth.

2. Print on one side only and fold twice, without stitching or trimming.

ACKNOWLEDGEMENT.

It was through the courtesy of the Dominion Water Powers Branch that we printed last week the picture of the Spanish River Pulp and Paper Mills' place at Sault Ste. Marie, Ont.

Power Prospects in Alberta

By R. O. SWEEZEY.

Sometimes in our zealous desire to advertise the greatness of our resources in this country we are apt to reveal only those features that are good while concealing the unfavorable ones. This tendency it not merely confined to the private promoter but is occasionally found in government reports. As for the conservation enthusiast, he is apt to magnify or stultify his estimate of resources in accordance with his desires to impress public opinion. These tendencies, though they serve a temporary purpose, should not be encouraged.

Examples of this semi-misleading attitude may be found in reports of various kinds concerning the water-powers and prospects of pulp and paper mill developments in the province of Alberta. It might be interesting , for example to know just how far the project of a pulp and paper mill at Winnipeg was influenced by wrong conceptions gathered from misleading propaganda. Yet on the very face of it could not any practical man see the absurdity of locating a pulp and paper mill at Winnipeg so far away from power, wood, coal and markets?

In the province of Alberta such rivers as the Bow, South Saskatchewan, Red Deer, North Saskatchewan and Athabaska have provided excellent subjects regarding which the spurious optimists have been want to pour forth their eloquence. Upon each of those rivers huge waterpowers have been reported with very often, no further data of discharge than that provided during the dry summer months, at which time one would perhaps logically suppose that rivers — especially in a prairie country, would be at their lowest. That such a line of reasoning is entirely wrong becomes evident on realizing that the Alberta rivers take their sources in the eastern slopes of the Rocky Mountains chiefly from melting snow and glaciers. In the hot summer months the snow and ice of the altitudes melt and this maintains the flow of the rivers. But as snow and ice do not melt in the cold winter months the Alberta rivers, further harassed by the extreme dryness of the climate—become so low as to almost dry up, and with the exception of the Bow River, from which the city of Calgary gets its hydro-electric power, none of the Alberta rivers offer any facilities for storage to compensate for this distressing drought in winter time. True a project at Rocky Rapids on the North Saskatchewan 60 miles west of Edmonton, contemplates a dam some 1600 ft. long and over 100 feet high for the creation of a deep pond of small area, but this scheme seems to have been influenced by the same spurious optimism already referred to.

The great Athabaska river, despite some of the wonderful reports concerning its water powers, offers absolutely no economic development. From the foot hills of the Rocky Mountains down to Raced Rapids — a distance of some 400 miles the writer was able to travel without portaging a foot of the way. The current is very swift but there are no falls or high rapids and the only possible site for a dam with a head of 70 feet is rendered absurd by the extremities of flow varying from 500 c.f.s. at low water to over 100,000 c.f.s. in flood time.

The Red Deer river offers no water powers above three or four hundred horse power and the cost of development would reach into several hundred dollars per horse power.

As for the North and South Saskatchewan rivers, if one wanted proof of the absurdity of attempting developments upon them, a study of the cost of Bassano Dam and of the abandoned project at LaColle Falls should prove amply convincing.

There is the Bow River that offers a couple more power developments similar to the Horse Shoe and Kananaskis Falls developments but until the storage reservoir facilities are developed these are not likely to be undertaken.

Now since Alberta water powers in their exaggerated form have been regarded as offering great facilities for the development of a large pulp or paper industry in the province and since these water powers are known to be sadly unsuited to such a purpose, one is lead to inquire into some of the glowing statements concerning the pulpwood available in the province. Well it may briefly be stated that even if water-powers were favorable for the purposes of the industry the pulpwood resources are not.

It is not the purpose of this article to "throw cold water" upon the honest and enterprising efforts of Alberta industry. The object is simply to give clear facts which if realized and understood at the outset should save Alberta from a lot of uncontrolled harsh criticism.

GERMAN UTILIZATION OF WOOD FLOUR.

"The Technical Utilization of Wood Flour" is the subject of an article by Professor Max Bottler, of Wurzburg, in the Technische Rundschau. The wood flour is prepared chiefly from sawdust and other wood waste, which is ground between hard millstones not too fine in the grain. Wood flour is used in the production of explosives. For this purpose soft and almost white flour, and coarser, rather yellowish-white hardwood flour are specially suitable. Wood flour is generally used instead of kieselguhr for the absorption of nitroglycerine. According to Braun, a very effective blasting powder is made of a 60 per cent. mixture of chlorate and nitrate of potassium, powdered charcoal, and wood flour (of hardwood), and 40 per cent. of nitroglycerine absorbed by this mixture. The explosive power of this powder is said to be 25 per cent. to 30 per cent. greater than that of the same weight of dynamite. No. III. new dynamite, according to Munch, is composed of nitroglycerine (20 per cent.) and a mixture (80 per cent.) of saltpetre (75 parts), sulphur (10 parts), and wood flour (12 parts). In the preparation of explosives wood flour is also nitrified directly. By the Schultze process a mixture of nitric acid and sulphuric acid is employed. The white Schultze powder can be used for blasting and as gunpowder.

It is reported that an Australian scientist has succeeded in making bread containing a large percentage of wood flour. He claims to have used it in his family for several months without any harmful results.

PAPER AND ALLIED MATERIALS IMPORTED INTO CANADA, AND EXPORTS OF PULP, PAPER, ETC., OF CANADIAN ORIGIN.

NOTE.—These figures are given from the unrevised Monthly Statements of the Canadian Customs.

Articles and Countries Whence Imported.	March, 1917. General Tariff. Quantity. Lbs.	March, 1917. General Tariff. Value. $	March, 1917. Preferential Tariff. Quantity. Lbs.	March, 1917. Preferential Tariff. Value. $	Twelve Months Ending March, 1917. General Tariff. Quantity. Lbs.	Twelve Months Ending March, 1917. General Tariff. Value. $	Twelve Months Ending March, 1917. Preferential Tariff. Quantity. Lbs.	Twelve Months Ending March, 1917. Preferential Tariff. Value. $
Paper and manufactures of:—								
Albumenized and other papers and films chemically prepared for photographers' use:—								
From G. Britain	.....	.....	.....	2,284	.....	5	.....	22,167
U. States	.....	10,860	.....	.....	.....	167,647	.....	.....
Other countries	.....	.....	.....	.....	.....	170	.....	.....
	.....	10,860	.....	2,284	.....	167,882	.....	22,167
Bags or sacks, printed or not:—								
From G. Britain	.....	.....	.....	2,148	.....	365	.....	31,647
U. States	.....	5,508	.....	.....	.....	43,287	.....	.....
Other countries	.....	4	.....	.....	.....	126	.....	.....
	.....	5,512	.....	2,148	.....	43,778	.....	31,647
Cards for playing:—	Packs.	$	Packs.	$	Packs.	$	Packs.	$
From G. Britain	.....	.....	3,948	577	602	89	285,205	31,316
U. States	9,881	1,695	.....	.....	176,004	28,168	.....	.....
Other countries	700	53	.....	.....	11,448	801	.....	.....
	10,581	1,748	3 948	577	188,054	29,058	285,205	31,316
Cardboard, not pasted or coated:—								
From G. Britain	.....	.....	.....	499	.....	.....	.....	939
U States.	.....	16,721	.....	.....	.....	161,666	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	16,721	.....	.....	.....	161,666	.....	939
Envelopes:—	M.		M.		M.		M.	
From G. Britain	3	18	207	708	46	155	5,014	9,665
U. States	5,890	9,373	.....	.....	67,145	96,660	.....	.....
Other countries	26	28	.....	.....	543	442	.....	.....
	5,919	9,419	207	708	67,734	97,257	5,014	9,665
Felt board:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	3,044	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	....	.....	.....	.....	.....	3,044	.....	.....
Hangings of wall paper, including borders:—	Rolls of 8 yds.		Rolls of 8 yds.		Rolls of 8 yds.		Rolls of 8 yds.	
From G. Britain	.....	.....	4,389	1,861	2,600	1 100	73,559	14,042
U. States	437,961	50,260	.....	.....	2.226.939	219.264	.....	.....
Other countries	220	288	.....	.....	4,045	3,767	.....	.....
	438,181	50,548	4.389	1,861	2,233,584	224 131	73.559	14,042
Leatherboard, leatheroid and manufacturers of N.O.P.:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	104
U. States	.....	3,922	.....	.....	.....	39,776	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	3.922	.....	.....	.....	39,782	.....	104
Mill board not coated or pasted:—								
From G. Britain	.....	.....	.....	734	.....	.....	.....	1,200
U. States	.....	7,620	.....	.....	.....	61,776	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	7,620	.....	734	.....	61,776	.....	1,200
Union collar cloth paper, in rolls or sheets, not glossed or finished:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	1,073	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	1.073	.....	.....
Union collar cloth paper in rolls or sheets, glossed or finished:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	480	.....	.....	.....	12,087	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....

Articles and Countries Whence Imported.	March, 1917 General Tariff. Quantity. Lbs.	March, 1917 General Tariff. Value. $	March, 1917 Preferential Tariff. Quantity. Lbs.	March, 1917 Preferential Tariff. Value. $	Twelve Months Ending March, 1917. General Tariff. Quantity. Lbs.	Twelve Months Ending March, 1917. General Tariff. Value. $	Twelve Months Ending March, 1917. Preferential Tariff. Quantity. Lbs.	Twelve Months Ending March, 1917. Preferential Tariff. Value. $
Pads, not printed, papier mache ware, N. O. P.:—								
From G. Britain	.....	.....	.....	8	.....	45	.....	1,027
U. States	.....	331	.....	.....	.....	6,253	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	8	.....	6,298	.....	1,027
Paper, manufactures of, N. O. P.:—								
From G. Britain	.....	779	.....	13,173	.....	16,558	.....	272,547
U. States	.....	275,143	.....	.....	.....	2,094,012	.....	.....
Hong Kong	.....	1,082	.....	.....	.....	7,978	.....	.....
Belgium	.....	.....	.....	.....	.....	215	.....	.....
France	.....	15,748	.....	.....	.....	127,232	.....	.....
Japan	.....	1,027	.....	.....	.....	10,027	.....	.....
Other countries	.....	84	.....	.....	.....	2,878	.....	27
	.....	293,873	.....	13,173	.....	2,258,900	.....	272,574
Paper matting when for use in Canadian manufactures:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	1,730	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	1,730	.....	.....
Patterns, boot and shoe, manufactures of paper:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	1,002	.....	.....	.....	12,735	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	1,002	.....	.....	.....	12,735	.....	.....
Printing paper (for newspapers) in sheets or rolls, valued at not more than 2¼c. per pound:—	Lbs.		Lbs.		Lbs..		Lbs.	
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	10,340	189	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	10,340	189	.....	.....
Printing paper, N. O. P.:—								
From G. Britain	.....	.....	59,806	5,967	9,447	742	546,062	65,337
U. States	831,410	62,769	.....	.....	4,885,682	365,921	.....	.....
Other countries	.....	.....	.....	.....	33,799	2,815	.....	.....
	831,410	62,769	59,806	5,967	4,928.928	364,478	546,062	65,337
Ruled and border and coated papers:; boxed papers and papeteries:—								
From G. Britain	.....	215	.....	2,153	.....	1,662	.....	36,132
U. States	.....	29,173	.....	.....	.....	267,296	.....	.....
Belgium	.....	.....	.....	.....	.....	1,114	.....	.....
Oother countries	.....	120	.....	.....	.....	1,075	.....	.....
	.....	29,508	.....	2,153	.....	271,147	.....	36,132
Straw-board not pasted or coated:—								
From G. Britain	.....	.....	136.920	2,967	40,000	787	284,294	6,175
U. States	1.006,013	29,572	.....	.....	8,733,339	179,281	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	1,006,013	29,572	136.920	2,967	8,773,339	180,068	284,294	6,175
Tarred, and other building paper, N. O. P.:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	43
U. States	.....	21,449	.....	.....	.....	189,780	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
	.....	21,449	.....	.....	.....	189,780	.....	43
Window blinds of paper of all kinds:—								
From G. Britain	.....	.....	.....	.....	.....	.....	.....	.....
U. States	.....	.....	.....	.....	.....	130	.....	.....
Other countries	.....	.....	.....	.....	.....	.....	.....	.....
Wrapping paper:—								
From G. Britain	.....	.....	.....	.....	901	64	15,446	1,917
U. States	404,937	19,319	.....	.....	6,895,668	269,554	.....	.....
Norway	.....	.....	.....	.....	.....	.....	.....	.....
Sweden	.....	.....	.....	.....	.....	.....	.....	.....
Other countries	178	8	.....	.....	4,316	207	.....	.....
	405,115	19,327	.....	.....	6,900,885	269,825	15,446	1,917

All kinds of N O. P.:—								
From G. Britain		114		34,609		14,354		269,158
U. States		179,546				1,448,964		
Belgium								
France		9,520				17,912		
Norway						1,425		
Sweden						697		
Other Countries		2,593				15,589		
		191,773		34,609		1,498,941		269 158
Wood Pulp:—								
From G. Britain								
U. States		44,443				651,311		
Sweden								
Other countries								
		44,443				651,311		

FREE GOODS—MANUFACTURED AND PARTIALLY MANUFACTURED ARTICLES.

Articles and Countries Whence Imported.	March, 1917. Quantity.	March, 1917. Value.	Twelve months ending March, 1917. Quantity.	Twelve months ending March, 1917. Value.
Paper, Matrix, not being tissue paper, for use in printing:—				
From Great Britain		331		2,395
United States		1,970		21,363
Other countries				520
		2,301		24,278
Paper tubes and cones of all sizes adapted for winding yarn thereon:—				
From Great Britain		3		975
United States		5,056		37,371
Other countries				
		5,059		38,346
Paper and materials of paper, gutta percha and rubber for the manufacture of music rolls for piano players:—				
From Great Britain				
United States				6,942
Other countries				
				6,942
Paper, photographic, plain basic, baryta coated, adapted for use exclusively in the manufacture of albumenized or sensitized paper:—				
From Great Britain				6,667
United States		10,596		99,171
Other countries				662
		10,596		106,500
Paper, decalcomania, not printed, when imported by manufacturers of decalcomania transfers to be used in their own factories in the manufacture of such transfers:—				
From Great Britain				1,170
United States		2		2
Other countries				
		2		1.172
Rags of cotton, jute, hemp and wool; paper waste clippings, and waste of all kinds N.O.P., except metallic broken glass or glass cullet:—	Cwt.	$	Cwt.	$
From Great Britain	1,098	5.462	42 178	129.888
United States	66,807	244 289	726.633	1,815 513
Portugal			7 872	20.242
Spain			2.233	3 939
Other countries			1,146	6,415
	67,905	249,751	780 062	1.975.997
Resin or rosin in packages of not less than 100 lbs.:—				
From Great Britain			3	16
United States	34 500	79.297	302.734	659.212
Other countries				
	34.500	79.297	302,737	659.228
Twine or yarn of paper imported by manufacturers for the purpose of being woven into fabrics:—				
From Great Britain				
United States		1,213		3.810
Other countries				
Twine or yarn of paper for use in the manufacture of furniture:—				
From Great Britain				
United States		180		3.114
Other countries				

EXPORTS OF PULP, PAPER, ETC., MADE IN CANADA.

Articles and Countries to Which Exported	March, 1917. Quantity. Cords.	March, 1917. Value. $	Twelve months including. March, 1917. Quantity. Cords.	Twelve months including. March, 1917. Value. $
Wood blocks and other, for pulp:—				
To G. Britain				
U. States	68,944	422,303	982,671	6,448,189
Newfoundland				
Other countries				
Paper, viz:—				
Paper board:—				
To G. Britain		33,672		367,440
U. States		80,587		803,291
Newfoundland				1,518
Other countries		8,544		42,714
		122,803		1,214,963
Paper, wall:—	Rolls.		Rolls.	
To G. Britain			3,730	1,367
U. States	9,109	1,224	31,671	3,265
Newfoundland	29,366	2,094	316,480	19,532
Australia	100,902	10,449	227,328	22,586
Other countries	36,582	2,726	608,379	51,622
	175,959	16,493	1,187,588	98,372
Felt and roofing:—				
To G. Britain		200		55,196
U. States		39,749		150,297
Newfoundland		910		35,103
Other countries		2,700		11,060
		43,559		251,656
Wrapping:—	Cwt.		Cwt.	
To G. Britain	14,823	55,199	114,624	432,669
U. States	2,955	23,312	15,478	87,738
Newfoundland			732	4,820
Australia	1,026	3,006	24,460	80,083
Other countries	230	1,507	47,357	196,108
	19,034	83,024	202,651	801,418
Printing:—				
To G. Britain	2,662	5,677	55,914	137,412
U. States	1,162,171	3,088,406	9,632,422	20,973,548
Newfoundland			215	551
Australia	61,749	189,229	528,190	1,106,617
New Zealand	29,653	76,554	282,464	667,920
Other countries	27,407	74,314	306,992	708,086
	1,283,642	3,434,180	10,806,197	23,594,134
Paper, N.O.P.:—				
To G. Britain		1,600		18,893
U. States		6,212		42,422
Newfoundland		2,394		19,361
Other countries		392		31,427
		10,598		112,103
Rags and waste:—				
To G. Britain			12,887	117,333
U. States	37,953	50,550	364,538	500,059
Newfoundland			5	40
Other countries	874	1,434	7,159	19,579
	38,827	51,984	384,589	637,011
Wood pulp, chemically prepared:—				
To G. Britain	10,122	59,086	668,750	2,677,923
U. States	435,899	1,655,991	3,952,580	11,107,819
Newfoundland				
Japan	10,433	25,901	100,426	204,417
Other countries	6,060	25,495	12,241	42,761
	462,514	1,766,473	4,733,997	14,032,920
Wood pulp, mechanically ground:—				
To G. Britain			494,474	379,488
U. States	471,747	576,807	5,495,221	5,487,424
Newfoundland				
Other countries			662,219	504,221
	471,747	576,807	6,651,914	6,371,133

REFORESTRATION IN ONTARIO SAND.

It is stated in the report of the Minister of Agriculture for Ontario that District Representatives are giving considerable attention to the question of reforestration. In a number of counties, they have been instrumental in establishing plantations, which have served to demonstrate what may be done with land unsuited for cultivation. The following extract from a District Representative's report will serve to illustrate:—

"In a number of places throughout the county there are sand hills upon which apparently nothing could be made to grow, and which give an endless amount of trouble, especially along roadsides, where every windy day fills the road full of sand. One particularly bad hill lies on the road about midway between Kemptville and Spencerville, on the Selleck property. This sand hill has drifted across the road allowance, and several strips of land have been purchased from the owner of the adjoining field, in order to get around the sand. Every effort to stop sand blowing has failed, three high board fences have been buried, and it is an every day occurrence to see autos stuck in the middle of the road.

"With the idea in view of attempting to stop the sand blowing we decided to conduct a Reforestration experiment, to see if it would be possible to grow trees on this sand. Five thousand four hundred trees were secured in the spring from the Forestry Branch of the Department of Agriculture, and set out carefully in rows four feet apart, with the trees four feet apart in the row. We further experimented by hauling cedar brush and covering over half the area with it. I am pleased to state that at present nearly all the trees over which we put brush are living and doing well. These will, no doubt, in the course of a year or two stop the sand from blowing. The trees which we did not cover did not do so well, and many of them were either covered with the blowing sand, or blown out by the roots. Next spring we purpose replacing all dead trees, and covering the entire area, if posible, with cedar brush, to give the trees as good a chance as possible.

"Very little encouragment was given by adjoining farmers at the time the trees were planted, and a good deal of scepticism prevailed as to the possibility of the trees growing. However, we know that seeing is believing, and trust to have this troublesome sand hill converted into a young pine grove in the course of a few years."

This interesting statement would be more valuable if the variety, size and age of the trees had been mentioned.

WEIGHT OF WOOD.

Weight per cubic foot (lbs.):—

Ash	45	Larch	35
Bamboo	22	Maple	42
Box	70	Oak	69
Cedar	39	Poplar	30
Ebony	76	Pine	28
Hemlock	24	Spruce	28

Electricity in the Pulp and Paper Industry

By W. W. CRONKHITE,

General Electric Company.

(Continued from page 873.)

Beaters.

These machines may be driven in groups, in pairs, or singly. Fig. 7 shows the motor mounted between the two beaters. This arrangement is not always practical, as the distance between beaters may be such that it is impossible to install the motor.

Another arrangement for group drive is suggested in Fig. 6. The motor is direct-connected to a jack shaft and belted to the beater pulley. Both squirrel cage and slip ring motors are used on beaters, but in general the slip ring motor is to be recommended, as it will take care of the most severe starting conditions.

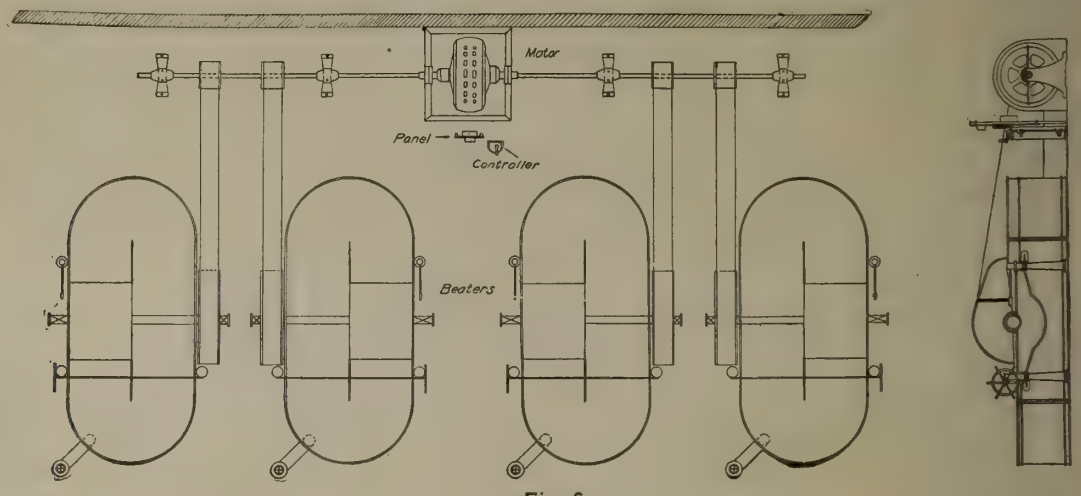


Fig. 6.

Fig. 8 shows a beater room using chain drive, with the motor mounted between two beaters.

The choice between these arrangements depends upon local conditions. The power consumption of beaters varies considerably. Fig. 9 is from tests on a 1500-lb. beater having a roll with 54-in. face and 65-in. diameter.

Curve A is for beating rope stock at 106 r.p.m. The first period is "feeding", and the maximum horsepower is about 48; the second period is "washing," and the power consumption gradually goes down; the third period is beating, and the load gots up to approximately 75 h.p. The peaks occur when rolls are turned down. This test is over a complete cycle.

Curve B is similar to curve A, except that it shows the difference in power consumption due to the lower speed. In both cases the beater was working on rope stock.

Curve C is a similar test except that old paper stock is used and the beater is operated at 105 r.p.m.; naturally the power is less—a trifle over 50 h.p.

Some mill engineers recommend 1 h.p. per inch width face of beater-roll in estimating power required, but on very tough material and high peripheral speed the requirements go higher than this. We believe, however, that for work on light stock such as ground wood, sulphite, old papers, etc., with peripheral speeds not exceeding 1700 feet, three-quarters of a h.p. per inch width of face is ample.

Jordans.

The advantage of the direct-connected motor for driving jordans and similar refining engines is its compactness, freedom from belts, and long life of bearings and linings. Fig. 10 shows three-150 h.p. induction motors with sliding base arranged to take up the movement of the jordan plug. This movement can also be taken care of by the use of a telescopic coupling, as shown in Fig. 11. Fig. 15 shows a close-up view of a G-E. telescopic coupling for use between the motor and the jordan, by the use of which the plug movement of the jordan is taken care of, allowing the motor to remain stationary.

Synchronous motors are also used for driving jordans, and Fig. 12 shows this type of motor direct-connected to Jones jordans.

Some mills prefer to use a motor having internal resistance. Fig. 13 shows such a motor. A squirrel-cage motor direct-connected to a mammoth jordan through telescopic coupling is shown in Fig. 14.

Jordans do not require high starting torque unless the machine is shut down and allowed to stand with the stock in it and with the pressure of the plug not relieved. This practice is not customary, of course, as the jordan is generally allowed to clear itself before shutting down, and the pressure of the plug is relieved upon starting up.

There are so many conditions that enter into the operation of jordans to affect the power consumption that it is hard to do other than fix the extreme limits. Motor capacity will depend upon the size of the jordan, the speed, character of pulp, and the position of the plug. The different mills may obtain considerably different results as regards power consumption, even though they may be using the same size jordans and

*Courtesy of the General Electric Review.



Fig. 8. Group of 6 100-h.p., 480-r.p.m., 550-volt Slip Ring Induction Motors, each driving two Jones Type Beaters. Fenimore Mill, Union Bag and Paper Corp., Hudson Falls, N. Y.

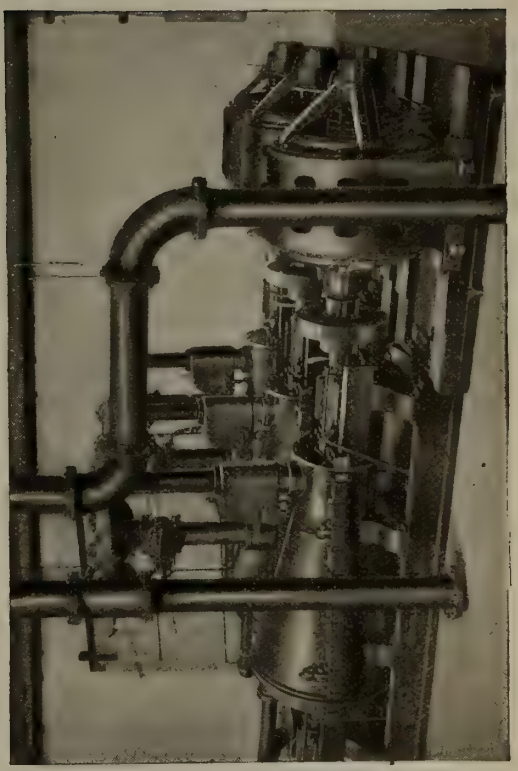


Fig. 10. Three 150-h.p. Induction Motors Driving Jordans. Kimberly-Clark Company, Kimberly, Wis.



Fig. 7. 150-h.p. Induction Motor Driving Two Beaters through Chain Belts. Kimberly-Clark Company, Kimberly, Wis.

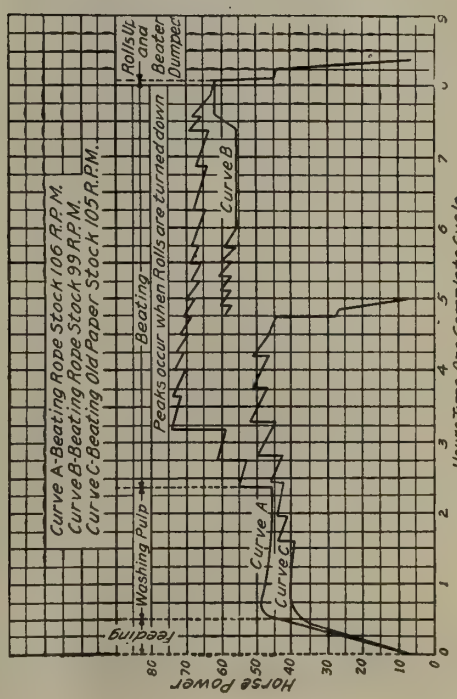


Fig. 9. Power Required by 1500-lb. Beater. Roll 54-in. face by 65-in. diameter. Capacity of Beater about 1200 lb. Rope Stock, 1200 lb. Sulphite.

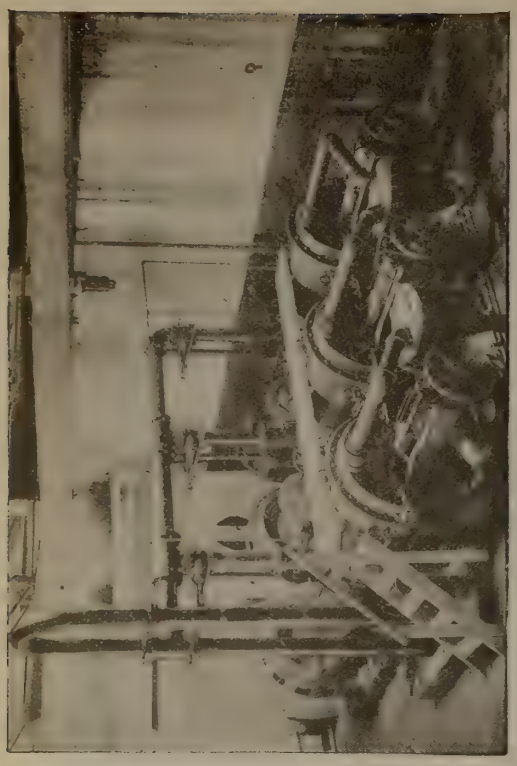


Fig. 12 3 125-h.p., 104-kv-a. 300-r.p.m. Synchronous Motors Driving Jordan Engines. Kimberly-Clark Company, Kimberly, Wis.

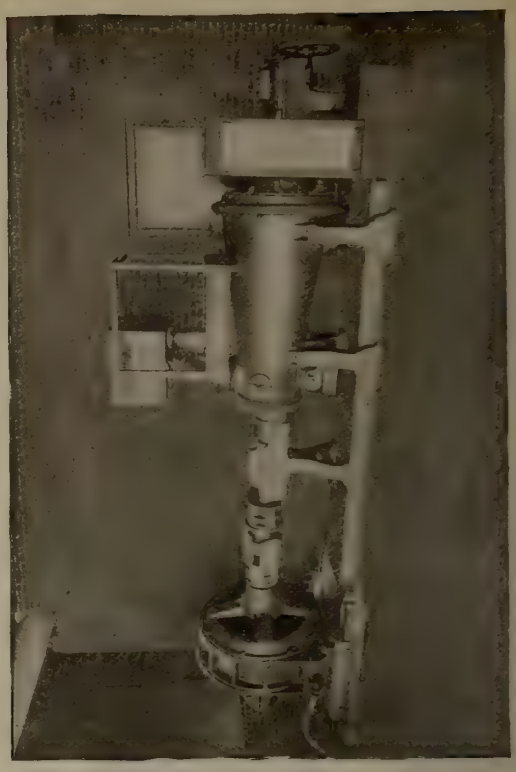


Fig. 14. 75-h.p., 345-r.p.m., 2200-volt Squirrel Cage Induction Motor Direct Driving Mammoth Jr. Jordan. Walloomsac Paper Company, Walloomsac, N. Y.



Fig. 11. 150-h.p., 400-r.p.m., 440-volt Slip Ring Induction Motor driving Mammoth Jordan. Inland Empire Paper Company, Millwood, Wash.

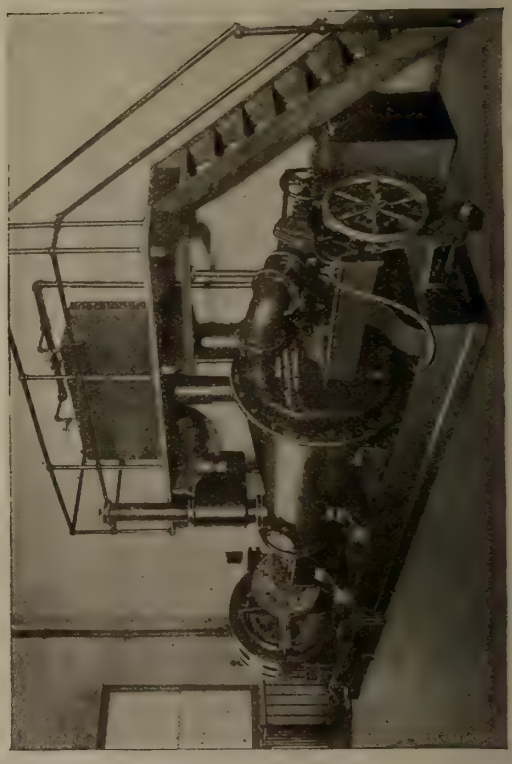


Fig. 13. 225-h.p. Induction Motor Driving Jordan. Fenimore Mill, Union Bag and Paper Corporation, Hudson Falls, N. Y.

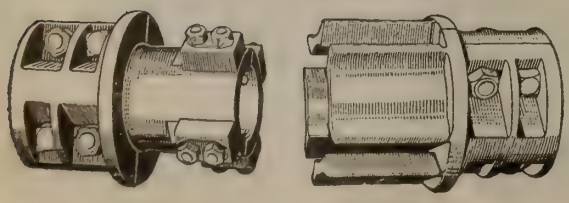


Fig. 15. Flexible Telescoping Coupling for use with Motor-driven Jordan Engines.

working the same class of pulp, as one mill may have a large beater equipment and depend upon the jordan only for brushing the stock, while another mill may have a limited beater capacity and use the jordan to reduce the stock. Many tests have been made on the different sizes and makes of jordans, but each case should be considered separately before making recommendations for size of motor.

(To be continued.)

OBITUARY OF CLAYTON BEADLE.

The name Clayton Beadle will suggest to most of our readers, his "chapters on Beating" and other publications and investigations in the paper industry. The following sketch is taken from the World's Paper Trade Review:

After a long illness, Mr. Beadle passed away on August 16th at his residence, Oakbank, Sidcup, Kent, having attained the edge of 49 years. His introduction to paper manufacture took place at the mills of Messrs. Wm. Joynson & Son, St. Mary Cray, Kent, and it was here that he first came in contact with Messrs. Cross and Bevan, the well-known paper chemists and authors of text books on paper-making, cellulose, etc. With these gentlemen he found the atmosphere of chemical research which appealed to him, and he subsequently became a partner with them for five years. By a coincidence, this partnership covered the critical period when the new celebrated viscose discovery was made, and his name appears on the original viscose patent—8,700, 1892. Mr. Beadle took a very special part in the spade work which was involved in developing the viscose industries. Among other activities, he was instrumental in forming the British Viscose Co., and establishing a pioneer experimental works at Erith for the production of viscoid solids and films.

When his partnership with Messrs. Cross and Bevan ceased, he proceeded with his own independent concerns in partnership with Dr. H. P. Stevens and specialised in india-rubber. Mr. Beadle's relations and friends were pioneers in the rubber plantation industry, and Mr. Beadle's connection with the Lanadron Co. accounts for his taking up this particular branch of technology. Messrs. Beadle and Stevens have made a considerable reputation in this field. Mr. Beadle maintained his earlier enthusiasm for the scientific basis of industry generally, and he and Dr. Stevens developed this as well as the commercial side of rubber, establishing a small works where rubber specialties are produced.

Mr. Beadle has rendered good service in other directions of technology, notably in relation to cellulose raw materials such as cotton hull fibre and generally the utilisation of cotton hulls. His later work on "Hedychium" as a papermaking proposition is well known and indicates great originality. In evidence of his all-round activity we note his work in the important question of underground water supplies and the water supplies of paper mills, making valuable achievements in this matter.

Mr. Beadle's publications are numerous and contributions from his pen appeared in various scientific and technical journals. He was lecturer on papermaking before the Society of Arts. 1898, 1902 and 1906; at the Papermakers' Exhibition, 1897; at the Dickinson Institute, on behalf of the Hertford County Council, 1901; and at the Battersea Polytechnic Institute. 1902. In recognition of his achievements, he was awarded the John Scott Legacy Medal and Premium of the Franklin Institute by the City of Philadelphia, the Gold Medal of "La Société pour l'encouragement de l'Industrie National" of Paris, the Silver Medal of the Society of Arts in 1906, besides other medals and awards.

This brief notice suffices to show that Mr. Beadle was a worker of extraordinary industry, with quite an unusual enthusiasm for technology in all its branches, and his comparatively early death terminates a singularly fruitful career.

PRICES OF NEWS PRINT FOR 56 YEARS.

Herewith is published a list of the prices at which news print sold for the 56 years—from 1860 to 1916. The table of prices per pound was compiled by N. Tuttel, former treasurer of the New York Tribune, for the greater part of this period, and for a few years at the end of the period by the International Paper Co.

1860	8.3	1889	3.875
1861	7.6	1890	3.4
1862	17.	1891	3.125
1863	22.12	1892	2.91
1864	12.	1893	2.75
1865	12.6	1893	2.54
1866	17.2	1894	2.25
1867	15.	1895	2.25
1868	14.6	1896	2.25
1869	12.5	1897	1.8
1870	12.3	1898	1.8
1871	12.1	1899	1.8
1872	12.	1900	1.8
1873	11.2	1901	1.8
1874	8.6	1902	1.9
1875	8.5	1903	2.05
1876	8.2	1904	2.00
1877	8.2	1905	2.00
1878	6.46	1906	2.00
1879	6.	1907	2.00
1880	6.9	1908	2.10
1881	6.46	1909	2.25
1882	6.	1910	2.25
1883	5.73	1911	2.25
1884	5.5	1912	2.25
1885	5.2	1913	2.25
1886	4.77	1914	2.15
1887	4.15	1915	2.15
1888	4.	1916	2.15

PAPER TRADE OF GUATEMALA.

Guatemala is buying all of the print paper needed to supply four daily newspapers, a number of weeklies, and several job-printing establishments at this time from the United States, according to Consul Samuel C. Reat, of Guatemala City. During the past year at least 6,000 reams of news paper, valued at $16,000 United States gold, were brought in, while paper of other classes to the value of nearly $131.000 was also imported. Of this "other paper" the United States furnished $102.000 worth and Spain $29,000.

Before the European war the bulk of the paper supply of Guatemala came from Germany, and a small quantity from England. Local dealers are predicting that much of this trade will revert to Europe unless the American dealers and manufacturers improve upon their present methods. Complaint is made of unreasonable delays in shipment and delivery of the goods; and in this connection a local dealer reports that after having placed an order with an American firm, and after having waited for six months, a substitute order was placed with a manufacturer in England (Birmingham), and the British goods were received before those from the United States under the original order. This delay may have been caused by the lack of shipping facilities or the congestion of the ports.

There is also complaint of the practice of consigning shipments to the railway company in Guatemala rather than to the customer direct.

Print paper is subject to a Customs duty of 2½ cents Guatemalan currency per kilo, or about $1.16 per 100 pounds.

SPANISH RIVER STATEMENT

In place of the separate balance sheets hitherto issued, the directors of the Spanish River Pulp & Paper Mills, Limited, and the Lake Superior Paper Co., Ltd., have prepared, for the year ending June 30 last, a consolidated balance sheet showing the united position of both companies The results of the two companies for the year are sufficient not only to reassure preferred



GEORGE H. MEAD, President Spanish River Pulp & Paper Mills, Ltd.

shareholders, but to strenghten the ray of hope reflected to the owners of common from last year's statement.

The total net revenue for the year was $2,117,734, which compares with $1,342,390 in 1916, $1,019,577 in 1915, and $879,285 in 1914. The exceptional profits last year evidently encouraged the directors to strengthen the position through writing off assets, and the reserve for depreciation was $269 821, as against $145,172 in 1916, and $104,129 in 1915.

With the deduction for depreciation and the payment of interest on funded debts and other loans, amounting to $718,409, the net surplus earnings of the year were left at $1,129,504, against $431,291 in 1916, or equal to about 19 per cent. earned on the preferred stock and about 9 per cent, on the common. This, with the balance of $699,621 carried forward from the previous year, made a balance of $1,829,125 available for other purposes.

The directors appropriated fro mthis amount $835,399 towards the extinction of the deficiency account, leaving $993,726 to be carried forward into the current year.

The increase shown in net revenue amounting to approximately $775,000, is due to higher prices obtained for newsprint paper during the past twelve months, prove the efficiency of the plants.

The property account as at June 30, 1917, shows that there has been expended during the year $1,500,000 on enlargements improvements and betterments, increasing the capacity of the combined mills approximately 70 tons per day, and the directors state that the additions to be completed during the present summer and fall will still further increase production as well as improve the ifficiency of the plants.

The difficulties of obtaining pulpwood and all other materials, including repair parts, etc., necessitate the carrying of unusually heavy stocks, which have increased over June 30, 1916 by $1,180,000, entailing further bank advances.

With regard to the outlook for the paper market and the official inquiry into the paper situation, the report says:

"In spite of every effort to deal fairly with the situation, your company, along with other similar companies in both Canada and the United States,has been subjected to attack by certain publishers, and, as a result, investigation by the governments of both countries, but your directors feel that such attacks have been made because of lack of proper or sufficient knowledge of the very grave situation in which the pulp and paper mills of the continent have found themselves in consequence of past years of unprofitable operation, as well as recent months of war conditions, and that when the facts are finally determined the position of the manufacturers will be justified."



Plant of Spanish River Pulp & Paper Mills at Espanola, Ont.

Paper Booths at Canadian National Exhibition

At the Canadian National Exhibition, Toronto, the paper industry was represented by two well known Canadian firms in the Interlake Tissue Mills of Merritton and W. J. Gage and Co., of Toronto. Both had exceptionally inviting and well arranged booths in the manufactures building which were the centre of much interest.

The Interlake Tissue Mills had their space adorned with baby blue decorative crepe tissue paper, and the side walls being imposingly draped with this material, which they make in no less than thirty-six shades. At the end was an alcove curtained with decorative crepe tissue, and paper rope and artificial paper flowers, making it a veritable bower of beauty. Resting on the ledge in the alcove were three brands of paper towels made by the firm, "Protectu", "Hygienic" and "Purity". There were also M. G. sulphite wrap rolls in pink, blue, green and mauve, from one half an inch, to any width



desired. Rolls of light weight kraft were also seen as well as tissue napkins, flat and folded. In the varied and interesting exhibit were manifolding sheets, in eight different shades, for making carbon copies, and outing and lunch sets, the former containing two crepe tissue table covers and twenty-five crepe paper napkins and the latter one table cover and twelve napkins. Napkins were shown in glassine packages to prevetn dust and dirt collecting on them when sold in the stores. The leading brands of the company "Sani-White", "Interlake", "Canada" and "Purity" were all in display. In toilet papers there were white crepe, manila creep and plain M.G. manila, the brands being "Old Dutch", "White Cross" and "Household". A feature was the rolls of paper towels, and in addition were crepe kraft, hand rolls for wrapping brass and iron bedsteads, fruit wraps, etc. "Confederation" fans were given away to scores. These had a map of Canada on the one side with the location of the Interlake Tissue Mills while on the reverse side was appropriate advertising matter. The exhibit was in charge of George Carruthers, President of the company and Allen Browne, sales manager, and was complete and representative in every respect.

Another attractive exhibit was made by W. J. Gage and Co., manufacturing stationers and envelope makers, Toronto. The firm had a very becoming booth and displayed writing paper and papeteries of various kinds, including their kid finish linen paper, Leland linen, Imperial vellum, linen lawn and Holland linen. Leland which was shown for the first time comes in four shades. Some unique designs in papeteries were displayed containing from one to four quires with envelopes to match. Correspondence cards were also on exhibit and several rolls of the various lines of linen added to the interest of the collection of fine writing paper which included hand made linen. The company distributed blotters setting forth the merit of Holland linen, its beautiful texture and pen inviting surface. For many years W. J. Gage and Co. have been one of the leading exhibitors at the Canadian National Exhibition.

DIVIDENDS DECLARED.

Laurentide Co. has declared a regular quarterly dividend of 2½ per cent., payable October 2 to holders of record September 21.

Riordon Pulp & Paper Co. has declared a regular quarterly dividend of 1¾ per cent. on the preferred stock, payable September 30 to holders of record September 22.

Abitibi Power & Paper Co., Ltd. announces a regular quarterly dividend of 1¾ per cent, on preferred stock, payable October 2nd, to shareholders of record September 20.

NORWAY'S PULP CRISIS.

According to "Farmand", a crisis is imminent in the Norwegian cellulose industry. Although licenses have been granted by Sweden to ship 120,000 tons to England, little or none have been sent. The British market seems to have been well supplied with Canadian and American pulp. There is hardly any demand for Norwegian pulp and mills would lose money at prices offered them.

Mechanical pulp makers are better off, but prices are weakening and the mills in the Traemasseforening have agreed to restrict production. Business in paper is reported very slow, with but few orders.

NEW TREATY REGARDING NIAGARA POWER.

A new treaty between Canada and the United States regarding the amount of water each side can take from the Niagara Falls may be drawn up to overcome the shortage of power. The provincial Hydro-Electric Commission is contemplating the taking of action soon to stop the exporting of power from the Canadian side of the river, but even this will not make up the shortage.

UNITED STATES NOTES

Otto Wandel, of the well-known family of Wandels, who has been superintendent of the Riverside Paper Co., division No. 3 of the American Writing Paper Co., has resigned this position to take over the superintendency of the Erving Paper Mills, Erving, Mass. The latter concern has been making quite a success wtih ts tissue paper and other light-weight specialties, and is about to triple its present production. Otto Wandel has seen service in the industry throughout the United States, as well as in some of the best known foreign paper mills.

An increase in paper mill activities on the Pacific Coast is indicated by a report recently received that there is to be a new plant built at Stockton, Cal. There were not many details in the report, however, it was known that the mill would be built at a cost of about a million dollars and that, already, 37 acres of land had been purchased within the city of Stockton. This land is said to be along the Atchison, Topeka & Santa Fe Railroad, and it is assumed that every endeavor will be made to facilitate transportation. It is said that Eastern capital is behind the enterprise, which is represented by MacDonald & Kahn, of San Francisco.

The Barrett Co., large manufacturers of roofing paper and similar papers, and considered one of the largest consumers of certain grades of rag stocks in this country, has just declared its regular quarterly dividend of 1¾ per cent. on the common and preferred stocks, the common dividend being payable Oct. 1 to stock of record Sept. 20, and the preferred payable Oct. 15 to stock of record Oct. 5. President Childs gave out the statement that no statement of the company's earnings would be due until the next quarter, which ends the company's fiscal year. He stated, however, that the company was doing a heavy business with its 30 plants in full operation. A director was unwilling to confirm reports that the company would this year show about 40 per cent. earned on the common stock, but declared that the earnings were very handsome.

Kalamazoo, Mich., residents, who have been in the custom of receiving retail prices for small lots of old paper and rags from the paper mills in that city, were sorely disappointed last week when all of the mills declined to accept any more stock in less than ton lots. The cost of handling small quantities was too great for the mills to allow them to continue buying stock in this manner.

The Lakeside Paper Co., of Neenah, Wis., has increased its capital stock from $225,000 to $450,000. Reports are to the effect that the company's business has become considerably enlarged, and that the increase in capital was made necessary by the fact that extensive improvements have now become urgent.

An increase of ten per cent. in wages, that commenced September 1, has just been announced to its employees by the Thilmany Pulp & Paper Co., at Kaukauna, Wis This is a voluntary raise, and is said to be the third or fourth time, within a comparatively short period, that the company has acted along these lines. According to the story that is told, the paper makers sent a committee out to get an idea of the cost of the necessaries of life. The increase was the result of the committee's report.

Perhaps one of the most important announcements that has come from the Holyoke district in some time is the one that the American Writing Paper has planned to open a practical paper making school at the "Little Old Mt. Tom" mill at the Parsons Paper Company divsion. This school will be conducted at nights, and will be in charge of some of the experts of the American Writing Paper Company. It is understood that a splendid course has been mapped out, and that those who attend regularly and make the best of all the opportunities that will be afforded, will have a thorough knowledge of the industry and all of its workings. An idea of the manner in which the American Writing Paper Co. plans to operate the school, which will be free of charge, will be understood when it is known that it is hoped to make this institution the means of promoting from the ranks, men to fill superintendencies and other responsible positions, thus doing away with the necessity of going "outside" to look for men. It is understood that, already, 200 men have enrolled in the school.

A report states that the production of the Carthage Tissue Paper Co. is to be double within the near future. This, it is said, will be part of a general plan for improving the plant and making a number of innovations that may cost the concern somewhere in the neighborhood of $150,000. The exact details of the improvements have not yet been decided upon.

The New England Shoe and Leather Association is planning to start a campaign in its industry for the conservation of paper stocks. It was decided at a recent conference, that there was considerable undue waste of paper in wrapping and in shipping in general and, as a result, some of the largest shoe manufacturers in New England have begun to interest themselves in cutting their consumption of paper. A specially prepared paper-conservation circular is to be issued to the shoe industry and a special placard for posting in shipping departments will also be printed.

One of the biggest deals ever announced in the Miami Valley was concluded this week, when the Paul A. Sorg Paper Co. of Dayton, Ohio, took over the W. B. Oglesby Paper Co. at Middletown, Ohio. Talk of the possibilities of such a deal has been current for some time, so it was no surprise to the trade in that section. No details of the transaction have been made known, except that it is understood that several big plans are now under consideration by the Paul A. Sorg Paper Co.

Thousands of dollars worth of paper was destroyed when a fire swept one of the buildings of the Philadelphia Paper Co, on Nixon street above Fountain, Manayunk, Pa., early this week. It was said that there were 300 tons of finished paper in the building, in addition to considerable valuable machinery. The loss was estimated at $35,000. The origin of the fire is unknown.

An important incorporation during the week was that of the Dicks, David & Heller Company, chartered in the State of Delaware, to make dyes and dyestuffs, with a capital of $40,000. The incorporators are: W. B. Walsr, R. H. Miller, H. Rothkowitz, M. E. Schaefer.

PULP AND PAPER NEWS

A rather unique contest was conducted at the Ottawa Exhibition last week, when Grand's Typewriter Supply, Ltd., of Ottawa, who had a fine display in the main building, offered a prize of fifty dollars in gold to the person making the most accurate guess regarding the number of sheets 8 x 13 inches, which could be cut from a large roll of carbon paper. The competition aroused much interest.

A very interesting and instructive exhibit was made at Howick Hall, Ottawa, in connection with the Pure Food Show last week, when the E. B. Eddy Co., of Hull, had large booths. There was a splendid showing of matches, indurated ware, paper bags, toilet, tissue and other paper products attractively presented. In the toilet and tissue lines, there were the roll and flat package toilet papers, the "Onliwon" cabinet, the square bottom paper bag and many cabinets and holders for paper serviettes, and towels folded and in rolls. Samples of news, book, wrapping and litho papers as well as all weights and sizes of paper bags were admirably arranged. The sulphite department had an exhibition of the articles used in the making of sulphite along with some of the finished products, including building and sheathing papers and a tremendous roll of "Eddystone" news print illustrated pamphlets were distributed and the Eddy exhibit was one of the big features of the show.

L. W. Manchee, President of the Rudd Paper Box Co., Toronto, who has been confined to his home for some time by illness is not making as good progress as his friends would like, and his condition this week was reported about the same.

Ther was a big demand for the new Confederation postage stamp which was put on sale in the Toronto post office on Saturday last, Norman Tucker, 55 Russet Ave., was the first to purchase one of the new stamps at the wicket. The design of the new stamp is artistic and the engraving remarkably accurate in the scene depicting the "Fathers of the Confederation."

Lumbermen and pulpwood men, who have large contracts, are bitterly complaining of the scarcity of labor. One contractor has a staff of less than one hundred men when he should have four hundred to carry on the work. Last year about twenty-five dollars was paid and the wage is now double this sum.

Many improvements have been carried out by the Spanish River Pulp and Paper Mills at Espanola, Ont. A large addition has just been completed to the hotel making it one of the finest houses of public entertainment in the north. Thirty-five new cottages will be erected this fall to house the employes and those dwellings which have been occupied for some time, have been provided with hot and cold water. During the past season every married employe, who cared to assist in the food production campaign was allotted a quarter acre to cultivate and in all some twelve acres were taken up and water pipes extended to the arable land for purposes of irrigation. The sewerage system at Espanola has been greatly extended, and it is reported that next year the company intend building a technical school for the benefit of younger employees. The pay system is to be made weekly instead of fortnightly, and a large new and modern store is being erected by the company. The fittings will be fumed oak, and there will be an ammonia freezing plant and elevator and all other up-to-date accessories. A skating and curling rink, one of the finest in the north, affords enjoyment to the men and a very pretty park has been laid out while the baseball ground was well patronized during the past season.

The Fort Frances Pulp and Paper Co., Fort Frances, Ont., have just added several drum barkers to their plant which are now in operation thus increasing greatly their capacity for handling the wood end of the business.

The Canadian Paper Box Makers' Association who hold fortnightly noon day lunches in Toronto for the discussion of problems pertaining to the prevention of accidents, proper cost systems, etc., is making splendid progress, although organized only a few months. An associate membership has been adopted which includes those selling goods to the trade.

Carl Riordon of the Riordon Pulp and Paper Co., Montreal, has returned from spending a pleasant holiday at his summer home Lac Caché in the Laurentian mountains.

E. Pullan, of Toronto, the rag and paper stock king of Canada, has returned from an extended business trip to Indiana, Ohio and Michigan. He reports that business with the majority of mills across the line is rather quiet but they are looking forward to a good trade, as soon as the federal legislation at Washington and other preparatory war measures are settled.

A. P. Costigane, of Toronto, safety engineer of the Ontario Pulp and Paper Makers Safety Association, has returned from his first official visit to the plants at Fort Frances, Port Arthur and Dryden, where he reports that good progress is being made in safety work and measures.

In order to conduct the publicity campaign in connection with the next war loan in November and cover the entire Dominion with a propaganda emphasizing the necessity of national saving and subscriptions, Sir Thomas White, Minister of Finance, after holding a consultation last week with John M. Imrie, manager of the Canadian Press Association, requested that the latter name a committee of its members, along with the Advertising Agents Association, to co-operate with him in preparing and placing the publicity. J. H. Wood, of Calgary, President of the Canadian Press Association, John M. Imrie, manager, and several other representative men of that body have been selected along with the president, vice-president and secretary of the advertising agents association. The nominations include representatives from both French and English newspapers and agencies.

The British and French Paperstock Co., Limited, has been granted a federal charter. The capital stock is $10,000 and the headquarters are in Montreal. The company has wide powers among them being to manufacture, sell and deal in pulp, pulpwood and paper and other products.

The Vancouver News-Advertiser, the oldest daily paper in that city, has been sold to the Sun Publishing Co., by its proprietor, J. S. Matson, who will devote all his time to his other newspaper property, the Victoria Colonist. The amalgamation of the News-Advertiser and the Sun leaves Vancouver with only three dailies, The Sun a morning journal and the World and the Province in the evening field.

OTTAWA NOTES.

The fourth session of the newsprint probe will be held at Ottawa next week, according to an announcement made on Monday night by Commissioner Robert A. Pringle, K.C., to the correspondent of the Pulp and Paper Magazine. This session, it is understood, will deal largely with actual cost of production of newsprint as shown by the figures contained in the mill records and books of the newsprint manufacturers, which the auditing staff of Mr. Geoffrey Clarkson have been going over for weeks past. Notices of attendance so the correspondent was informed, had been, or shortly would be sent out to the newsprint manufacturers, asking their attendance at what may be an extraordinary session, at which, perhaps, the price of newsprint for the duration of the war may be set.

Legal argument as to the accuracy of the figures found by the auditors of the Commissioner, in comparison with the returns submitted in the questionaire and the figures contained for the Canadian mills in the report of the Federal Trade Commission will likely feature the fourth session of the inquiry. Apprehension has been expressed by one of the biggest news print manufacturers in Ontario as to whether or not the grouping system employed by the auditors of the Federal Trade Commission will be used in arriving or setting an average cost (per so many mills) for the production of news print.

On what definite date the fourth session will be held Mr. Pringle did not say up to Monday night. What seems to be reasonable grounds for the existence of the apprehension that the grouping system (which newsprint manufacturers have protested against) will be employed is borne out by the statement of Mr. Jackson C. Booth, that up to the night of September 17, the auditors of the Commissioners had not examined the books of records of the John R. Booth plant. In the event of the grouping system being employed by the auditors in their returns to the Commissioner, it is considered as very probable that a very strong protest will be forthcoming from the newsprint manufacturers.

With all the auditing that the Commissioner deems advisable having been done, it appears that the issue between manufacturer, publisher and government, will come to a show down within the next two weeks.

Hopes are still being entertained at Ottawa that the inquiry into book, writing and other grades of paper will get under way soon and that a short notice call will be issued to the manufacturers concerned. One of the reported reasons for the non-commencement of this inquiry is that the publishers are not yet ready to "go on."

The creation of a model town in connection with their new site on the Upper Ottawa River, on which a large sulphite mill is to be erected is to be undertaken by the Riordon Pulp and Paper Company. The model town will be adjacent to the mill site and will be utilized for the housing of the employees and others. The site is an excellent one, overlooking Lake Temiskaming, and it is being laid out under modern town planning methods.

The plan for the new town has been prepared by Mr. Thomas Adams, of the Commission of Conservation, who is consulting engineer, working in conjunction with Messrs. Ewing, Lovelace and Tremblay, of Montreal who have done the surveying of the ground, and Messrs. C. H. and F. H. Mitchell of Toronto, who have prepared the plan for heating and lighting. The final inspection of the layout of the plant is being made by Mr. Adams, preliminary to the start of building operations. The houses will be erected from plans prepared by leading architects. As preliminary to the preparations of the plan a contour map showing the levels of the site was prepared and the streets of the new town to be were laid out so as to secure easy grades, directness of routes and absence of sudden deflections. If the usual method of rectangular survey had been adopted the most important streets would have had a grade from ten to eighteen per cent., but, under the present plan these grades have been reduced to from three to five per cent. in most cases, with a maximum grade of eight per cent. for short lengths.

Before the erection of any buildings the line of the streets have been blazed through the forest so as to fix the best street locations and secure the best aspects for the dwellings Areas are being set aside for open spaces, social centres, churches, schools, etc., in advance. The main approach to the town will be by a street eighty feet in width passing through a square on which the stores and public buildings will be erected.

From what can be learned at Ottawa, it is proposed to make the town a model of its kind as the promoters realize that healthy and agreeable housing and social conditions are of vital importance to securing highest efficiency of the workmen.

The Canadian Government, as shown by a report of a joint committee of both Houses, has decided to cut down on its printing and paper bill, and a recommendation that an editorial board of three members, thoroughly conversant with public affairs, has been made. It is suggested that the three members of the Editorial Board should be Civil Servants. The report containing the recommendation to "cut down" was presented late last week in the House of Commons by Col. J. A. Currie, chairman of the investigating committee. The report recommends that the Board should have plenary powers to order reductions in printing or refuse to sanction the printing of any report which in its judgment would not seriously affect the public interest if the report remained unprinted. It advises that unless Parliament provides some stringent form of supervision over the department that there will be a continuous increase in the printing bill of the country.

The special three cent stamp issued in commemoration of the fiftieth anniversary of Confederation, was placed on sale by the Post Office Department on Saturday.

The Markets

CANADIAN MARKETS.

Toronto, Sept. 17. — Commenting upon market conditions generally, a leading daily made the following remark the other day. "The average man on the street is not just pessimistic. He admits that he does not know. He has never been up against a set of similar conditions before". This observation applies pertinently to the paper and pulp trade, with the possible exception of news print.

The latest announcement is that the Federal Trade Commission at Washington will institute a system to keep a check on the news print situation across the border by means of monthly and weekly reports by manufacturers. This, it is pointed out, will keep publishers constantly informed as to the rate of production and consumption, the amount of stock on hand, etc. The Canadian government will be asked to co-operate in this plan. The weekly reports are for the operation of each mill and the monthly reports for the operation of each company.

Whether the Canadian government will take any action along this line in concert with the federal authorities at Washington, remains to be seen, but the general impression in the trade is the powers that prevail at Ottawa, are so busy with conscription, franchise bill and other measures, not to speak of the coming election, that they will perhaps let matters go on as they are. There is a growing impression in the trade that nothing more will be heard of the news print investigation until after the elections. Then what may turn up no one knows. The politicians do not want to have any more disturbing questions on their hands and will conveniently side-track the issue. This would probably please the big publishers as much as any course that could be pursued for, in the meantime, they are securing their news print at two and a half cents, which is a lower figure than they hope to get it after the price is once fixed by the Commission. Canadian publishers just now are after big business, and that is the advertising in connection with the new war loan. An extensive campaign of publicity will be carried on, in co-operation with several leading advertising agencies and other bodies. The Canadian Press will open a bureau in Toronto in connection with its offices which will be devoted exclusively to handling the details of the promotion under the direction of Sir Thomas White, Minister of Finance. J. H. Woods, of Calgary, who is President of the Canadian Press Association, will be in personal charge throughout the campaign.

The attitude of manufacturers on the news print question is well summed up by George H. Mead, President of the Spanish Pulp and Paper Mills, Limited, who pointed out that the companies had been subject to attack by certain publishers and, as a result, investigation by the governments of both the United States and Canada. He felt that such attacks had been made because of lack of proper or sufficient knowledge of the very grave situation in which the pulp and paper mills of the continent had found themselves in consequence of the past years of unprofitable operation, as well as the recent months of war condition, and that when the facts are finally determined, the position of the manufacturers will be justified.

All other lines of paper production appear to be rather slack and orders are not coming in freely. There has been a reduction in the price of white bonds of a cent and a half while light and dark tints have also dropped slightly in quotations. American mills have been making every effort to secure business in Canada and have offered cheap book papers, which could be laid down here, in spite of the thirty-two and a half per cent duty, at a little less than some Canadian plants have been asking. Domestic manufacturers have determined to meet these conditions and keep the trade at home. Stocks with all paper houses are low and yet there is no tendency to buy. There seems to be a feeling in the air that prices must come down somewhat and that they are too high under present conditions and the dullness generally of the paper market across the line. Mills, on the other hand, are not disposed to reduce their figures until positively compelled to do so, as it is pointed out that no greater volume would result. If quotations did come down buyers, they say, would still hold off in expectation of a further decline and no more trade would result. Producers also emphasize the fact that the labor situation is growing steadily worse and the cost of manufacture increasing all the while which state of affairs does not justify a reduction. Thus matters are in a sort of marktime condition. It is declared that the condition in Canada in various lines is only a reflection of the state of things across the border by the panic created by the United States entering the war and other abnormal circumstances.

There has been a reduction of ten per cent off list prices in all kinds of board which went into effect last week. Quotations have held firmly since last November and board mills have been fairly busy but American concerns have been slashing prices in order to get trade on this side of the line and, in order to meet this competition, the step already referred to has been taken. Asked what effect this would have on the paper box trade a leading manufacturer remarked that their busy season was just coming on now and they would be operating to capacity until the end ef the year. Most plants had stock bought up and would have to get their own out of what they had paid for it. He thought there would be no reduction in price. American mills which had cut figures were again raising their rates and believed the action on the part of Canadian mills in decreasing prices was only temporary as the list had not been really changed, only the discount altered.

One significant fact in connection with the paper situation is that Col. Currie, Chairman of the Printing Committee at Ottawa, has called attention to the deplorable waste in printing and paper at the Capital whereby the federal printing bill has been doubled in the last four years and now reaches over $2,400,000 annually. Blue books, official reports, maps, annual reports, etc., are likely to be cut down considerably in both reading matter and illustrations. The action of the Conservative Commission is not sending out any

report of what it is doing in order to conserve the money of the people is highly commended. Some important recommendations are made and one of them is that an editorial board should be formed consisting of three members of the civil service. This body would have plenary powers to cut all copy and to reduce the dimensions and number of pages in the blue books, and it is suggested that maps should be made by one department and that there should be one statistical branch instead of having all departments dabble in statistics.

There is not any change in the pulp situation and matters are much as they have been for the past few weeks. Ground wood is still quoted at the same figure and pulp of all kinds is holding up well although mills are piling rather larger quantities than usual. Canadian mills are looking to wider makets after the war and England is one of the objective points. The United States demand is bound to increase owing to the shortage of imports and Australia, New Zealand, and South Africa offer promising fields, and perhaps Russia. Sweden is not increasing her production while the output in Canada will, before the end of the year, be augmented to the extent of several hundred tons.

"Pulp prices are not too high now considering the labor situation" remarked a leading sales manager this week. "Labor has gone up one hundred per cent in the last four years and the hours have also been reduced and when I speak of labor I mean the rough labor at that. Peeled wood is selling as high as nineteen dollars a cord at some points along the tracks in Quebec and rossed wood is bringing even more. We are paying as high as sixteen dollars ourselves for rough wood in order to be assured of a supply for next season. As soon as matters become more normal across the line and legislation, labor, coal and transportation facilities are fixed, there is no doubt that many of the mills, who have contracts with us will use up what they have contracted for but it would be folly to insist upon fulfillment of contracts at the persent time. This has left us with a larger stock than usual on hand, but I am confident that matters will right themselves in a very few weeks and, in the meantime, we are not worrying."

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$8.00
xBook papers (ton lots), No. 3	$8.00 to $8.50
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

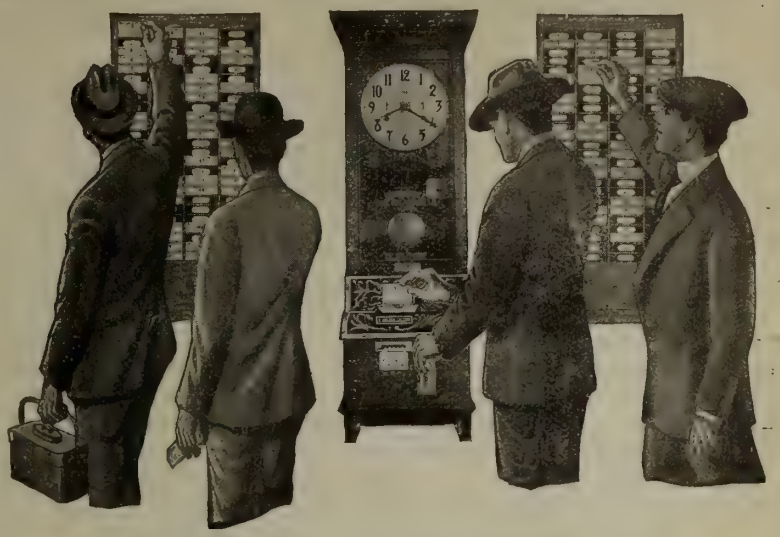
	F.O.B. Mill.
Ground wood pulp	$40.00 to $42.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$65.00 to $70.00
Sulphite (bleached)	$120.00
Sulphate	$95.00 to $100.00

NEW YORK MARKETS.

New York Sept. 15. — The pulp markets are now in a rather strange position, and, for one thing, the pulp men admit that they can't understand it. In foreign sulphites the situation might be called a deadlock, for the buyer is said to be waiting for a lower market and the seller maintains that such a thing is next to impossible at this time. Importers say that the mills have not been buying much stock for some time. It is true that a number of concerns were covered by contract and were able to go on for some time without coming near the market, but the majority, it was reckoned, should have done something. The month of August, in past years, has been known as a sort of buying month in which the paper manufacturers would come out and cover themselves for the fall and winter. As it has been customary to expect business to pick up in September, the paper mills generally took in raw material and started to work ahead. But the symptoms were different this year — and every sort of reckoning seemed to go far of the market. The foreign pulp men argue that they cannot see how paper mills dare to stay out of the market waiting for lower prices when, they declare, higher figures are practically inevitable. True, there is the talk of the Government price fixing in the air, but it is thought ridiculous to hold back the wheels of business, on this particular account. Until some drastic changes in prevailing conditions occur there is scant probability that there will be any active

TIME

is the essence of the contract. Everything depends on the use you make of the working time your men deliver—yes, but the first essential is to be sure you get the time you are paying for.



Using an International Card Time Recorder. Very speedy and flexible. Just one style of many we make.

International Time Recorders

If you use a human time keeper and a time book you must expect "human" results. If you use an International Time Recorder you employ a cold-blooded, deadly accurate machine that has no brains so it cannot "think" and cannot make mistakes. Every employee makes his own time record so he knows it must be right. Amongst many other successful mills using Internationals are:

Abitibi Power & Pulp Co.
Belgo Pulp & Paper Co.
Laurentide Pulp & Paper Co.
Gulf Pulp & Paper Co.
Brown Corporation.
Chicoutimi Pulp & Paper Co.
Empire Pulp & Paper Co.
St. Maurice Pulp & Paper Co.
Wayagamack Pulp & Paper Co.

These Mills' Labor Costs are Accurately Defined



A modern International Dial Time Recorder. Very simple--can be used by anyone who can read a number.

They get the original pay-roll entry printed by the employee himself. It's bound to be accurate, indisputable and represents solid working time only. These mills may be amongst your competitors. If International Time Recording equipments pay them —it will at least pay you to investigate.

Internationals are made in Canada, by Canadians, with Canadian capital and wherever possible with Canadian materials. They are used in hundreds of the best known mills in Canada.

Let us send you our latest illustrated folders---very interesting.

The International Time Recording Co. of Canada, Limited

General Manager, F. E. Mutton

Office and Factory
Toronto, Canada

Also at Montreal
Winnipeg, Vancouver

business in Scandinavian pulp developing. "Domestic and Canadian pulp manufacturers have their salesmen on the jump and they are corralling practically every order being placed — which, however, is not said to be very much, despite the season of the year", according to one manufacturer. "Paper makers need foreign sulphite and are willing to buy but only at prices more in keeping with those now asked for domestic or Canadian pulp. We are receiving very few communications from the other side and what offerings are made are at prohibitive figures, which, of course, prevents us from lowering our asking price. The paper mills consequently are keeping definitely out of the foreign pulp market, knowing that when importers are in a position to ask more favorable prices they will be heard from quickly. However, from the indications that we have at hand, there does not seem to be any immediate prospects at least, that Swedish and Norwegian prices will be lowered. They simply can't do it and continue in business. As a matter of fact, it is only the very large ones that are still in business." Domestic unbleached is quoted at 3½ to 4 cents, with the large majority of transactions being made at about $70 at the plant. Bleached sulphite is offered by manufacturers at 5¾ to 6¼ cents, depending on the quality of the fibre and the amount involved. Soda pulp is in moderate demand and holds firm in price, about 5¼ cents being the commonest quotations.

Ground wood rules steady in value today, and continues to move into consumption in fairly large volume. The consumption is still much below that of busier seasons of the year, yet this is offset by restricted production and fails materially to influence quotations. Grinders are firmly demanding $42 per ton at the mill and few sales of notable tonnage are passing below this level, while in some parts of the East, as high as $44 a ton is asked for extra quality fibre. Newsprint mills are buying on a moderate scale, while other consumers also are taking some commitments. Freight difficulties continue to be a matter of much dread in certain sections for wood shipments are becoming a source of worry. A good idea of quotations can be had from the following: $41 to $44 per ton f.o.b. pulp mill for the East, to $43 to $46 per ton f.o.b. pulp mill, for the West.

Trading in cotton rags continues on a moderate scale, although the actual movement of stock into consumption is still confined to seasonal proportions and considerable dissatisfaction is heard in every quarter over the prices offered by consumers. Manufacturers, as a rule, have their requirements covered for a brief period ahead and are buying only when able to pick up goods at bargain values. Roofing rags are a little easier. Felt mills show as much inclination as previously to buy but have lowered their offering figures and refuse definitely to pay above certain limits that they have set. The top figure that is being paid for mixed satinets is said to be 2 cents. In view of the light supplies of rags, the dealers feel that added strength is due to the market at practically any time in the immediate future. White rags are moving in scattered quantities, being quoted as high as 5 cents. Black stockings have been reported as selling a shade higher in price being quoted to around 2¾ cents. Street soiled whites are quoted up to around 3¾ cents; thirds and blues are held for up to 3 cents.

Activities in the waste paper markets, are on a fair scale and, in most cases, good prices are being received for stock. The general opinion seems to be that now, after a period of considerable neglect, waste papers of all descriptions are destined to come into greater use than ever.

When the pulp markets first started to soar, there was considerable tendency to resort to reclaiming waste papers wherever possible, however, the switching of the demand materially affected the prices of waste papers — so much so, that it is known, buying of waste papers wherever possible. However, the switching the ardor of the market. Today, dealers believe that the prospects for the market are remarkable. In the first place, they reckon that pulp prices will advance as soon as a normal demand is created. And more than that, even if consumers are willing to pay the advances, there may be considerable difficulty in getting stock because of the wood situation that has been repeatedly described in these columns. It is calculated that the general conditions that will prevail will be such as to make it advisable to resort to the reclaiming of waste papers in a good many cases, where it may not be considered at present. Folded news is reported being freely sought at good prices. The ruling quotations are over 1 cent. No. 1 mixed papers are firm, with the figures asked at about 75 cents per hundred pounds; Shavings continue in scattered demand and sales are rather small. Prices, nevertheless, are firm and there have been no evidences of concessions reported. Flat stock also is quiet, but firm. Hard white shavings are held as high as 4¾ cents; soft white shavings, up to 3½ cents; overissue magazines, up to over 1¾ cents; ledgers and writings, up to 2¼ cents; No. 1 manilas, up to over 1 cent; No. 1 krafts up to over 3 cents; crumpled news, up to over 80 cents per hundred pounds; bogus wrappers, up to 1½ cents; overissue news, up to 1½ cents; box board cuttings up to 90 cents per hundred.

There is no increased life in the bagging market. Manufacturers generally have present requirements filled and are remaining out of the market. Dealers say they are unable to elicit the interest of consumers regardless of what offers are made. Roofing bagging is the exception to this. Felt mills are buying in good volume and are offering consistently steady values; gunning is quoted up to 4 cents; roofing bagging, over 2¼ cents.

The old rope market is still stationary, and yet the business passing is sufficient to sustain prices at former ranges.

Manila rope is being held as high as 6¾ cents.

Slightly increased activity has been noted in the trade but it is far from what should prevail at this time of the year. However, the opinion seems general that prices are destined to advance rather sharply within the near future. Stocks in the city are none too great for dealers have been buying rather closely —and now deliveries are beginning to become difficult because of the freight situation. Some manufacturers complain of trouble in getting coal supplies and there are any number of reasons given to show that prices will surely go up soon. A fair demand is reported for newsprint and, despite the fact that the International Paper Co. has shipped to Washington some stock at 2½ cents, the market is firm at the higher figures. A report was given out that two shipments of the American Newspaper Publishers Association had arrived in the city, including 3,000 tons of news and about 400 tons of pulp. This stock, it is understood, is to be sold among the smaller publishers at 3.30 cents. The labor

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question is to be a big factor in the future of news, as well as in the other grades of paper. Writings have taken on a little strength. An increased demand is reported for wrappings of all sorts and there seems prospects that prices will pick up a little. In tissues, the movement has become somewhat more encouraging, especially in the ground wood grades. However, this trade is decidedly more optimistic than it has been in some time. Boards are more active than they have been. The book market is about the same with fair activities reported.

NEW YORK QUOTATIONS.

(These are a nominal range of prices.)

Groundwood, f.o.b. mill	$41 to $46 ton.
Foreign bleached sulphite, ex-dock, N. Y.	9¼c*
Foreign easy bleaching, ex-dock, N. Y.	5¾c*
Domestic bleached sulphite, f.o.b., N. Y.	6c*
Foreign unbleached sulphite, ex-dock, N. Y.	5¼c*
Foreign unbleached sulphite, No. 2, ex-dock, N. Y.	5c*
Domestic unbleached sulphite, f.o.b., mill	3½c*
Kraft pulp	5¾c*
Foreign kraft pulp, ex-dock, N. Y.	6c*
Bleached soda pulp, f.o.b. mill	5c*
Mitscherlich unbleached	5¾c*
Foreign unbleached soda ex-dock, N. Y.	5½c*



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News, spot lots	3½c to 4c
News, side runs	4½c
Book, super	7c*
Book, coated	8c*
Book, m.f.	6¾c*
Tissue ,good sulphite, bleached, per ream	$1.00
Tissue, ground wood manila per ream	$1.00
Kraft, domestic	7c*
Kraft, foreign	8c
Wood manilas, No. 1	6¼c*
Wood manilas, No. 2	5c*
Juste manilas	8¾c*
Newsboard, per ton, f.o.b. N. Y.	$55.00
Strawboard, per ton, f.o.b., N. Y.	$50.00
Chip board, per ton, f.o.b. N. Y.	$50.00
Binders Board, per ton, f.o.b. N. Y.	$65.00
Wood pulp board, per ton, f.o.b. N. Y.	$77.50

AMERICAN CHEMICALS.

The markets for the various chemicals and supplies consumed by paper and pulp manufacturers rule steady, and from every direction come reports of a quickening in the demand for most products. Mills are placing quite a few orders for future delivery, while sales from spot are increasing in both number and volume. Casein is in seasonable demand, and, while business in this commodity is considerably narrower than in busier periods of the year, fair transactions are being consummated and at steady quotations. French casein is almost impossible to secure in any appreciable volume on spot at present, while offerings of the Argentine product are light. Domestic casein is selling at 20 to 25 cents per pound, depending on the seller and the amount concerned. The most common price named is about 22 cents. Satin white is in moderate demand from consumers, while talc is sought in a consistent way at firm values. Domestic talc is quoted at $14 to $18 per ton at the mines.

TO INVESTIGATE EXPORT OF NIAGARA POWER.

Sir Henry Drayton, chairman of the Dominion Railway Commission has been selected for appointment as a Royal commissioner to conduct an investigation into the exportation of power generated at Niagara Falls to the United States.

The three power companies on the Canadian side of the Niagara River which are developing power at the Falls are allowed to export certain quantities of electric energy under licenses granted annually by the Department of Inland Revenue.

It has recently been asserted on behalf of the Hydro-Electric Power Commission of Ontario, which has acquired one of the plants at Niagara Falls, that of the Ontario Power Company, that electricity required to keep in operation factories in Ontario is being transmitted across the boundary. That condition the federal governement had been asked to stop. The power companies have protested that their licenses to export should not be withheld. They have stated that they have contracts with the customers in the United States, and that they should not be placed in such a position that they would not be able to carry out these contracts.

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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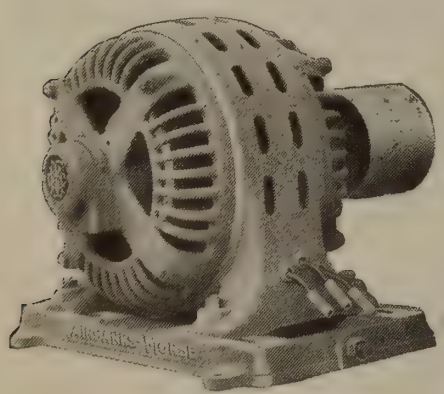
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EDITORIAL

INEXHAUSTIBLE (?) FORESTS.

For many years, the Pulp and Paper Magazine has been preaching conservation, especially of Canada's forest wealth. During the last few years, a number of forest protective associations have been formed by private enterprise and steps for protection against fire have also been taken by some of our provincial governments. Cutting regulations have been established too, but there is yet much to be done to guard against unprincipled cutting of private-owned timber and along the line of ensuring reproduction of the crop. The settler problem has only begun to receive attention—as to clearing fires. Slash disposal is still being debated.

With these problems taken care of there is still the insidious danger, and a very real and important one in the attitude and belief on the part of many Canadians that our forests are inexhaustible. Nothing is inexhaustible that is not reproduceable, or is not reproduced at a rate at least equal to the rate of consumption. Conservation will postpone the day of exhaustion, but provision for reforestration only can render our forest wealth and our pulp and paper industry permanent.

It is a source of satisfaction to note that these ideas are occasionally given attention by our legislators in a national rather than a political way. The following is part of an address on forest resources by Senator W. C. Edwards in the Senate recently:

"I do not hesitate to make the statement that every province in the Dominion of Canada far over-estimates its resources in this respect. There are many in Canada who even to-day believe that our resources in this respect are inexhaustible and that it will only be a question of time until the United States will be exhausted of lumber and will have to turn to Canada for a supply. This idea, I assure you, is absolutely incorrect. The United States has as great a supply of lumber relatively to her wants as Canada has, and the total quantity of standing timber in Canada would not supply the wants of the United States for more than eight years. Canada was once a comparatively rich country in this resource, but bush fires and unwise administration of our timber resources on the part of the various provinces have brought about the unfortunate result I have named.

In pulpwood we are considerably stronger than in timber for lumber manufacturing—of this there is no question; but, if our pulpwood resources are no better administered than our lumber resources have been in former years, they too will become exhausted much more rapidly than is at present anticipated.

I would ask honorable gentlemen who travel through this country from Halifax to Ottawa, or farther west, just to observe as they pass over the various streams the logs that are being sawn to-day; for I assure you, honorable gentlemen, that the logs being sawn to-day in most of the mills in eastern Canada are such as were left in the woods twenty-five years ago, and I do warn the various provinces of this Dominion that, if we do not take care of our resources in this respect, the lumber trade of Canada, except west of the Rockies, will in a comparatively short time be a thing of the past. A stage was reached several years ago in the lumber industry, making it the continuous aim and object of every lumberman to conserve his resources in this respect; but they have not been supported by the administrators of the various provinces. Considerable portions of country are each year being sold for settlement where the object is not settlement but to obtain cheap lumber, on the part of illicit settlers and a certain class of lumbermen. To give evidence of this I could show to any one who would accompany me, say fifty miles from this city, in one single district from fifty to sixty farms once occupied by pretended settlers, but which now, as all the timber is cut off, will have no settlers whatever. The condition of affairs, I assure you, honorable gentlemen, has been most serious in so far as the timber resources of eastern Canada are concerned.

In making the statements I do relative to our timber resources I do not want to pretend that we have not still timber resources of very considerable value, but I do contend that they are not nearly of the value which the average Canadian believes. With regard to the destruction of these resources, I quite admit that the provinces are not all equally guilty. In so far as fire protection is concerned, the provinces of Quebec and British Columbia have made the greatest strides in improvement in recent years."

"MONTREAL'S SMART SET."

This editorial has nothing to do with pulp, paper, labor questions, mill machinery, or anything else directly connected with the pulp and paper industry. As a matter of fact it deals with the most inane, nonsensical aggregation of nonentities ever brought together, namely Montreal's "Smart Set."

A few days ago a hotel in Montreal heralded its opening, announcing in its advertisement that it had Tokio Gardens, Louis XV rooms, restaurants, orchestras, cabarets dancing halls, etc., the whole being an appeal to Montreal's "Smart Set" to hie themselves there and enjoy life. Canada is at war. Already 100,000 of her sons are numbered in the casualty lists, while thousands more will share their fate. Every civilized nation in the world, and most of them are at war, is putting the soft pedal upon the frivolities and licenses of their "Smart Sets." Canada seems to be the exception. We have a food controller and a militia department, but apparently neither will take steps to put a stop to the vulgar appeal made by the hotel management, nor have they taken any measures to make Montreal's "Smart Set" realize their responsibilities.

We presume that the son of the munition maker, and the overdressed, or rather underdressed, daughter of the food baron, with others of the new-rich congregate in these rendezvous which cater exclusively to the "Smart Set." Of course, a man must be "smart" to acquire a vacant, expressionless face, to be able to smoke cigarettes, to wear a hat on the back of his head, and to be able to fox-trot and tango. Provided he possesses these attainments and has unlimited money and will "blow" it in, he is eligible for membership in the "Smart Set." These young men so fond of vulgar display should be made to realize that it is not playing the game to squander their time and money in "Smart Set" circles, while real men are daily and nightly facing an inferno of machine gun and shell fire, poisonous gas, mud, filth and death on the fields of France and Flanders. If these so-called "Smart Set" chaps do not realize their responsibilities they should be made to toe the mark. The female of the species—they cannot be called ladies—who so far forget themselves as to encourage and share in the frivolities of the "Smart Set," should also be disciplined and made to see the folly of their conduct. Their honor, their homes, their very lives, are being safe-guarded by the men in the trenches, and not by their partners in the tango.

Altogether it seems a crying shame that in a time of world-wide war stress public opinion and officialdom in this country should be so lax as to permit hotels and their "Smart Set" frequenters to make a vulgar display of their wealth. Talk about a titled aristocracy, it is not in it with Montreal's "Smart Set."

THE WORLD'S BID FOR QUEBEC'S FORESTS.

How the people of Quebec are benefiting from the world-wide advance of timber values is shown by a comparison of timber sales conducted by the Quebec Government last month and those held 14 years ago.

In 1903 the average price received by the public treasury for timber berths was $111 a square mile. In the following year it was $138 a square mile. In September, 1917, the bids averaged $440 a square mile, one substantial tract going at $1,000 a square mile. This enormous advance does not represent a speculative value because the purchasers were industrial companies intending to turn the forest growth to more or less immediate account.

Quebec taxpayers owe to their forests their freedom from direct taxation. Last year no less a sum than $1,683,000 was taken by the Quebec Government as forest revenue and this paid a great part of public administration, road construction, public buildings, etc. The year before Confederation, Quebec took from the lumber industry a net total of $294,000. In 1866 this had risen to $630,000, and by 1905 was $1,280,000.

Every tree in Quebec is growing more and more valuable. The industrial development and volume of employment grows greater year by year, and the public treasury is a substantial gainer. Quebec cannot afford to hand over any part of her forest endowment to the needless waste of fire. Every fire represents a blow at employment and the public good.

PRICE FIXING.

It is semi-officially announced that the investigation into the cost of newsprint paper will be resumed within a few days. Mr. Pringle and those associated with him, have been investigating the manufacturing costs, the transportation problems, labor difficulties, and many other matters related to the pulp and paper industry. It is, of course, unknown what conclusions they have reached, but to the casual onlooker it would seem as if the present price of 2½ cents a pound had nothing to justify it. Many manufacturers have gone on record that paper should cost 3¼ cents a pound, while no person is satisfied with existing prices.

It is to be hoped that as a result of the work performed by Mr. Pringle that the paper manufacturers in the Dominion will receive justice, something they have not been receiving since 2½ cents was made the price of print paper.

It seems strange, but is apparently true, that the people's representatives at Ottawa have been very much interested in politics.

The Manufacture of Press Felts

PART II.

Some of the Important Details in their Manufacture and Use

By E. S. BATES, Agent,
Bates & Innes, Limited, Carleton Place, Ont.

In a previous article*, the principal processes in the manufacture of woolen Press Felts were outlined in a very elementary way. Behind the mechanical processes, is the experience and ability of the woolen manufacturer and his assistants, with the aid of up-to-date equipment. The first factor in the manufacture of highest quality felts is the purchasing wools suited to the requirements. This is a matter of experience, and foresight. Next comes organization of production; that is, ability to carry the wool through the stages of manufacture in such efficient manner that at the completion of each stage the product is the best that can be obtained. Here again experience counts. This may be elementary, but it is none the less important. In the manufacture of felts, the expert knowledge required as to designing and other, what might be called, technical requirements is almost a negligible quantity. The prime requisite is a mastery of mechanical detail of woolen manufacture.

This obtained, the other requirement is an accurate knowledge of the requirements of the pulp or paper manufacture. Every machine, or practically so, and every machine superintendent or tender has to be suited according to its or his peculiarities. The close co-operation of paper manufacturers is required in the standardization of felts to suit each machine in the mill. That is, every superintendent should have accurate records as to the felt best suited to each machine under his care. These records should be such that, turned over to the felt manufacturer, he will have specific information as to the requirements. Given such detailed and accurate records the felt manufacturer who comes up to the foregoing standard can give utmost satisfaction in 99 cases out of 100. Many difficulties arise simply through the inability of the paper mills to specify their requirements. I believe that such standardization would result in a big saving to paper and pulp mills. Perhaps, I may be able to suggest a few ways in which it might be carried out.

Ordering Felts.

The usual method of ordering Press Felts is to specify the kind of felt required, that is, pulp, sulphite, news, first, second or third press etc., giving the length and width measurements desired and in some cases the approximate weight. It is then left for the felt salesman to interview the superintendent to ascertain the details as to requirements. The latter includes, speed of machines, nature of stock, production requirements, degree of openness, etc. If the salesman is politic or a good friend of the super or machine tender, he usually gets what he is after. He also gets two earfuls of kicks, and generally has to set himself up as district attorney and conduct a cross examination. At any rate the advice is to see the super and do the best you can, and with this sometimes inadequate information attached, the order goes into the felt manufacturer. He exercises his judgment, compares the order with shop records and puts the felt through.

Now there are certain definable requirements. None is able to give this information other than the man who is running the machine, whose information is obtained from actual experience on the machine. The gross weight of felt required can be established as an absolute quantity, and can be obtained uniformly over a large number of felts within 3 to 5 pounds. The width and length of the felt required is very important. Mills vary as to sizes required to suit similar machines, according to the deckel or variation in the widths of paper manufactured. In addition to specifying the desired width of felt, the width of rolls should accompany each order or specification. The length of felt should be the actual length of machine with adjustment rolls in normal position, with due attention paid to the average shrinkage and variation in length. The openness of felt as to construction can also be established. Once a satisfactory felt is secured, the picks or threads per inch of both warp and filling should be ascertained, also the degree of napped surface or cushion of the felt. A sample of such standard felt, a used sample, should accompany every new order, together with detailed specifications as above. And if not specified on the order, at least it should be readily available to the felt salesman or manufacturer.

Felt Records.

There is another important item that might be taken up here. This is the matter of felt records. The importance of keeping records of the run of each felt and the production obtained therefrom does not end when the information is transferred to the cost sheet. Each felt record, if thorough, contains a lot of useful information to the felt manufacturer. If he could obtain that information on each felt he manufactures, the result would be of much value both to him and the paper industry. Some paper mills carry out this feature, but the full value of their records to the felt manufacturer is lost because all the mills do not make a habit of returning the records of the felts used.

Felt records are useful for one chief reason. One lot of yarn put through the felt mill may be made up into felts going to half a dozen different mills. If all these six mills report the runs obtained and criticisms, if any, the felt manufacturer is able to obtain a uniform record. Barring accidents, these records will determine the suitability of this particular grade of yarn stock to each machine in each mill in question, and necessary changes will suggest themselves. The point is that the felt manufacturer who is on to his job is out to give each customer the best possible satisfaction. This can only be accomplished by having available, ample and accurate data concerning mill conditions and machine requirements. Such records should be returned monthly. Criticisms would then be investigated and necessary changes in construction made.

Care of Felts.

There are numerous points concerning felts on which knowledge of their manufacture might serve to pro-

*Pulp and Paper Magazine, page 667, (July 12, 1917.)

long their life on the paper machine. For instance, it is obvious that a light, open felt does not require the same length of time for shrinking or washing as the heavy, hard-spun, tightly woven felt.

The former being soft, absorbs the water more quickly and felts more rapidly. Very often the light, open first press felt is shrunk too much on the start. It blows, and soon requires frequent washing or often spread rolls are put in because the felt is too narrow, and the life of the felt is reduced.

The mending of a hole in a felt is also a matter that should receive closer attention. To begin with, woollet yarn of the same or approximately the same sort, and that used in the felt should be used. If suitable needles are employed, the average hole made in the felt might be sewn quickly after the manner of weaving and the place made smooth and to look little different from the rest of the felt. The weave construction is very simple. Seldom are both warp and weft threads broken. Where the hole occurs, the mend should be made after the manner of our mothers or grandmothers in mending socks in the good old days before steam laundries. Yarn can always be obtained from the felt manufacturer and in a large mill it would easily pay to employ a girl for the sole purpose of doing this mending. At any rate, if a felt is worth mending at all it is worth mending right. It would take no extra time, but the life of the felt would be prolonged.

Coal oil, naptha or gasoline should not be used in removing spots from felts caused by gum, or other dirty substance such as grease. Grease spots are easily removed by applying a paste of fullers' earth and washing out with soap and water. For resin spots, the washing should be done in olive oil which should be washed out with soap and water. Kerosene is very hard on the wool fibre, making it brittle and harsh. If used at all, it should be washed out with warm soap and water. But olive oil or other animal oil should be used wherever possible.

Haste is a big item in changing felts on overcoming difficulties incidental to the felt, but it is just as simple and fast to do the job right. Attention to these details in the care of the felt will give added life. Of course, it is useless to expect that many machine tenders will spend time in nursing a felt in order to prolong its life. Production is the prime consideration. But due care can be exercised without loss of time.

Many of these points are familiar but none the less important. Some may be suggestive, and if so, they will not be entirely valueless.

THE LARGEST AND SMALLEST BOOK IN THE WORLD.

In the great library of the British Museum is to be seen the largest book in the world. This is an atlas of beautifully-engraved Dutch maps, bound in leather and fastened with clasps of solid silver. It is nearly seven feet high, weighs 800 pounds, and was presented to Charles II. before leaving Holland in the year 1660. Side by side with it is the smallest book in the world—a microscopic gem of book-making, scarcely larger than a man's thumb-nail. This contains the New Testament, inscribed by a German artist of Nuremburg in the early part of the seventeenth century. There are 208 pages, and the lettering is so perfect that it can be read without difficulty. The book measures three-quarters of an inch by two-fifths.

BOOK REVIEW.

The Story of Paper-Making,

Published by J. W. BUTLER PAPER CO., Chicago. Pages VIII and 136. Illustrated. Price $1.50.

The chapter headings are: Articles supplanted by paper; Papyrus and parchment; Origin and early history of paper; Early methods of paper-making; Modern paper-making; Water-marks and varieties of paper; Extent of the business in the United States.

This is a very nicely gotten-up book on the history and art of paper making, written in an interesting style for the non-technical reader. It is very well done. Attention is especially given to the making of paper, more particularly rag papers, so that all the machinery and processes from the bale of rags to the finished sheet are described. In telling about the platers, a sentence might have been inserted to explain crash and linen finish.

The book was written in 1900, before sulphate pulp and kraft papers had attained much importance. No reference to this material, or in part to wrapping paper at all, is made. The sulphite process is so unfortunately incorrect that it would be worth while to insert a new page on chemical pulp.

The chapter on special papers and peculiar uses of paper is very good. It includes a table of paper sizes.

The sixteen full page illustrations are excellent and have been well sketched.

For a popular account of how paper was and is made, The Story of Paper-Making is a fascinating book. We should like to see a similar book on pulp manufacture.

PAPERMAKERS' DIRECTORY OF ALL NATIONS.

This well known directory has made its twenty-sixth annual appearance. The breadth of its scope is suggested by the fact that the table of contents contains 40 major headings. Forty-one countries are listed in the section of pulp and paper mills. Up-to-date information from enemy countries has been difficult or impossible to obtain, but the most recent data are included for purposes of comparison. A special section is devoted to British mills. It seems hardly possible that any really useful information on the paper trade has been omitted. The directory contains 706 pages practically exclusive of advertising. The arrangement of material and indexing are excellent. Dean and Son, Ltd., 160a Fleet Street, E. C. 4 are the publishers and the price is 13s. in the United Kingdom, elsewhere 14s., post free.

WALDEN'S A.B.C. POCKET GUIDE.

As the years roll around, each one brings a new edition of Walden's A. B. C. Pocket Guide. The thirty-first annual number has just been received. It contains 455 pages and gives information about paper dealers and manufacturers in the United States and Canada, classified by states, makers of glazed and coated papers, and a list of manufacturers and converters of paper classified according to product. A different colored paper is used for the several sections of the book. There is a good representation of advertisers. The price is one dollar, from the Walden Publishing Co., 132 Nassau St., New York.

W. Murray Crane, the well known paper maker, who was formerly United States Senator from Massachusetts, has been elected a director of the Guaranty Trust Co. of this city.

Electricity in the Pulp and Paper Industry

By W. W. CRONKHITE,
General Electric Company.

(Continued from page 900.)

Paper Machines.

Electric drive for paper machines has engaged the attention of engineers for years, and a great many successful installations are now in operation. This form of drive eliminates mechanical speed changing devices and variable speed engines. It confines the power generating apparatus to one central plant, and in cases where power is purchased, it does away with the high operating cost and trouble incident to maintaining a few small engines on the machines alone. Bear in mind that there are many cases where it is not economy to employ motor drive on paper machines. For instance, steam engines exhausting into the driers may give an overall fuel economy higher than can be obtained by using motors supplied with central station power and using live steam for drying. In new mills this can be taken care of by using steam turbines in the power station and extracting the low pressure steam for drying. This problem, above all others, should be thoroughly studied, since the steam demands of paper mills vary greatly with the class of product. A scheme that would be economical for one mill might fail utterly for another.

On account of the fairly wide range of operating speeds of paper machines, direct current motors should be used. Consequently, when the power supply is alternating current, a motor-generator set must be used to convert the power to direct current for the paper machine motors. Fig. 16 shows a motor-generator set and a 125 h.p. d-c. motor driving a cylinder board machine.

Fig. 17 is an illustration of a 225 h.p. motor direct-connected to the back line of a Fourdrinier machine. The motor may be coupled in the middle of the line or at one end. With this method a very wide speed range, 8 or 10 to 1, can be secured. Push button stations can be placed at convenient points around the machine.

Fig. 18 shows a drive installed at Malone, N. Y. It will be noted that the motor is direct-connected to the end of the variable speed shaft instead of in the middle.

Another method that has worked out satisfactorily in some cases and that is well adapted for large machines requiring a wide speed range, is to drive the constant speed line shaft direct from an engine which is also connected to a generator of sufficient capacity to furnish power for the variable speed section the latter being driven by a motor coupled to the back line and controlled from the machine room. This method gives an easily controlled and reliable method of obtaining a wide speed range, and leaves the engine exhaust for drying.

An analysis of tests made shows that in Fourdrinier and single cylinder machines the power required to operate entire machine (including both constant and variable speed ends) can be arrived at by this formula:

Horsepower = 0.004 to 0.0045 × width in inches × speed in feet per minute.

The power for the variable speed end alone runs from about 0.0023 to 0.003 h.p. per inch width per foot per minute speed.

For multi-cylinder board machines, the power is very much higher, ranging from 0.012 to 0.015 h.p. per inch per foot per minute for the entire machine, and from 0.0069 to 0.0088 h.p. per inch per foot per minute for the variable speed end alone.

These figures are in actual brake horse-power, and should be increased 10 per cent when comparing with tests of indicated h.p.

Several arrangements of motors for driving super-calenders have been installed. The one motor drive, depending upon resistance in the secondary circuit for threading, gives an unstable threading speed and also consumes considerable power. Super-calenders work from 20 to 30 per cent of the time at the low speed. It is therefore apparent that a motor large enough to drive the calender at calendering speed, if operated at one-tenth speed for threading 30 per cent of the time, is a very inefficient equipment.

However, single motor drives have been installed. A Massachusetts mill has a 75 h.p., slip ring motor geared to calenders.

With single motor drive the threading speed is obtained by inserting resistance in the rotor circuit. After the paper is threaded through the stack, the motor is gradually brought up to the desired speed by cutting out resistance by means of the dial controller. From an engineering viewpoint this method is open to serious objection, as the low speed requires a speed reduction of about 90 per cent below normal. This makes the threading speed very unstable and requires care on the part of the operator while threading. In fact, single motor alternating current drives have proven unsuccesful in some plants.

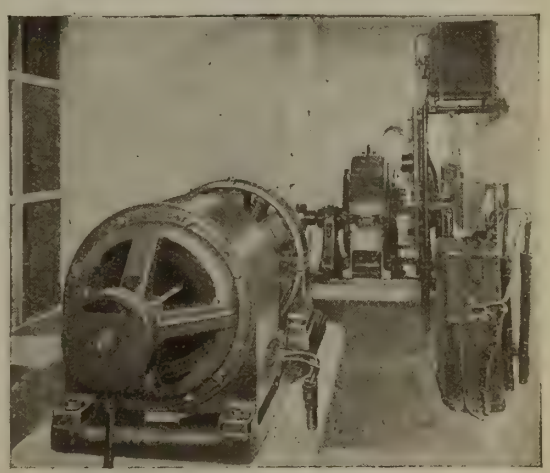


Fig. 18. 215-h.p., 300/380-r.p.m., 270-volt Motors Direct-connected to variable speed line shaft of 110 in. paper machine with 183-kw. motor-generator set and control panel. Total speed range, 160 to 380 r.p.m. by voltage and field control. Malone Paper Company, Malone, N. Y.

With direct current motors the threading speed can be made somewhat more stable, as a certain amount of field control can be used and a shunt resistance connected around the armature to hold the speed down

*Courtesy of the General Electric Review.



Fig. 16. Motor-generator Set for Operating Variable Speed of Paper Machine.

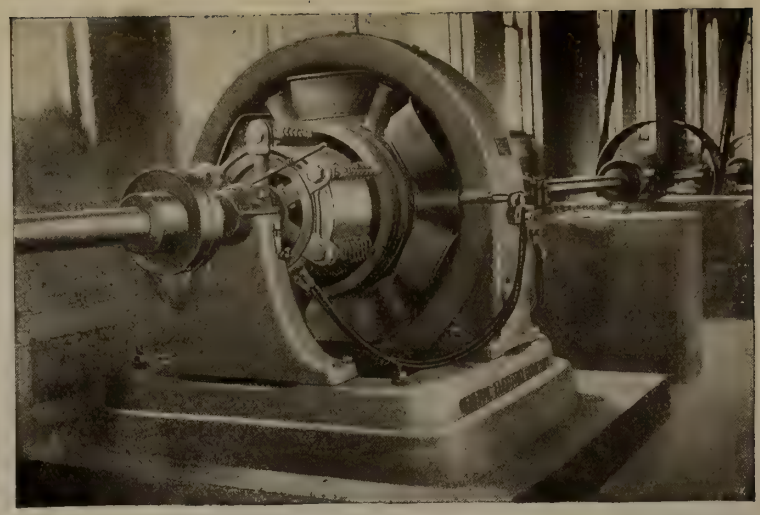


Fig. 17. One 100/225-h.p., 275/500-h.p.m., 220-volt Variable Speed Direct Current Motor direct-connected at both ends to line shafting driving variable speed end of paper machine. Consolidated Water Power & Paper Co., Grand Rapids, Wis.

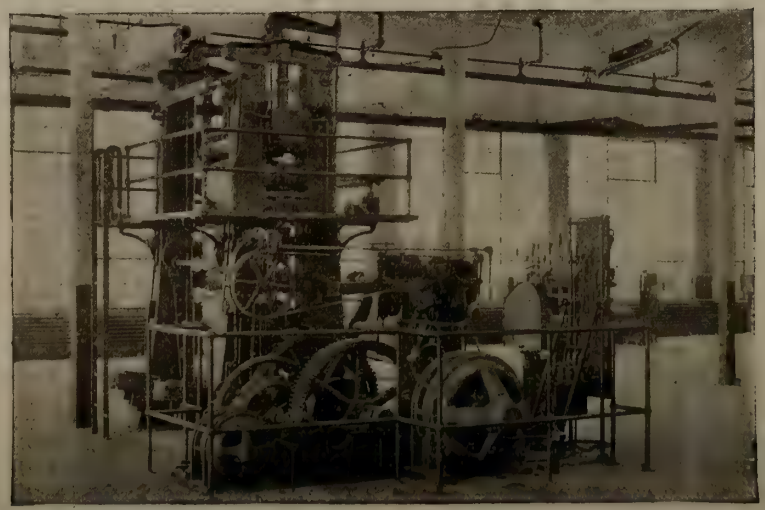


Fig. 19. 75-h.p. Slip Ring Induction Motor and 7½ h.p. Squirrel Cage Motor driving 50-in. 9-roll stack paper calender, Strathmore Paper Company, Woronoco, Mass.



Fig. 20. Group of Four Motor--driven Super-calenders. P. H. Glatfelter Company, Spring Grove, Pa.

during threading. Even this method is not entirely satisfactory unless the load is uniform during threading, and this condition seldom exists. Further—the power consumption on a one motor drive (either a-c. or d-c.) is excessive at low speeds.

We will now consider the two-motor alternating current equipment. In the first place, most mills have alternating-current available. Next, we know that super-calenders are constant torque propositions and the power goes down with the speed. The two-motor drive is therefore to be recommended. It has been developed and installed with a number of modifications to meet varying conditions. The small or threading motor shown in Fig. 19, which gives one-tenth speed, is controlled by push buttons placed at convenient points on the calenders, so this motor can be started and stopped by the men handling the paper. When the paper is threaded through the calenders, the large motor is thrown in and brought up to speed by a drum controller.

This motor is fitted with a magnetic switch for connecting its primary to the line, so that it can be stopped from any of the push button stations.

Fig. 20 shows four super-calenders at the Glatfelter Mills which are driven by complete automatic equipment. In this installation the large motor is brought up to speed automatically instead of by hand controller. A diagram of this drive is shown in Fig. 21.

Each push button station, of which there can be as many as desired, contains three buttons, one marked "slow", one "fast" and one "stop". Pushing the "slow" button in any station starts the small motor and drives the calender at threading speed. Pushing the "fast" button starts the large motor and automatically brings it up to whatever speed the controller is set for, and at the same time shuts down the small motor. Pushing any of the "stop" buttons shuts down either motor that may be driving the stack, and electrically brakes so that the calender will come to rest instantly. This particular arrangement allows a range of calendering speed from 300 to 600 feet per minute and permits slowing down for bad spots in the paper. This equipment is absolutely fool-proof and completely automatic with push button control.

Platers.

Fig. 22 shows the first of four plater equipments installed in a New England paper mill. These direct-connected motors are built to stand the jar of frequent reversals. The plater in the picture is a Norwood, with 42 in. face and 18 in. diameter rolls revolving at about 17 r.p.m. when the motor is running at full speed. The ordinary reversals are about 10, or 5 complete trips of the book, but when working on a corner of the book, the reversals are as high as 30 per minute. The controller is mounted on a bracket attached to the plater table convenient to the operator. An enclosed contactor panel is mounted near the plater, containing switches for reversing the motor. These are controlled by the drum controller previously mentioned.

Steam Turbines.

Electricity has been responsible for the modern steam turbine. Paper manufacturers are interested, as their power and heating problems are closely related, and the steam turbine gives ideal flexibility with respect to steam utilization.

Fig. 23 shows a 600 kw. mixed pressure unit. This machine is designed for mills whose supply of exhaust steam from existing engines considerably exceeds the drying and heating requirements, and where the engines are consequently operating condensing, or if non-condensing, are exhausting into the air. This turbine takes this exhaust steam at slightly above atmospheric pressure and expands it down to 28 in. vacuum, producing practically as much additional power as given by the engines themselves. The engines will take somewhat more steam than if they were operating condensing, but the increase is far less than the gain in power, and no change in the boiler room or boiler room force has been necessitated by the addition of this turbine.

Another demand may be made on the turbine by the paper mill that operates under a different condition. For instance, when the need for low pressure for manufecturing purposes is moderate compared with that required for power, an extraction turbine can be used to advantage. This type is designed to operate condensing and uses high pressure steam, but low pressure steam can be extracted from one of the stages. The extracted steam is automatically regulated so as to remain constant under variable load and steam flow conditions. Paper mills differ widely in their steam requirements and it is better that each proposition be carefully studied. The Claremont Paper Co. at Claremont, N. H., has two turbines, a 500 and a 750 kw. machine, arranged for extraction of steam at about 10 pounds pressure for drying.

A recent use of the steam turbine is the application to the Winestock de-fibering and de-inking machine, as shown in Fig. 24. In this installation the turbine not only drives the machine but furnishes steam to heat the stock for the next charge.

The many possibilities of electric drive in paper and pulp mills are partly indicated in the illustrations. The pictures are typical and constitute a strong argument for the general adoption of motors throughout the industry.

CANADA'S COAL PRODUCTION.

The following are revised statistics of Canada's coal and coke production in 1916, compared with that of the previous year, the figures being issued by Mr. John McLeish, B.A., F.S.S., chief of Division of Mineral Resources and Statistics, Ottawa:—

Coal.

	Calendar years. 1915.	1916.
Production by provinces:	Short tons.	Short tons.
Nova Scotia	7,463,370	6,912,140
New Brunswick	127,391	143,450
Saskatchewan	240,107	281,300
Alberta	3,360,818	4,559,054
British Columbia	2,065,613	2,584,061
Yukon	9,724	3,300
Total	13,267,023	14,483,395
Distribution of coal production:		
Sold for consumption in Canada	9,826,712	10,701,530
Sold for export to United States	1,330,718	1,451,075
Sold for export to other countries	297,343	284,513
Total sales	11,454,773	12,437,118
Used by producers in making coke, etc.	701,975	804,814
Used for colliery operation and by workmen	1,110,275	1,241,463
	1,812,250	2,046,277

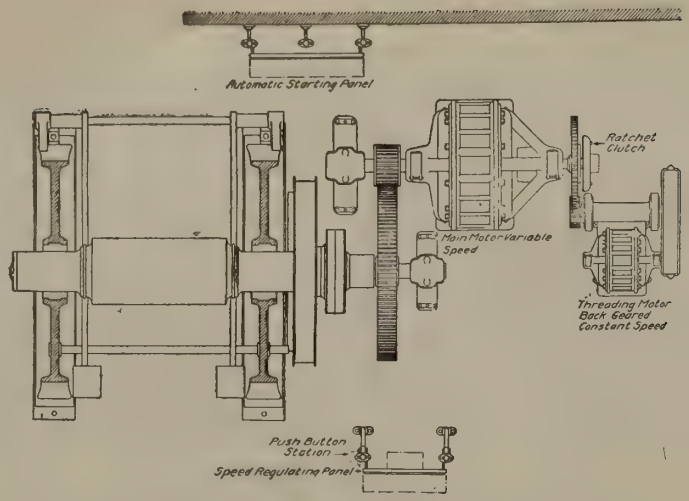


Fig. 21. Automatic Super-calender Drive for Paper Mill.

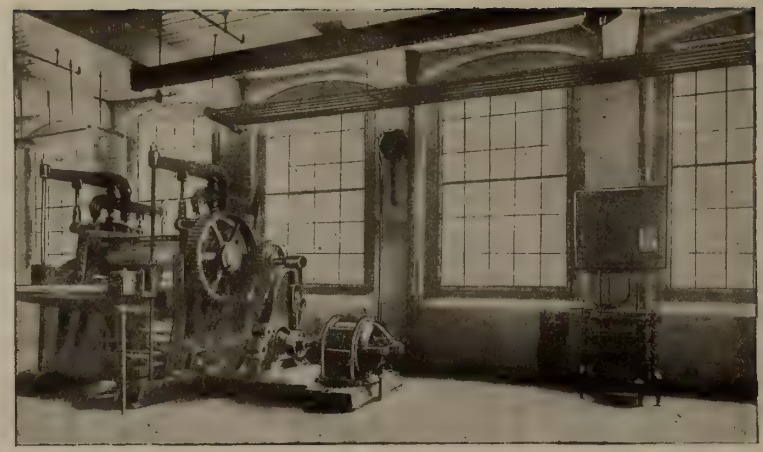


Fig. 22. 15-h.p., 600-r.p.m., 550-volt Slip Ring Induction Motor and Panel for Plater.

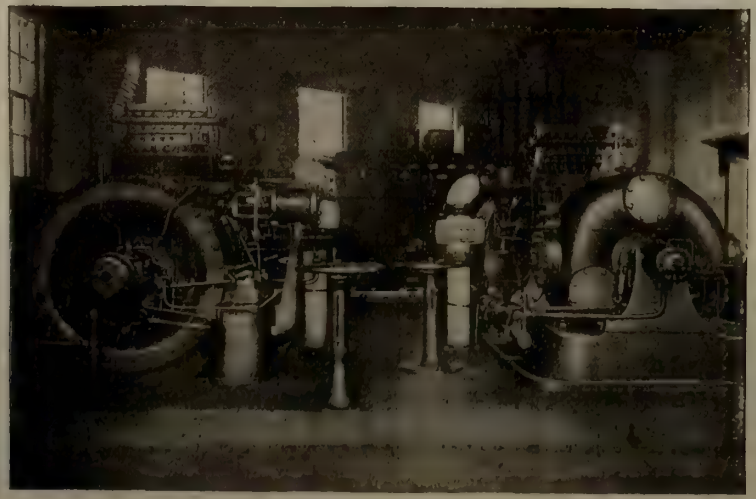


Fig. 23. 600-kw. 1800-r.p.m. Mixed Pressure Turbo-generator Set installed for the Parsons Paper Company, Holyoke, Mass.

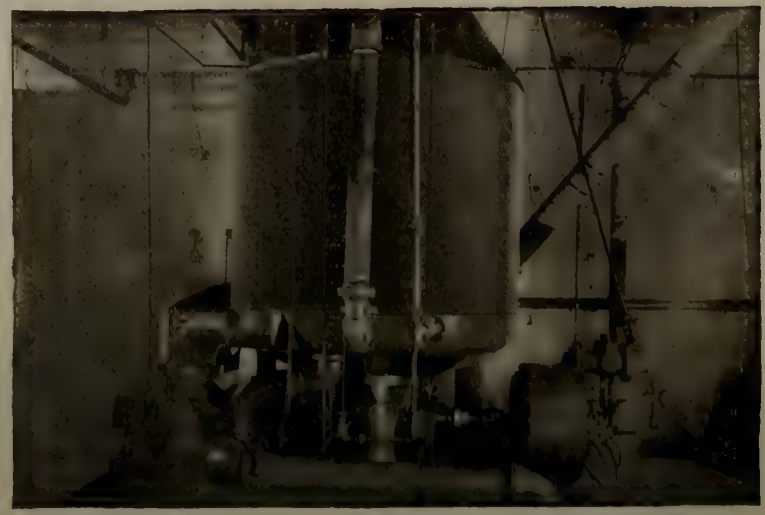


Fig. 24. Type L Two-stage 50-h.p., 1800-r.p.m. Turbine Driving Winestock De-fibering and De-inking Machine, Stevens and Thompson Paper Company, North Hoosick, N. Y.

Graphic Charts--An Aid to Business Administration

By WLFRED G. ASTLE.
Purchasing Agent, Mathews Gravity Carrier Company.

In order that the chief executive of any business may determine whether the organization is efficient and the results the best attainable, or whether there are leaks which must be remedied in order to obtain proper returns on investment, he must be in possession of all the data pertaining to the operation of the organization. These must necessarily be in concise yet comprehensible form, as the modern business executive's time does not permit his searching through a volume of detail. The results of operations of each and every department should be in his possession as soon as possible after the expiration of the period under consideration, and should be in such form as to allow a thorough understanding of conditions, with the least possible delay. Every department head should exert every effort to formulate and devise some plan whereby his reports will best serve the purpose of the executive, showing in unmistakable form all the data that is essential for economic operation and eliminating all superfluous and confusing details.

Records of this nature, when properly tabulated and arranged are valuable assets. A study of the data at hand permits forecasting the future, and also provides a means of detecting leaks and losses, rising costs, decreasing sales and diminishing profits.

All records should be arranged so that comparisons can be made. This is illustrated even in the daily papers, when in the bank clearance reports or records of the movement of grain and live-stock, figures are shown for yesterday, the same day last week, the same date last month, and the same date last year. The arrangement of data so that comparisons can be made always permits of recording the history of a business by means of graphic charts, which are statements of results written or delineated in a vivid, forcible and striking way, "a picturization of facts."

Graphic charts will bring the executives of the organization into closer touch with the operations of its various branches where a personal contact would be a physical impossibility. They will convey quickly, accurately and intelligently the results of each department of a business and the organization as a whole. There are many executives, including the heads of departments or branches, who know that they are not getting all the profits or returns they should get, but they are unable to put their fingers on the weak spots, owing to the lack of condensed and comprehensive data. In nine cases out of every ten there is something wrong with the organization of the business. Possibly there is no one prominent fault, but simply room for general improvement in organizing and standardizing the plant, machinery, equipment, office, sales and working forces, etc. Sometimes there are defects in the structural organization — that is, in the relations of the concern to its customers or competitors or to the sources of its raw materials.

The use of graphic charts by large corporations, and the building up of a national business in the sale of graphic data by a statistical organization, indicate to broad-minded business men that the graphic methods of presenting data are valuable. These charts can be applied in many ways to give a clear mental vision of the condition of any business. The average financial statement for instance, is not readily analyzed by men who are not used to such analysis, and as a supplementary visualization of such statements and in other ways the graphic method has distinguished advantages.

There are a great many different ways of drawing up a graphic chart, and under present conditions, if six men were given a set of figures and asked to chart these figures, the six resulting charts would be widely divergent in method. Though variety in method of charting is sometimes desirable in large reports where numerous illustrations must follow each other closely, or in wall exhibits where there must be a great number of charts in rapid sequence, it is better, in general to use a variety of effects simply to attract attention, and to present the data themselves according to standard well known methods.

Every business man should know how to draw up graphic charts, and know how to read them. It should be part of his training and equipment, just as it is of every engineer, physician, biologist, and statistician. Graphic charts were first used by mathematicians to represent values indicated by different equations. After the mathematician came the engineer, who by means of graphs made maps of proposed routes of railroads, showing the differences in elevation at each point along all the proposed route. By these maps he was enabled to choose a route with few grades and with a minimum of cuts and fills, and his work was greatly facilitated, while the cost of the work was as low as possible, future maintenance and cost of operation taken into consideration. Mechanical engineers make use of graphs in indicating the performance of engines and dynamos under different speeds and loads, or a combination of both, which enables them to determine under which conditions the machine works at highest efficiency.

When men of engineering training began to enter the commercial field as sales managers, etc., they brought with them the training and knowledge which were being obtained by them in business. Instances enabled them to picture by graphs the results which have been known where the most important and radical steps were inspired by reflection over a graphical chart. On the other hand, there are managers who can appreciate only the numerical and tabulated figure method of making charts or reports, and who consider any conversion of numerical records into graphs as needless waste of time. It is well worth while for those who have not used graphical methods to consider that every successful manager makes scientific use of his imagination when his intuition or judgment tells him that certain steps are necessary, and if certain helps to guide this intuition or judgment can be gotten from graphical charts which do not require a great deal of time or expense to prepare, then these charts are certainly worth while.

This graphical method of stating statistics, though inferior to the numerical in accuracy, has the advantage of enabling the eye to take in at once a series of facts. This advantage is not of first importance when considering only one set of facts. Accuracy is

then more essential than ease and rapidity of representation. But ease and rapidity are essential when comparing many sets of facts, because if the mind is delayed long in taking in the general effect of one set, it losses count of the others. Therefore, the function of the graphical method can be defined as the comparison of different sets of statistics.

Another function of the graphical charts is the indication of the true influence of one set of facts upon another, as for instance, it is known that cost varies with output. Therefore, in starting a new business or shaping new plans it might be desirable to know just what this variation was likely to be in order to estimate how much business would be necessary to overcome the initial expense, and what profits should be realized from a given volume of business. The graphical method will show far more clearly than statistical tables the variations of two factors in relation to each other.

Still a third class of information which can be advantageously studied with the aid of graphical charts is that which is compared from month to month, such as costs, sales, output, etc. In fact, almost any kind of information can be plotted with time, as the horizontal co-ordinate, and the desired information as the vertical. Curves should always work out from the left-hand side and never from the bottom up. The advantage is that the curve can be kept up to date, that comparisons with previous and standard conditions are grasped more easily and present the results over a long period of time. For instance, the average market price of a product for every business day in the year can be shown in much less space than is possible in any other way. In the matter of output, sales, costs, etc., it is customary to carry in addition to the quantity for the period, the cumulative total for the year. The height of this curve always shows the total business to date and its slope shows whether the tendency is to increase, remain stationary, or fall off. Conditions making for or against improvement may be caught and reached sooner than they would be if tabulation of figures were used.

There are three elements in graphical charts and records which are important, namely: the selection of material to be graphically recorded; the devising of methods of presenting it; and the use to be made of the graphical charts after they are plotted. There is no advantage in making records which are not to produce some effect, either in impelling toward improvements or in indicating unusual conditions. In using graphical charts the method adopted by some companies of making them the basis for special or regular conferences is to be commended. The important thing is to be sure that the graphical charts appeal effectively to the individuals most directly concerned.

The use to which graphical charts might be put are so numerous that one might continue to compile them and explain their advantages indefinitely. There are a great many cases where the presentation of graphical charts will put life and vitality into statistics whose study otherwise would be largely neglected. An examination of present practices leads to the conclusion that where data are filed merely for reference at long intervals, they may be more compactly recorded in tabular form. But, where the purpose is to arouse interest and co-operation on the part of those who have it in their power to reduce costs or to improve performance the graphical form is, by all odds, the best. Just as the "eye-gate" is a much readier entrance to the mind than the "ear-gate", so the diagram or picture appeals to the mind more graphically than does a number represented by figures.

HOW LABOR DAY WAS OBSERVED AT ESPANOLA.

There was a big demonstration on Labor Day at Espanola which was participated in by all departments of the Spanish River Pulp and Paper Mills. The events were carried out on a most elaborate scale and every one thoroughly enjoyed the holiday which attracted a large attendance of spectators from the surrounding country, while quite a number of employes of the Lake Superior plant came down from the Sault. There were two baseball games played between the men of the Sault plant and the Espanola boys. The morning game went fourteen innings and ended in a score of two to one in favor of the visitors. In the afternoon the Sault lads were once more victorious by 5 to 4 in a nine innings contest. The ladies of the local branch of the Red Cross provided dinner in the skating rink and cleared a hundred and eighty six dollars. The big procession in the morning of gaily decorated wagons showing all departments of the mills was a gigantic undertaking and, as each vehicle passed along, there strode behind it the employes in that department. The floats were prepared with a great deal of care and attention to detail and wooden models of all equipment were shown in operation.

Among the floats were the river department, the office and engineering department, the power department. the drum barker and slasher mill, the mechanical pulp department, the farming, the construction, the office, the hotel. the provision, the carpentering and millwright, the French settlement and many others. About twenty wagons in all passed through the principal streets and many were the favorable comments heard on all sides at the splendid efforts to portray to the public the intricacies of operating the various branches.

In the afternoon there were sports of all kinds and the events were spiritedly contested while at night there was a well patronized dance. The Labor Day celebration was unanimously voted as the most ambitious and elaborate ever undertaken and the men in the mills who worked very hard to make it a success, backed up by the ladies of the Red Cross, deserve every praise for their diligence and energy.

BIG MACHINES ON WAY TO OCEAN FALLS, B.C.

One hundred freight cars will be used in the transportation of the two mammoth Fourdrinier paper-making machines, which the Bagley & Sawell Company has just completed for the Pacific Paper Mills, Ltd., of Ocean Falls, British Columbia. These machines will make paper 204 inches wide and at the rate of between 700 and 800 feet a minute. One of the machines has already been shipped and the other one will be on its way in about a month more. Richard Gray, the Bagley & Sewall Company's expert setting-up man left last week for Ocean Falls to supervise the setting up of the machines in the new mill of the Pacific Paper Mills, which will have a heavy output of newsprint, when it is opened for operation.

The Bagley & Sewall Company closed the contracts for the machines early in the year and began work on the order in April. They have been carrying them along with other work since that time.

Thirty-five drier rolls are required by each machine and the largest of these has a diameter of five feet and weighs eight tons. The company has made machines just as wide as these, but none wider.—Black River.

WHEN WILL BLOTTING PAPER BE MADE IN CANADA?

Until three or four years ago the only tissue or toilet apers made in Canada were part of the output of a ouple of old established mills. There were no plants, pecializing on these lines exclusively. Today there re mills in the Domin on which turn out little else and hey are doing splendid business.

Nearly every line of paper, which before the war as imported into Canada from Europe is now made in he Dominion. There is however no mill as yet making lotting papers although the Barber mill of the Prov- nc al Paper Mills Co. at Georgetown has done some- hing in that direction but the blotting has been of the heaper grades and not the costlier kind which is made f rags. Enameled or coated blotting paper has for me years been turned out by R tchie and Ramsay, of ew Toronto, and the Canada Coating Mills at George- wn, which are the property of the Prov ncial Paper ills.

Practically all the blotting paper used in Canada is nported from the Un ted States and from England. is largely used for advertising purposes for many rms get out blotters both colored and white and free- distribute them. Cheap blottings are apt to fray pieces or fluff in us ng. Quality blottings are du- ble and absorptive. A few years ago Toronto cap- alists intended establishing a blotting paper plant at akville, Ont., but the war came on and so the pro- ct fell through. Had this mill gone ahead it would ve been the first of its kind in the Dominion.

John F. Ellis, President of Barber, Ellis, Limited, oronto, while looking through some old papers the her day came upon an interesting document of how otting paper happened to be discovered. Its birth as quite accidental and was the result of a mistake of mill hand employed in an Old Country plant. Blot- ng paper, which is a modern necessity of life was un- own a century ago and like many other processes at have added to the comfort or convenience of man- nd, its initiation belongs to the romance of history. he settlers in Canada during the early part of last ntury when they wrote a letter sprinkled sand over to dry the ink. This was a cumbrous process, typic- of times when deliberation was the keynote of busi- ss. Such a method would not answer in this age hustle and bustle and the times of the telephone, the legraph, the aeroplane, the automobile and the dicta- one.

This too, in spite of the fact that a Toronto school y once described blotting paper "as the thing you e looking around for while your ink has dried."

According to information in the possession of Mr. lis, whose firm uses many tons of blotting papers a ar in connection with their pad and writing tablet tput, there was a mill at Hagbourne, not far from allingford in Berkshire, England, where paper was ade by hand. One day some workmen omitted the sential ingredient of size in their manipulation and e result was the output of a quantity of what was re- rded as "waste". History does not record whether e ire of the overseer descended upon the men for eir carelessness, but their mistake proved a fortunate e, for it lead to most important consequences. One the hands in the mill used a piece of the "waste" to rite a note and found ink spreading so rapidly that s writing was rendered illegible. In nine cases out ten such an incident would have passed without special attention but there was evidently at the mill a quick brain ready to grasp the industrial possibilities. It was realized that there was an opportunity to produce something of value to the commercial world and all those who used the pen. The result was original hand-made blotting. The mill then ceased to produce ordinary paper and its resources were turned into the new channel. The novel article took the public fancy at once and the business increased so rapidly that another mill in Hampshire was adapted for its product. Finally hand-made bloting became too slow a process and machine made blottings developed fast. This made the article much cheaper and, as the paper became known, the stationary trade took it up and the demand increased.

Blottings were originally made uniformly of one shade of pink and the sheets were thin. The prevalent color arose from the fact that red rags, from which ordinary paper could not be produced from the impossibility of eliminating the fast color, were utilized in this way. Thin red blotting paper was invariably used by her late Majesty Queen Victoria and it is an historical fact that any piece, on which her Majesty's signature had been blotted, was carefully destroyed. Thin paper is little used for ordinary blotting paper today in Canada because it has been found that a thicker sheet is more effective, and more lasting.

INTERNATIONAL PAPER CO.

International Paper Co.'s debt consolidation plan launched early this year has been a distinct success. Five direct and subsidiary issues have been cut away down and one paid off entirely, with the result of a net reduction of $2,246,000 in funded debt as compared with Dec. 31, 1916.

The company has exchanged large amounts of the present 5% and 6% International Paper Co. bonds for the new 5¾ refunding issue due in 1947, and has in addition purchased considerable amounts in the open market, so that the composition of the funded debt at present compares with the end of the 1916 fiscal year as follows:

	At present	Dec. 31, 1916
International Paper 1st 6s, 1918	$3,500,000	$8,132,000
International Paper cons 5s, 1935	940,000	4,346,000
Hudson River P. & P. Co., 1918	1,037,000	1,500,000
Rumford Sulphite Co., 1918	292,000	350,000
Piscataquis P. & P. Co., 1918	9,000	19,000
Ontario Paper Co., 1918		150,000
New Int. Paper 5%, series A, 1947	6,473,000	
Total	$12,251,000	14,497,000

International Paper's 1916 year was featured by the extinguishment of $3 400,000 notes payable outstanding on Dec. 31, 1915. The current fiscal period will see the practical amalgamation into one refunding issue of the half dozen direct and subsidiary issues, all but one of which are absolutely due in 1918.

UNITED PAPERBOARD CO.

Pres. Mitchell says in United Paperboard Co. report: "An excellent demand prevailed for the company's products throughout the year at profitable prices. Our production increased approximately 9% over preceding year, although strikes at three mills curtailed their output.

Review of Recent Articles of Interest to the Pulp and Paper Ind tr

Pinus Ponderosa in the United States. — U. S. Dept. Agr. Bull. 418, (1917). — Is known as pine, western pine, yellow pine, or western soft pine, Oregon or California white pine. It is the most widely distributed pine in America. In Oregon the estimated stand is 70 million feet. It prefers well-drained soils and forms splendid forests where the precipitation is only 18 inches a year. Grows best in the warm, dry interior, up to an altitude of 6,000 feet. Is intolerant of shade; seedlings do fairly well under parent trees. Grows slowly till it is 20 or 30 years old. Cold, drought, fires and sheep are chief causes of destruction of young seedlings. Several insect and fungous enemies are named. The average height and diameter of trees in 13 typical stands vary from 24 ft. (height), and 4.7 in. (diam.) at 50 yrs., to 90 ft., and 19.3 in., at 150 yrs., and 120 ft. in height with 30.9 inches in diameter at 400 yrs. Wood is used locally for building. Best grades are exported for general factory material; lower grades used for boxes and baskets. Has never been used commercially for paper-making but Forest Service tests indicate that it can be used for making good grade coarse wrapping paper. Tests indicate that it will not yield sufficient good turpentine to be profitable. Much information about management and protection of western yellow pine forests is given.

Insects Injurious to Spruce: Hylastes Cunicularius, Er., and its Relation to the Forest in Scotland. — Jas. Munro. Trans. Scot. Arbocult. Soc., **31,** pp. 25-30; through Bull. Int. Inst. Agr, **8.** No, 5, p. 817. — Description of three species of insects which particularly affect Spruce.—H.N.L.

Products of the Soda Industry. Methyl Alcohol and Acetone.—Paper Maker and Brit. Paper Trade J. **54** (1917), No. 1, p. 28. Abstract of article by Rue & White. See this Magazine, pages 629, 653 and 809.—E.K.M.

Kiln Drying Lumber.—Can. Lumb., Vol. 37, (1917), No. 17, pp. 28-9. Principles of compartment and progressive kilns clearly explained. Different methods of piling stock for artificial drying. (Summary of U. S. F. S. bull. 552.)

The Natural Orders of Insects and TTheir Relation to Forestry. — B. W. Adkin, Quart. J. For., Vol. 11, (1917). No. 3 pp. 149-160. — A classified list of insects giving the scientific and common names and the trees which are attacked.—H. N. L.

The Effects of Spring Frosts on Young Plantations. —W. P. Greenfield. Quart. J. For., Vol. 11. (1917). No. 3. pp. 165-172.—Observations made in English practice. —H. N. L.

British Forestry, Past and Future. — W. Somerville. Quart. J. For., Vol. 11, (1917), No. 3. pp. 194-205.

"Provincial Rights" — and the Western Forests.— The Editor, Can. For. J., Vol. 13, (1917). No. 8, pp. 1240-2. — What ownership of the forests would actually mean to the Prairie Provinces.—H. N. L.

What Birds are Worth to Forests. — W. C. J. Hall, Can. For. J., Vol 13. (1917). No. 8, pp. 1252-4. — One hundred million dollars is the estimated yearly insect injury to field and forest and birds do much to keep this figure down. (From Pulp and Paper, p. 579.) — H. N. L.

(From Chemical Abstracts)

Waterproofing paper yarn sacks for sand. — L. Ca sella & Co. Chem. Ztg. **41** (1917); J. Soc. Chem. In **36,** 592 (1917).—Experiments show that the tens strength of paper yarn, when wet is best improved t treating the dry paper with a solution at 50° temper ture containing 80 g. glue, 1.5 g. tannin, and 1.5 water glass at 37° Bé. The paper is then dried. Th next best results were obtained by first treating wi cold basic Aluminum formate at 6° Bé., drying an then treating at 50° with a solution containing 80 glue per l. The treatment with basic material is r peated once. The use of mixtures of soap and gl was not satisfactory.—R. B. Roe.

Rendering paper or other fabric resistant to acids alkalies. M. Fehringer, U. S., 1,233,334. July 17. Pape textile fabric or other material is coated or impregna ed with cumarone resin to render it resistant to aci and alkalies.

Waterproof writing paper for use with metall styli. S. Kuroki. U. S., 1,234,045, July 17. Writin paper for use with metal stylus is prepared by treatin it with a mixture of powdered clay and ZnO and the with a mixture of castor oil, C_6H_6, vaseline and ca phor oil or other perfume.

Lignin and Lignon derivatives. E. Oman. Brit., 10 493. May 12, 1917. Lignin sulfonates and lignon su fonates, contained in waste sulfite-cellulose lye, a separated by saturating the lye with a salt, such as N K, or NH_4 chloride or sulfate: the lignin sulfonates a thereby precipitated while the lignon sulfonates r main in solution. Oxylignin and oxylignon are obtai ed by treating lignin or lignon sulfonates, respectivel with alkali.

The Physical Basis of Color-Technology. M. Luckies J. Franklin Inst. **184,** 73-93, 227-250, (July & Augus 1917). The author discusses themethods of analyzin color, the characteristics of pigments, dyes, and co ored glasses, the laws of aborptio nand the spectr analyses of the visible radiations reflected by the pi ments and transmitted by dye solutions and colore glasses. The article is semi-technical, and since th data is largely shown in the form of the spectr transmission and other curves, it cannot be satisfa torily abstracted. The article is one of special inte est, in that it bears out the author's contention th data of greater usefulness is given by the spectroph tometer than by any other instrument. The so-calle colorimeters and tintometers are of little use except very limited fields.—A. D. Conley.

Photomicrographs in Color. Dr. C. E. K. Mees (Ea man Kodak Co. Research Laboratory) .Am. Photogr phy, 1917, through J. Franklin Inst. **184,** 311 (Augu 1917). When sections stained with two different co ors are being photographed, two negatives are made panchromatic plates through suitable color filte Prints are made from these negatives in bichromat gelatine and stained to simulate the original stain. Th two prints are then placed face to face to obtain two color slide.—A. D. C.

UNITED STATES NOTES

The new issue of Walden's A. B. C. Pocket Guide to ne Paper trade, printed by the Walden Publishing o., 132 Nassau street, this city, is just off the press nd is being circulated. This is the 31st annual edi- on of the Guide and contains more than 451 pages of aluable information to the trade. The feature of the ublication is a complete list of the paper jobbers of ne United States.

The Climax Tube Co., of Mystic, Conn., manufactur- of light and heavy paper cores, has just made many nprovements in its plant. The company has installed dditional tube winders and enlarged its facilities for aring for finished stock.

It is reported from Glens Falls, N. Y., that work on e hydro-electric plant of the International Paper Co., progressing rapidly. The coffer dam has been com- eted and two large pumps are removing the water preparation for the excavation of the rock that will mplete the opening for the outlet of flumes. Wooden rms and some of the concrete walls have been com- eted in the erection of the outlets for the water after has passed through the generator room.

The work of installing the new 80 inch machine in e addition of the Whiting Paper Company, Holyoke, ass., has been completed and the machine is now in eration. This machine displaces an older machine of inch size. Several other additions to the equip- ent made necessary by the new machinery have been stalled and the output of the mill is materially in- eased.

James A. Outterson, of Watertown, N. Y., widely nown in the paper industry as president of the Car- age Sulphite Pulp and Paper Company, the Cham- on Paper Company and the Eagle Paper Company, s been chosen president of the Deer River Railroad mpany and also of the LeRay Despatch Line, Inc. he latter company is to provide a car line service for e Deer River Railroad.

William X. Hazel has been appointed general super- tendent of the St. Regis Paper Company, Water- wn, N. Y. Mr. Hazel up to a short time held the sition of superintendent. The promotion gives him pervision of the three mills at Deferiet, Black River d Herrings, instead of just the Deferiet plant. This tter mill is now turning out the largest output of ws in its history, the daily production amounting to 0 tons, as compared with 125 tons a year ago. To ing this about the company has spent thousands of llars on improvements.

The National Paper and Type Co. has declared the gular monthly dividends of 1¾ per cent on the pre- rred and 2 per cent on the common stocks, payable ct. 15 to stock of record Sept. 20. This concern is nsidered among the largest paper exporters in this untry. Its export business is largely with the South merican countries.

The Certain-Teed Products Corporation, large manu- cturer of roofing paper and other construction pers, has just declared its regular quarterly divi- nd of 1¾ per cent on the first and second preferred ocks payable Oct. 1, to stock of record Sept. 20.

An important incorporation during the week was that of M. Gottsman & Co., dealers in pulp and paper at No. 18 East 41st Street. The new corporation is capitalized at $650,000. The incorporators are: M. Brenner, S. Schwartzman, E. M. Sousa.

Reports received here are to the effect that a new pulp and paper mill is being contemplated on the Northern Pacific Coast, and that construction may be started soon. It is stated that the plant will be erected at a cost of about $1,000,000, and will be located in Aberdeen, Wash. The promoter is said to be C. M. Weatherwax.

The importance of paper as a means of affording receptacles for articles formerly kept in tin cans and the like, was emphasized during the last part of the week when the principal manufacturers were called to Washington to consult with the Food Administration, regarding the substitution of paper in place of tin as a container. There is no doubt that the exceedingly high cost of tin will result in an unusually large demand for paper for use in containers. It is known that in various sections of the country, paper garbage receptacles are being used successfully and it is believed that their use along greater scales will be encouraged.

In the fiscal year to Dec. 31, last, the U. S. Envelope Company earned a balance of 199½% for its $750,000 of publicly owned common stock. This was more than double the record of any former year. It meant a balance of net profits before interest of $1,861,329. This year, says the report, profits are running smaller. The trade was pretty well filled up with papers and envelopes during the big buying boom of 1916. The result has been that on the recession in paper prices which continued for almost the first seven months of the year, the big jobbers and wholesalers have kept pretty much out of the market. At the same time, with the exception of 1916, the results of 1917 promise to exceed those of any former year in the corporation's history. It seems likely, according to one report, that the year will produce a common stock balance before excess profit taxes of not much less than 100 per cent. The company is reaping the benefit, this year, of two new factories, one in Indianapolis and the other in California.

Interest has been shown in the announcement that the construction of a government chemical plant to meet war needs, at a cost of $5,000,000, is now contemplated by national defence chiefs to meet war's increasing demands. The plans are being worked out under the direction of the Federal Committee on Emergency Construction, with the approval of the Council of National Defense. Government contracts have taxed to the utmost the capacity of private plants, and the new project was deemed necessary to meet future needs both for this country and for the Allied nations. The trade understands that this plant will be fitted out so that its machinery can easily be switched on to dyes and that the plant may become quite a color factor after the war. The matter has been the subject of discussion for some time, but it now appears that action is scheduled to take place soon.

PULP AND PAPER NEWS

Mr. James Home, president of Beveridge Paper Co., Limited, is at present on an extended trip to the Pacific Coast. He reports business in his line as being quiet, but prospects for future business very encouraging.

George Pauline, of Manchester, Eng., the widely known paper salesman, who has been spending some time in Montreal and Toronto, left this week for New York on his return home.

The many friends of W. P. Ryrie, of Toronto, managing director of Becker and Co., of America, pulp dealers, will sympathize with him in the sudden death of his brother, Harry Ryrie, secretary-treasurer of Ryrie Bros., Toronto. The deceased was only fifty-five years of age and just eight weeks ago his eldest son, Lieut. Evan Ryrie, was killed in action at Vimy Ridge.

Donald Sutherland, who for thirty years conducted the Dominion book and stationery store on Yonge street, Toronto, died on Saturday. He is survived by two sons and one daughter. His wife passed away two months ago.

It is expected that the new sulphite plant of the Lincoln Paper Mills Co., at Merritton, Ont., will begin operations this month. The finishing touches are now being given to the equipment.

O. P. McGregor, of the O. P. McGregor Paper Co., Toronto, and Charles F. Mansell, sales manager of the Toronto Paper Mfg. Co., have returned from attending the annual meeting of the Sovereign Great Priory of Canada, Knights Templar, at Winnipeg. Mr. Mansell was elected Grand Treasurer for the eleventh time.

T. A. Todd, formerly with the Federated Press, Montreal, who has been appointed sales manager of the National Paper Co., spent a few days in Toronto this week on business. E. G. R. Clarke, for some years Toronto representative of the company has resigned and the office at 28 Temperance street has been given up. All sales in Toronto and vicinity will be looked after henceforth from the Montreal end.

E. C. Martin, of Buffalo, representing the Scott Paper Co., of Philadelphia, called upon the trade in Toronto this week.

OTTAWA NOTES.

The fourth and what is hoped will prove the concluding session of the now historic Canadian Newsprint probe is to be commenced at Ottawa, Tuesday, October 2nd. Notice to this effect has reached counsel representing the Canadian newsprint manufacturers. Perhaps by the time the next issue of the Pulp and Paper Magazine reaches the trade the price of newsprint will have been decided upon or recommended by the Government's Commissioner, Mr. Robert A. Pringle, K.C. With a record of months of delay it seems that the price of newsprint must be set and the newsprint manufacturer told where he stands, unless some unforeseen contingencies arise.

A feeling of expectancy and anxiousness permeates the trade at Ottawa, but the manufacturers are hopeful that three cents per pound will be given them for their product. Such price they believe they are entitled to considering the increased costs of manufacture. While little opinion is being expressed by the manufacturers as to the prospect of the outcome of the inquiry there is room for the belief that they are just a little bit worried as to what form of procedure will be followed at the fourth session of the probe. One of the biggest questions in the minds of the manufacturers is: "Will the grouping system be used?"

If the grouping system is used or attempted to be used, and as such becomes part of the report of Mr. Clarkson, there is going to be a mighty warm legal battle that may extend beyond the court rooms at Ottawa. The newsprint manufacturer according to the best opinion at Ottawa will fight tooth and nail and very likely classify such a system as "unjust." The "group" system basis was one of the principal means used by the auditors of the Federal Trade Commission to arrive at something supposed to be an "an accounting cost" or a "production cost," as shown by the books and records of Canadian newsprint mills. The employment of such a system as a basis for arriving at production costs is not considered equitable by the Canadian newsprint manufacturers, as it has been pointed out that such a system is not really governed by the law of average.

That a "group system" report may be attempted seems evident unless the only two newsprint manufacturing mills at Ottawa are to be ignored. The facts in this regard are: The books and records of the newsprint and sulphite plants of John R. Booth had not been gone over by the auditors up to the beginning of this week. Neither had the auditors been at the E. B. Eddy plant.

John R. Booth manufactures about one hundred and twenty-five tons of newsprint per day, and on this production it seems that he is entitled to some recognition from the auditors. His production cost with that of the E. B. Eddy Company is a pretty high one. Therefore, it seems to be fair that the costs of the high priced mills should be taken into consideration as well as the costs of the low priced mills if any average price for the manufactured product is to be struck by either the auditors or the Commissioner. Under the "group system" the manufacturers are afraid that only the costs of the lower priced mills will be taken into consideration. This would not be fair to the higher priced mills. Nothing definite on this point can very well be determined until the fourth session of the inquiry opens. Perhaps it will be another instance where the newsprint manufacturer has to "live and learn."

Some relief for paper mills and their employees who for some time past have been expressing apprehension regarding the changed conditions that the incoming of conscription might necessitate is contained in the

first three of eight clauses of the exemption forms which were announced at Ottawa last week. They are as follows:

(1) Importance of continuing employment in habitual industry.
(2) Importance of continuing employment for which he is specially qualified.
(3) Importance of continuing education or training.
(4) Serious hardship owing to exceptional financial obligations.
(5) Serious hardship owing to exceptional business obligations.
(6) Serious hardship owing to domestic position.
(7) Ill-health or infirmity.
(8) Adherence to religious denomination of which the articles of faith forbid combatant service.

In the case of the paper mills and the paper makers the second clause would, it seems most particularly, apply as the employment is one for which the employee is specially qualified. Another big help that will come under the exemption claims is that they permit the employer of a man making application for his employee's exemption as essential to the industry in which he is engaged. On the other hand, it has been stated at Ottawa that a variety of classes and grades will be made in considering the conscription qualifications and that service under the Military Service law will not only mean combative service in the firing line, but more or less a conscription of labor whereby men unfit for the front line will be taken overseas to fill Forestry and Railway Construction battalions. If this course is followed, woodsmen, single, 20 to 34 years of age, will be eligible, and their services will be conscripted unless their employers apply for exemption for them as their being essential to their habitual industry. If the labor of woodsmen is conscripted the paper industry will be dealt a severe blow as pulpwood cutting operations will be materially reduced and perhaps even a more acute shortage of labor result than is apparent to-day.

Besides the above eight outlined clauses under which exemption may be claimed there are also a variety of classifications and gradings under the new medical examining standards an authoritive explanation of which was given the representative of the Pulp and Paper Magazine by a high military medical authority at Ottawa.

In all there are five classes from "A" to "E" as follows:

Class.	Grade	Service	Place of Performance
A	1	Combatant	Overseas
A	2	"	"
A	3	"	"
A	4	"	"
B	1	Non-Combatant.	Overseas.
B	2	"	"
B	3	"	"
C		Specially applicable to Canada.	
C	1	Non-Combatant.	

Recruit who has been in uniform for some time and who on reaching England does not fulfill requirements, is put to work at some useful duty in England or returned to Canada.

C 2

Liable for service in Canada, exempt for service abroad. Liability for service in Canada includes camp duty, police duty, home defence and patrol duty.

C 3

Exempt for service in Canada except for clerical duty which in the event of necessity arising renders recruit liable to have his services commandeered.

D

Relates to men previously in uniform under system of voluntary enlistment.

E

Unfit for military service at home or abroad.

The class "A" men of the first two if not all the grades will be the first called out under the proclamation.

Outside of class "A," class "B," is going to hit the labor used in cutting woodpulp hardest—that is the recruit being liable to the first call—single men between the ages of 20 and 34 years. The duties of class "B" overseas, so the writer has been informed, will consist of forestry, railway construction and possibly transport work. The physical standards of the woodsmen should rank high and it is very likely that on this account a very large number of them will pass the medical test and get class "A" or "B" passes. Hence the need of the employer to make application for his men to the exemption boards as their being specially qualified for their work. At Ottawa late last week and early this week there was growing evidence of wide response to the appeal to employers throughout the country to encourage their employees to submit themselves for physical examination before the medical boards, before the first call is actually issued. In this manner employers have an opportunity in advance to find out how many men they are going to lose when the first draft is called, and in the event of "passes" know how many men to seek exemption for before the exemption tribunals. In short, under the system in operation, every opportunity is being given the employer and the recruit to find out where he stands before the first call comes and if the system is fully utilized there is not likely to be as much business disruption as was at first believed would take place when the first call came.

Mr. George H. Millen, head of the E. B. Eddy Company, when asked by the Pulp and Paper Magazine regarding the number of men the Eddy Company would apply for exemption, said: "We have not gone through our plant or estimated the number yet." In the case of the Eddy Company there is quite a big percentage of paper makers who will not be liable under the first draft call, as since the war began this plant furnished many recruits under the voluntary system and married or older men have usually replaced them. There is practically no chance of the Eddy Company having to close its paper plant for a shortage of labor caused by the first draft call.

Mr. C. Jackson Booth could not approximate what number of applications for exemptions would be made by John R. Booth. Woods labor, Mr. Booth thought should be somewhat left alone as many of the woodsmen had joined forestry battalions under the voluntary system and already there was a labor shortage for securing pulpwood which was vital to an important industry of the country.

The cost situation with local pulp and paper manufacturing plants continues to show some improvement though all the winter reserve stocks have not yet been received or stored. There is confidence expressed, however, that before the snow flies there will be sufficient stocks on hand to continue mill operations for some months at least.

The Markets

CANADIAN MARKETS

Toronto, Sept. 24th.

At least after many weary months of waiting there is likely to be something done this week in the matter of the news print investigation, and, before this appears in print, the investigation will be resumed at Ottawa. Whether this will mean any definite step in the matter of fixing a price for news print cannot be said, but there is a general impression in the trade that only a bluff will be made until after the elections. While manufacturers are talking of three and a half cents per pound, the publishers do not think that prices will go any higher. One of them remarked this week, "It is absurd to speak of the mills not making money. Look at the recent reports of Laurentide, Spanish River and others. Never cleaned up so much before in their careers and still they contend that making paper at two and a half cents involves a loss. I think that the manufacturers will have a pretty hard time making the Commission swallow this story. In the meantime we are not doing anything openly but are quietly watching matters. What course we will take it is impossible to tell. We are definitely out of the investigation."

"Although the Montreal Mail has gone out of business, Canada has still 138 daily newspapers and 965 weeklies or semi-weeklies. In all, there are 1,381 publications in the Dominion.

"Talking of the publishing business it appears to be prosperous in the extreme" remarked a leading manufacturer of newsprint this week. "I notice that all the special editions, which have been gotten out by trade and daily publishers contain more advertising and reading pages than ever, while rates for advertisng have gone up enormously. A recent announcement of an official directory states that, 'reflecting the general prosperity which has obtained in the Dominion since the war began, the publishing business is in a healthy state and the present day condition of the Canadian press enables the Dominion to continue to boast the largest reading public in the world in proportion to population.' This does not look as if the publishers are suffering in spite of the advance in paper and yet judging by the cry, which went up at the time paper ascended, many of the printing firms would soon be in the poor house."

The principal theme of discussion in pulp and paper circles during the past week is not so much prices as the labor situation which is steadily growing worse. One manufacturer said that men were growing more exacting, less efficient and more indifferent. One large plant in the Dominion is reported to be operating to only sixty per cent of its capacity at the present time owing to the great difficulty in getting help. Conscription is going to make matters worse and the future is faced with much uncertainty.

In regard to pulp prices the mills are not worrying and quotations are holding their own. Many new plants will be in operation within the next two to six months but the extra tonnage will be well taken care of on this side of the line. Markets abroad will be cultivated and one sales manager pointed out that less and less would be received from Sweden owing to the course which that country has been pursuing in the war. About two hundred thousand tons had been secured from her in the past for the American market while Canadian mills have supplied only half this amount. Now, with all foreign importations shut off the doubling of the capacity of Canadian plants will just make up for the shortage. He was sure that conditions in America would soon settle down and business revive over the border, as all legislation and other perplexing problems were now about adjusted. Plants would shortly be operating to the full again.

Speaking of the probable decline in book and writing papers one manufacturer, who has closely studied the situation, predicts that prices are likely to ascend instead of coming down. "Did any one ever hear of the figure for any commodity decreasing in war time, and paper is no exception" he remarked. "Quotations may fluctuate but there will be no material reduction." "I want to tell you," he added, "that when we were making book paper at half the price we receive today we were cleaning up more money than we are at present with wages so high and the up-keep of a mill soaring all the while. It is simply appalling what we are up against and only those who have to produce the goods and maintain a plant in operation, get sufficient quantities of raw material and look after labor, know aught of the predicament to-day. No sir, prices will not come down. They are apt to go higher and business will be just as good as ever in all lines of paper ere many weeks have elapsed."

Business in the jobbing line keeps up very well but with the advent of colder weather much improvement is looked for. Kraft is rather dull and buyers of all kinds of wrapping papers are holding back in expectation that there will be a decrease in prices. When this will come no one appears to know. Book and writing mills are a little busier but a greater improvement would be welcome. Jobbers have been cutting the quotations on several lines of wrappings to secure trade. Book mills did the same with bond papers but a sales manager this week, who said that the move has been taken to shut out some American invasions from houses which were loaded up with stock, had been successful, and he thought the price would soon revert to its former standing. There is no change in other lines of trade and little new to report. In the rag and paper stock arena the market is stationary. Roofing rags are in fair demand with prices holding steady. General dullness characterizes the selling of waste paper.

During the past week a large number of Canadian plants have received an announcement that a movement is on foot to create a mill supply buying organization to be supported by Canadian mills, operated by Canadian mills and for the benefit of Canadian mills. The stock of the organization will be sold only to the co-operative firm members and to obtain the necessary capital to carry a large stock of all general mill supplies and transmission machinery including oils and greases. It is pointed out that the mills in the Dominion buy an enormous amount of all supplies, transmission machinery, oil and grease every year from the

arious merchants or jobbers of such supplies throughut Canada and elsewhere and thereby support numerous jobbers and permit them sufficient profit to ay all their overhead plus a dividend. This means hat each firm pays at least twenty per cent profit hich the mills should save for their own pockets, so it s contended.

The following changes are made from last week:

Book papers (carload), No. 3 . . . . . $7.25
Jusset bags (manila) . . . . . 20 and 15% discount.
Sulphate. . . . . $85.00 to $90.00

Rag and Paper Stock.

No. 1 clean mixed papers 55c

NEW YORK MARKETS.

New York, Sept. 22.—Reports from Washington tate that the embargo upon the shipment of sulphur rom the United States to Canada, recently inaugurated by the Exports Council, has been modified to some xtent, as has been forecasted in this paper would nost likely be the case. The Bureau of Export Licenses has authorized all collectors of customs to ass sulphur shipments to Canada covered by railway bills of laden dated on or before August 27. Further shipments, however, require regular licenses, hich must be applied for on application form A-3. Copies of this form must be obtained from the Department of Trade and Commerce, Ottawa, Canada. There, . C. T. O'Hara, Deputy Minister of Trade and Commerce, will pass upon the applications for licenses, nd when they are satisfactory, he will send them on to he United States Bureau of Export Licenses, whose uty is to issue licenses to domestic exporters. Through he licenses system, there is no reason why Canadian ulp manufacturers should not receive their usual uantities of sulphur from this country. Regarding he market, there have been several reports to the effect that chemical pulp had taken on considerable activity within the past week. As yet, business is still ainly confined to domestic grades, and, while importrs assert they cannot fathom any perceptible improvent in trading, they nevertheless are deriving conderable encouragement from the reports that domestic sulphite is moving into consuming channels in arge volume as it is believed that this is a forerunner f more pointed interest in foreign pulp. Quotations n both domestic and foreign fibre are well sustained nd, in the case of domestic grades, the tendency is nmistakably upward. Many producing mills in this ountry and in Canada have contracted for the larger ortion of their fall output and are desirous of securng somewhat better values for the balance of their ulp. Quotations heard in the trade are therefore, nore often on higher levels and the tone of the market s certainly regarded as stronger than it has been for ome time. Imported pulp, however, continues in a tatic condition with prices and demand about the ame as before. Some scattered sales are being made, ut there is no sustained movement of supplies towards consumers.

Pulp and paper men were rather interested — some ay have been concerned, about a report from Washngton, this week, to the effect that "Government officials are coming rapidly to the conclusion that the ooling system is the only practical means of putting ndustries of the country under forced draught for war work." Of course, this report may be interpreted n various ways. However, as reference is made to he manner in which the Government has fixed the price of coal (which now seems to be more difficult to get than ever before) it seems that the idea in mind was price fixing in general and the pooling of supplies for distribution. "Judging from the way things are going on at Washington, said a prominent local paper man, it would not be at all surprising to have the government apply the pooling scheme to the paper industry, as it is trying to do to others. I had an idea that, perhaps, the newsprint argument had died out and that matters might be smoothed out, but that does not seem to be true. And, as long as this is kept alive, the entire trade is living in fear that some sort of drastic action will be taken that will affect all."

Difficulty in manufacturing continues to be the all-important factor in the mechanical pulp market. Grinders are prevented from operating their plants at capacity by the shortage of rolling stock in which to haul wood and other raw materials, while the scarcity of experienced labor also is an ever increasing source of trouble. Nevertheless, the market is steady in tone and the business transacted is said to be of fair volume. Newsprint mills are buying in good quantities, it is said, and other consumers are finding it necessary to enter the market for spot supplies from time to time. Quotations remain nominally unchanged, the most common price asked being about $42 per ton, f.o.b. at the grinding plant. In the West, prices range from $43 to $46 per ton, depending on the quality of the stock and the amount involved. For the East, the figures are $41 to $44, f.o.b. pulp mill.

The cotton rag market rules steady in tone and trade of some volume is current. Manufacturers are reported to be continuing to restrict their purchases, yet are taking moderate quantities of stock and sufficient business is passing to give the market a fairly active complexion. With roofing rags on the decline, there is a resultant strengthening tendency apparent in the better qualities of stock, yet the situation is really so uncertain that there has, as yet, been no actual improvement in quotations on any description of rags. Dealers are of the opinion that the prevailing easiness in the roofing market is unnatural and cannot last under existing conditions and are, therefore, basing little hope that the high grades of rags will advance until such time as when mills enter the market for a period of active buying. Sentiment has been prevailed upon to such a large degree during the last few months and has failed to create such changes as were anticipated that the great majority of factors have definitely discarded all dependency upon such causes. Thirds and blues are in moderate demand at present, with quotations being held at up to over 3 cents; No. 1 white old rags are quoted up to over 5 cents; mixed satinets are being held for more than 2½ cents; black cotton stockings, for up to 2¾ cents; street soiled whites, for up to over 2¾ cents.

New cotton rags are characterized by quietness, supposedly reflecting the situation in writing papers of the higher grades. However, some transactions are being accomplished but the aggregate movement of stock into consuming channels does not amount to much, as it is said the mills are buying on a more conservative scale and only when directly in need of supplies or else when enabled to pick up stock they cannot afford to overlook. Most of the new rags now held by local dealers or packers in high-priced stock, and this must be taken into consideration when figuring out the future of the market. It is not surprising that so few white shirt cuttings, for example, are be-

ing offered at prevailing quotations, when the packers themselves are said to have paid dearly for their supplies and selling would, they say, necessitate a loss on the investment. White shirt cuttings are freely salable at present, but only at such prices as manufacturers are content to offer, which dealers consider unsatisfactory. Washables are moving in a quiet way, while some call exists for new light silesias, and light seconds.

The Jewish holidays had somewhat of a quieting influence on the waste paper market during the past week. However, there is still a certain firmness about conditions that shows dealers have some hope for a quickening of activities soon. Low grades of stock are still the most actively sought. Mixed paper and news are moving and at very steady quotations. Still, there is a certain degree of uncertainty prevalent in the market which is clearly reflected in the tone of the situation. Brokers and dealers of stock are disappointed, they say, with the lack of demand for this time of the year and are much perplexed over what is going to take place. It was believed by many that by September things would be in good shape, yet thus far, there has been little in the way of brisk business and what the latter half of the month will bring forth is a matter of considerable conjecture. The high grades of waste paper, in particular, are said to be dull and it is reported to be difficult to dispose of them in any large bulk regardless of the prices asked. Flat stock is in light request and sales are scattered and of limited tonnage. Shavings also are affected by the same degree of quietness, and are quoted up to 4¾ cents, for No. 1 hard white. Soft white shavings are said to be holding at 3½ cents and over; over-issue magazines, up to over 2 cents; ledgers and writings, up to over 2¼ cents; No. 1 manilas, up to over 1 cent; No. 1 krafts up to about 3½ cents for the best stock; folded news, up to over 1 cent; bogus wrappers, up to over 1¼ cents; over-issue news, up to over 1¼ cents; mixed papers, up to 80 cents per hundred pounds.

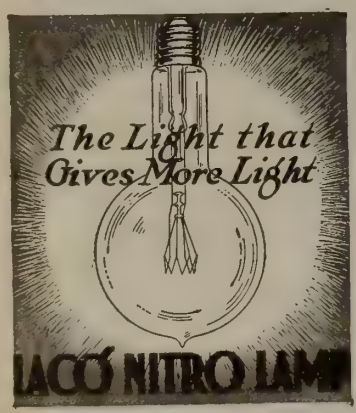
The demand for bagging is still mainly confined to roofing stock, and barring transactions in this grade, practically no business of consequence is reported. Manufacturers seem to have taken care of their requirements and are manifesting no interest in the market regardless of the prices that are being mentioned. Gunny stock is held for up to 4 cents. The market for old rope is somewhat quiet, there being no appreciable improvement in the demand. Some few consumers are inquiring for supplies and are buying here and there in restricted volume. It is understood that slight concessions have been made by dealers in order to keep their stock moving. Quotations are up to about 6¾ cents.

Another shiver was sent down the backs of those in the paper market during the past week when the report was received here of the statement of Senator Fletcher, Chairman of the Congressional Joint Committee on Printing, in which he states that "it is extremely gratifying that the Government is at last to enforce the price fixed (referring to news) upon as fair and reasonable, through an agency of the Government. I am hopeful that the enforcement of the Federal Trade Commission's price for newsprint paper furnished to the Government will speedily bring about the fixing of that price for the newspapers of the country, to a large number of which, the Trade Commission reports, the increased price maintained by producers means a 'difference between a living margin or complete ruin of their business and suspension of their publications'."

This was not in the least soothing to paper men. Another fact that has been received with not a little discontent, is the manner in which the protest of the International Paper Co. thus far, has evidently been put aside, with the lame excuse that the Trade Commission has presented all of the facts that were necessary. As Mr. Fletcher states, "the Federal Trade Commission gave its decision on August 15 that the increase over 2½ cents a pound was not justified, nor is the price of 3 cents a pound fair and reasonable for newsprint." According to Mr. Fletcher, the commission estimated that a price of 2½ cents a pound would give the International a margin of approximately $5 a ton, or over 10 per cent profit. This is the sort of figuring that the paper men are afraid of. Everywhere it is agreed that news can not be made and sold at 2½ cents at a profit and yet, actual figures showing that it is possible are submitted by the Federal Trade Commission. It is understood that, for all this, the demand for newsprint continues fair and seems to be on the verge of taking on greater volume. The other paper markets are picking up somewhat and are preparing for improved business. A new phase



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Before any parcel of timber is offered for sale it shall be surveyed by a duly qualified Dominion Land Surveyor into berths of an area not exceeding twenty-five square miles, and each of such berths shall then be thoroughly cruised by a duly qualified timber cruiser in the employ of the Dominion Government. The Minister shall then fix an upset price at which the berth shall be disposed of, and no berth shall be sold at less than the price so fixed.

Purchases to the amount of one thousand dollars or under shall be paid in cash at the time of sale. Purchases over one thousand dollars and not exceeding five thousand dollars shall be paid one-half in cash at the time of sale, and a note or notes shall be given for the remaining half of the purchase price, payable in three months, with interest at the rate of five per cent per annum. Purchases over five thousand dollars and not exceeding ten thousand dollars shall be paid one-third in cash at the time of sale, and notes shall be given for the remaining two-thirds of the purchase price, payable in three and six months, with interest at the rate of five per cent per annum. Purchases exceeding ten thousand dollars shall be paid one-fourth in cash at the time of sale, and notes shall be given for the remaining three-fourths of the purchase price, payable in three, six and nine months, with interest at the rate of five per cent per annum. Notes shall be made payable at a bank in the city or town in which the sale is held or at a bank in the city of Ottawa. Cash payments must be made at the time of sale in legal tender or by an accepted cheque on a chartered bank, or by a draft issued by a chartered bank, payable to the order of the Deputy Minister of the Interior. If default is made in any payment required by this section the sale shall be forfeited and void.

The purchaser must also pay the cost or the estimated cost of the survey of the berth before a license is issued.

The licensee shall pay an annual ground rent of five dollars per square mile except for land situated to the west of Yale, in the Province of British Columbia, in which case the yearly ground rent shall be five cents per acre.

The licensee shall pay the following dues on timber cut on his berth:—

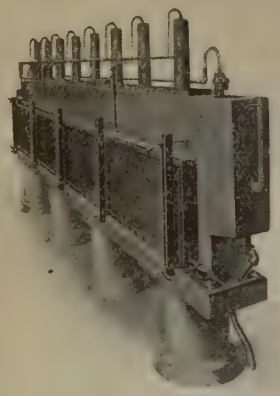
Sawn lumber , 50 cents per thousand feet board measure.
Lath, 15 cents per thousand.
Shingles, 15 cents per thousand.
Piling and cribbing, ½ cent per lineal foot.
Railway ties, 8 feet long, 1½ cents.
Railway ties, each lineal foot over 8 feet long, ¼ cent.
Shingle bolts, cut within the Railway Belt of British Columbia, 25 cents per cord.
Cordwood, 15 cents per cord.
And 5 per cent on the sale of all other products of the berth.

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Department of the Interior, Ottawa. Deputy Minister.



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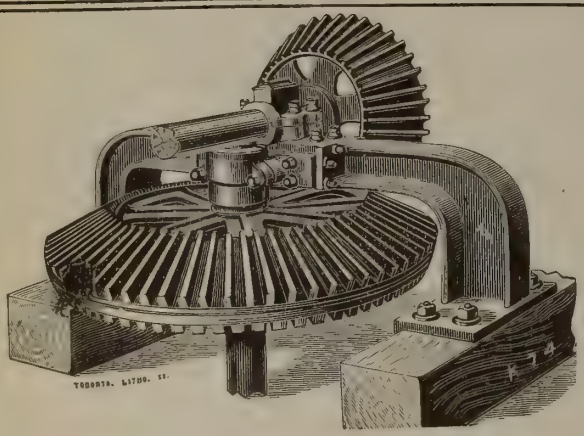
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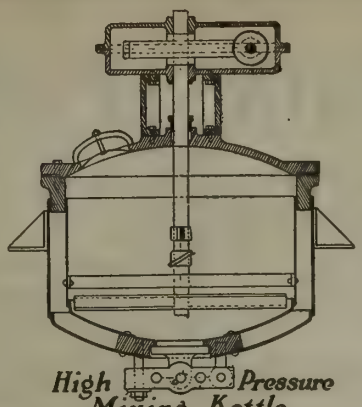
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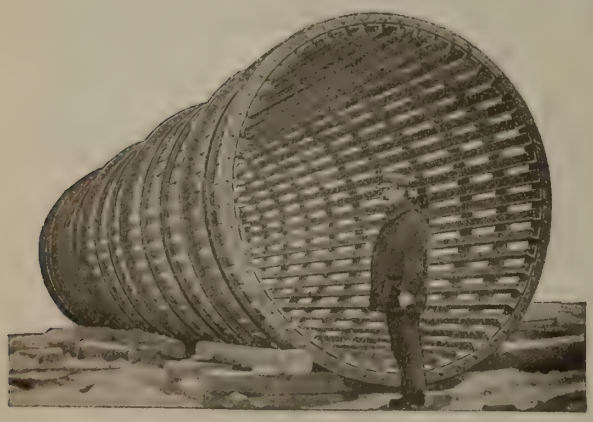
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EDITORIAL

THE I. W. W.

All good labor organizations will unite in condemnation of the plottings of the International Workers of the World, whose activities throughout the United States are seriously interfering with the preparations for the war. No person questions the right of labor to organize. Much has been accomplished through the efforts of organized labor. Such organizations have secured shorter hours, better pay, more healthful surroundings, and, in brief, a better treatment for employees and a more satisfactory relationship between capital and labor. However, when organized labor oversteps the bounds and resorts to dynamiting, to terrorizing and interfering with those willing and anxious to work and perform their duties, it is time for the Government to interfere.

In the United States the activities of the I. W. W. have become notorious. Apparently there is nothing at which they will stop. Their activities have extended from lumbering operations on the Pacific coast, where they are impeding shipbuilding, to interference with mining operations throughout the Rocky Mountains, criminal acts in connection with the farm labor question on the prairies and treasonable deeds in connection with munition makers, textile workers and others in the east. A few days ago the Government carried out a simultaneous raid upon the various state headquarters of the I. W. W. and seized a lot of seditious and treasonable literature which showed that these so-called leaders in the cause of freedom were more or less in close alliance with German plotters, the greatest foes of individual freedom in the universe. It is now believed that the United States Government have sufficient evidence to convict the leaders and to effectively check the power of the organization to do any harm to the industrial life of the nation. Some 166 of the leaders are now in jail.

A short time ago efforts were made by the I. W. W. to carry on a propaganda in Canada, but fortunately effective measures were taken at once, with the result that nothing came of the movement. This war is a war for freedom, and capital and labor must unite to make the world safe. The real labor element has done its part nobly, not only in Great Britain and France, but in Canada and the United States. The better thinking of the labor element can have no sympathy with the plottings of such as the Industrial Workers of the World.

TRAINED WORKMEN.

"For the first time in the history of Canada thousands of our workmen have learned what the thousandth part of an inch means." This statement, made by one of the shrewdest and best informed business men in the country, pretty nearly sums up the new status of the Canadian workman. Undoubtedly the making of munitions and of high explosives calls for exactness, skill and application, qualities which too often were lacking in the old care-free pre-war days.

The war undoubtedly has been costly in men, money, and material resources of every kind, but out of it all the nation will learn some very needed lessons. Undoubtedly, Canada is being equipped for the commercial struggle which will follow the signing of peace. Instead of being merely content with catering to our home market, and even but poorly supplying that field, our manufacturers will go abroad and seek larger markets and there compete with the workmen of other lands. The war has forced us to put first things first, and to a very large extent to place men and movements in their proper perspective. In addition we are launching out into new enterprises and manufacturing articles that we thought impossible a few years ago. For example, in the field of chemistry we are no longer dependent upon Germany for our chemical products, our dye stuffs, or our high explosives. The same is true of many industries. Instead of the old haphazard method of turning out our products, we have come to put a proper value upon the work of the chemist, and the achievements of the technically trained man.

It is to the credit of the pulp and paper industry that they have been leaders in the placing of proper emphasis upon laboratory work, and as a result of this emphasis the paper men of the Dominion are among our most important exporters. They make paper that competes in the markets of the world. If the same skill and exactness is adopted by our steel manufacturers, by our textile mills, and by all the other great manufacturing establishments there is no limit to what the Canadian manufacturer and his technically trained workmen can achieve.

There were eight graduates of the pulp and paper department at the University of Maine in attendance at the Technical Association meeting last week, Technical education is growing.

THE CONVENTION IDEA GROWS.

From a few men with an idea three years ago, to an association of 350 members, is the record of the Technical Association of the Pulp and Paper Industry. The Technical Section of the Canadian Pulp and Paper Association has in the same time grown to about one hundred. When one stops to consider the relatively few technical men employed in the industry, and the comparatively recent advent of the chemist and engineer in the paper mill, the development of these two organizations is the more remarkable.

The life of an association or society is largely dependent on its meetings, just as the life of a church depends on its services. Any organization of men that lacks the vitalizing contact of the members with each other can not long survive. The attendance of the technical men of our industry at the meetings has more than kept up with the growth of the associations. This is an indication of a very important fact; that the pulp and paper manufacturers are beginning to appreciate the folly of hermit ideas of the middle ages and appreciate the advantages of discussing matters of common interest. Everyone in the mill cannot attend the meetings of the technical men, but there is someone in each mill who can understand the papers and discussions, and who should go to the meetings. The number of superintendents and managers at the Holyoke meeting last week was very gratifying.

The outstanding features of the convention were: 1, It was an international joint meeting with the Canadian Technical Section. 2, The generosity of the paper makers in providing entertainment. 3, The manner in which practically every mill in Massachusetts was open for inspection by the visitors.

The very close and cordial relations between the Americans and Canadians were evident on every hand. Neither tariff nor boundary line had any place in the discussions. Problems of raw material, labor, testing and analysis, etc., were talked of freely, to the advantage of all and without possibility of harming anyone.

The generosity of the paper makers of Western Massachusetts was a source of unending wonder. It included five complimentary luncheons and dinners and many other courtesies. There is probably no other section in the country that could afford such a lavish entertainment. It is to be hoped that the courtesies extended to the technical men will not develop a sort of competition for records of entertainment. Let each centre do what it can comfortably afford. It is the spirit that counts most.

The cordiality of the welcome to Holyoke was evident throughout the convention. What are considered the most conservative mills in the country opened their doors wide and showed **almost** everything they had. We say that because we know of a process used in one of the plants that was not in evidence, though apparently no effort was made at concealment. Having a secret did not prevent a cordial welcome and an interesting visit.

The convention spirit was well expressed by Mr. C. A. Crocker at the banquet. "What is good for the industry is good for me."

THE NATIONAL EXPOSITION OF THE CHEMICAL INDUSTRIES.

(Special to Pulp and Paper Magazine.)

The chief thing that is troubling the dye and chemical industry to-day is the difficulty in getting machinery, according to the general opinion of the big dye exhibitors at the third National Exposition of Chemical Industries, which opened on Monday of this week at the Grand Central Palace. Expansion seemed to be the keynote everywhere among the exhibitors interviewed by our correspondent. Practically all of those catering to the paper trades announce that they are working on new dyes, planning increases in production, ready to add whatever capital is needed—but they say that progress must keep pace with their ability to get the proper machinery which is rather slow at the present moment.

The general endeavor seems to be to cover all, or as many of the phases in which the Germans have excelled, to make it possible for the paper manufacturer to take care of all of his needs in this country —and there seems to be no question in the minds of the various chemical men at the exposition that indications in this direction are certain. The exposition, so far as exhibits are concerned, met all expectations. The three big floors of the Grand Central Palace were all occupied, demonstrating a marked increase in the interest that was shown last year and which was then considered as being splendid. Somewhat different from the average industrial exposition, there were quite a number of exhibitors who maintained that they were not in a position to take any business for immediate delivery or to be handled within a short time — they said they were on hand merely to aid in manifesting the strength of the industry. Those who have increased their capacities, assured that they are having little difficulty in disposing of their additional production. In a few instances, reports of a slack summer were heard, but it was stated that advantage had been taken of this fact by stocking up as much as possible, having full confidence in an active fall season.

FIREPROOFING PAPER.

In a recent patent for fireproofing muslin and other finished goods, a neutral fireproofing is used with the finish. For papers, suitable solutions are: (1) 125 grams of ammonium phosphate, 7 grams of boric acid, and 10 grams of sodium tungstate per litre; and (2), 125 grams of ammonium sulphate, 15 grams of sodium borate, 5 grams of boric acid, and 15 grams of sodium tungstate per litre. The solution is added to the finish in the proportion of about one to four.

Paper saturated with a solution of ammonium phosphate, 40 parts; ammonium sulphate, 40 parts, and magnesium chloride, 10 parts, is practically fireproof.

Asbestos, borax and alum, in the proportions, 2 pounds, 1 3-5 ounces and 3 ounces can be added to each 2 pounds of paper pulp.

The Turnover of Labor as an Accident Hazard, with a Few Suggested Remedies*

By A. P. COSTIGANE.

This important factor in industry is rapidly coming the front and being studied by some of the large ncerns with the object in view of stopping a leakage ich in recent years and with the great influx of en labor, has attained far greater proportions than er before.

In order to study this problem intelligently, let us go ck to an earlier period in the history of industrial velopment and endeavor to trace the causes that ve brought about the ever-increasing instability of or. Not so many years ago the industries of most ntries were largely in the hands of the commercial middle classes who operated in a comparatively all way as private concerns. The employer or ster as he was then called, was in close touch with ery one of his employees, knew them by name, knew ir wives and all the members of their families. hen a lad was ready to leave school, he followed his her to the shop and was enrolled as an apprentice to ve the usual period of apprenticeship ruling in the de of his choice. During this apprenticeship, his ployer followed the progress of the learner and enraged him to master the intricacies of the business m the practical aspect so that when his time expired would be an all round journeyman tradesman. Unss the lad was of an adventurous disposition, the nces were that he would, when his apprenticeship s over, get married and settle down as a journeyman the shop in which he learned his trade, very often rking side by side with his father and other reives. Employers in those days were men of broad npathies and realized their responsibilities as teach- of the rising generation, and it was their pride to n out apprentices who were fully equipped to hold ir own in excellence of workmanship with the desmen of other towns or countries. So great an inest did some of the employers take in their prentices that they devoted one or two nights a week teaching them the theoretical side of the business. was no uncommon thing for the master of an eneering and millwright shop in the evening to inuct his apprentices in the rudiments of mechanical awing, geometry, the steam engine and other subts bearing on the industries, and the time so devotwas given gladly for the benefit of his boys. Such ditions ruling, one can understand the "esprit de ps" which then existed and which the writer has en heard voiced by men up in years, talking in a dly reminiscent way of the old masters and the old ps under whom and in which they had served their prenticeship. Tradesmen turned out in these old ps and under such favorable conditions proved mselves worthy of the training they had received. ese men were not one operation men but men quali- to perform any work connected with the trade. to do it well.

*Paper read at the Annual Convention of the National Safety Council held at the Hotel Astor, New York, September 11th to 14th, 1917.

As time went on competition became keener and the necessity of reducing production costs gave rise to the growth of large corporations or limited liability companies. The United States led the van in the establishment of huge industrial concerns run on scientific principles. This method of production spread to other countries until now it is almost universal in the leading industrial nations. With the advent of large combines, the personal relationship between the employer or company and the employees, gradually became strained and ultimately the bond of union disappeared. This condition of things was brought about through various causes, the two most important being the absence of personal touch between capital and labor and the growth of socialistic sentiment amongst employees. The strained relationship soon widened into a distinct chasm between the two classes until each other looked on the other as natural enemies. The employer looking on the employee as more or less of a machine from which the largest production had to be obtained at the minimum expenditure, and the employees looking on the employers collectively as a class from whom as much had to be forced as possible in exchange for as little labor as they could get away with. Following this attitude of capital, which, I am glad to say is becoming more and more a thing of the past, and somewhat forced by the employees, officials, superintendents and foremen became a buffer class between capital and labor and gradually assumed a coercive attitude towards the people under their control. The growth of this feeling on the part of officials is not hard to understand, badgered as they were on one side by a balance sheet management and constantly urged to increase production and decrease costs, and on the other hand opposed by the veiled hostility of the employees who aimed at decreased production. The old system of apprenticeship was more or less departed from and no system introduced to take its place; the result is now being felt in the dearth of skilled men. The Mills and Foundries are full of men who only know their own little bit without appreciating the inter-relationship between all operations to make a satisfactory product.

This lack of all-roundness on the part of employees is responsible for much unnecessary waste of material. Responsibility for this state of affairs does not lie with employees but with the system or rather the absence of system of training. If a man has not served an apprenticeship to his trade, passing through all departments, and there is no outside means of learning, how can he be expected to have even the most rudimentary knowledge of other operations, and what bearing these other operations have on his own? The fact is no scientific method of training has been adopted and employers and employees suffer alike from this want. The employers constantly deploring the fact that good men are so hard to get and employees who have been years in the mill, deplore their inability to fill executive positions when these become vacant, hence considerable dissatisfaction on the part of employees with

existing conditions tending to increase the labor turnover, this dissatisfaction would be greatly relieved if men were better qualified for their work and competent to hold better positions.

As an accident hazard, the turnover of labor and lack of training is very serious and merits the most careful consideration of every Mill Manager. Looking over a batch of sixty-five (65) accident reports that came to my hand recently, I was astonished to find that the percentage of accidents to persons less than three months in the service of the company, worked out at 56%, and in the case of one mill as high as 75%, proving conclusively that green men are a menace to the whole industry. Granted that labor turnover is a serious factor, how can the conditions be remedied?

(1) By the careful examination and selection of applicants for employment.
(2) By rudimentary education for non-English speaking employees,
(3) By the abolition of indiscriminate firing,
(4) By vocational training,
(5) Promotion policy.

Careful Examination and Selection of Employees.

The careful examination and selection of employees can do much to reduce the turnover of labor. Looked at from the point of view that there are so many positions in the plant to be filled and each position requires certain qualities in the employee; the person in charge of the Selection Department must have an intimate knowledge of the requirements of the position to be filled so as to enable him to make a quick and intelligent selection of a human being to fill any position becoming vacant. When applicants for employment come to the office it is desirable that they, if they cannot be interviewed immediately, should be shown into a room where they can be comfortably seated and when there are more than one, each individual should be interviewed in a private enclosure away from the sight and hearing of other applicants. When interviewed privately, an applicant will speak more freely and give a better outline of his experience and ability than he would if speaking at a wicket and overheard by others. Courteous treatment of applicants should be considered one of the fundamental qualifications of all connected with the Selection Department as the creation of a good impression on an applicant will, when the applicant becomes an employee, be the seed from which should spring a strong feeling of loyalty to the Company.

Careful selection will also relieve superintendents and foremen of much unnecessary worry. One can sympathize with the foreman whose only means of securing labor is to rush down to the time office and grab the first applicant he sees, guided in his selection more by eyesight than anything else. The foreman has not the time nor the training to make an examination, and trusts entirely to that most expensive of methods, "the trying-out process."

Rudimentary Education Amongst Non-English Speaking Employees.

Inability on the part of employees to speak or undestand English constitutes one of the most prolific causes of labor unrest as well as one of the gravest accident hazards. No matter how painstaking and conscientious a foreman may be, he cannot devote the time to explain in detail all the duties of a new employee's position, especially when the new man has only a limited understanding of English and nods his head or answers "yes" emphatically to all that is said to him, whether he understands or not. Difficulty with the language is often the cause of senseless practical jokes being played on the new man by older employees, even those of his own country who have advanced in acquirement of the language. Foreigners unacquainted with the language seeking employment are under a grave disadvantage; they are sensitive as to their deficiency and out of this feeling arises the deception they practice in professing to understand instructions, the nature of which they have not grasped. One can readily understand the grave danger such men are in any factory, not only to themselves but also to others. A study of accident returns shows a large proportion of industrial accidents are due to foreigners not understanding the instructions of the foreman. This is a serious accident hazard that must be eliminated. Wherever foreigners are employed, provision should be made to teach them the language.

An elementary school should be available no matter how crude, a suitable person selected to give instruction and notices posted intimating that promotion could only be looked for if proficiency in the language was attained. Most foreigners are sensitive and anxious to get on and I am sure where schools or instruction classes were formed, they would be well attended.

Employers are beginning to realize the necessity of teaching their foreign employees the English language and at the same time teaching them to understand something of the standard requirements of a Canadian citizen. Great progress has already been made along similar lines in some of the large industries of the United States, but so far little organized effort has been made to tackle this problem in Canada. It only requires that this problem be placed fairly and squarely before the leaders of industrial progress in Canada for them to grasp the far-reaching possibilities in the amelioration of the present dangerous conditions attached to the employment of non-English speaking labor. Judging from conversations I have already had with some of the leading employers, I am sure that the next twelve months will show rapid progress in elementary education, making for increased efficiency and greatly reducing the present accident hazard.

Abolition of Indiscriminate Firing.

The question of indiscriminate firing is a most important one involving as it does injustices of all kinds and is the true cause of much unrest amongst the relations, fellow countrymen and friends of the unjustly discharged employee remaining in the factory, months after the same employee has departed. Of course it is an easy matter to blame the foreman, but is the foreman really to blame? These men are required to perform a multiplicity of duties including a general supervision of their department down to the minutest detail, looking after stock, adjusting wages, keeping up discipline and not by any means the least irritating, answering complaints from the office without being given proper time to investigate such complaints. Is it surprising that a man subject to all this should on occasion, out of mere weariness of spirit and irritation, unnecessarily discharge the first employee who gives him the opportunity? If the duties of hiring and discharging are to be vested in the foremen then foremen should be trained to perform those duties in a sympathetic and intelligent manner. It is the custom

most industries to make the best operator foreman, respective of the lack of other qualities necessary r the position. It is a debatable question if a good perator will make a good foreman; being able to do a ing so well himself is apt to make him impatient with hers who have not reached his degree of proficiency.

Another prolific cause of petty injustice is the reli- ous question. Many a good man has been hounded it of his job through the intolerance of his fellow nployees whose persecution was all the more vi- lent because of the knowledge that their foreman as as narrow-minded as themselves. Any foreman uilty of or tolerant towards religious persecution, ould be dispensed with immediately; the fact of his ooping to such petty bullying brands him as not road-gauged or enlightened enough to be trusted ith authority of any kind. Indifferent selection is also sponsible for much injustice. A new man is rought into the factory and placed on a job for which e is not at all suited. Naturally he turns out unsatis- ctory and is discharged after having cost the firm considerable sum of money. No thought is given to he fact that there may be numerous positions in other epartments in which the unsatisfactory man may be- ome an expert and be a real asset to the company. he establishment of a Selection Department under he control of an experienced and generous minded tudent of human nature, is the only cure I know for he unnecessary sacrificing of human beings on the ltar of intolerance and inefficiency. Under no cir- umstances should a discharged employee be permitted o leave the factory without being interviewed by an nbiased official; by so doing many abuses come to ght that would otherwise be hidden from the know- edge of the management.

Vocational Training.

This is a question that is of vital interest to Canada s on the development of vocational training the whole ndustrial future of the country hinges. As I said pre- iously, the old form of apprenticeship has to a great xtent been abolished and no system introduced to ake its place. Is it fair to the rising and future gen- rations that they should be made the victims of the present haphazard methods of education? Is it fair hat children after attending school for seven or eight ears should at the end of that period be thrown on he industrial labor market without any idea whatever s to the industry which would best develop their lat- nt talents and give them the best opportunities for dvancement. Ask any child who has just left or is preparing to leave school, what they are going to do nd in nine cases out of ten, the answer will be "get a ob." Our educational system requires reconstruction nd reconstruction should include study of the children y the teachers. Progress should be noted as also the peculiar talents of each child; a periodical report should be issued by the schools to the parents so that when the time comes to leave school, parents, guided by he accumulated information obtained from the school reports, will be in a position to advise as to what in- dustry their children should follow. If such a system was adopted a choice of vocation should be made with ome degree of intelligence and the last two school ears could be devoted to special industrial training n a technical school. Following this a modified form of apprenticeship could be adopted in the factories which would give the learners the opportunity of pass- ing through all departments. In cases where special talent was observed, further instruction could be given in the higher branches through the medium of technical schools or universities; thus there would always be a proportion of young people coming forward out of whose ranks suitable material could always be found to fill executive positions. This principle is intensively democratic, being based entirely on individual worth and ability, and would give everyone entering an industry the same opportunity by perseverance and application, of rising to higher positions. The Pulp and Paper industries of Ontario are rapidly realizing the needs of the times and industrial training will soon be receiving the attention it merits. Last winter at Thorold industrial classes were begun and in spite of inadequate equipment and other disadvantages, considerable progress was made in the following subjects: English, Mechanical drawing, Chemistry and Electricity. The Educational Committee of the Technical Section of the Canadian Pulp and Paper Association, realizing that technical education is receiving very little attention outside of Toronto and some of the other large towns, are earnestly working for the fugrtherance of industrial education in rural industrial towns. At Thorold enlargement of the curriculum has been provided for and cooking and dressmaking classes will now be included. Arrangement has also been made for additional equipment and great improvements are to be made in conditions in general, making the classes much more attractive and efficient. Various methods of training are under consideration such as:—

(1) Part time service in the mills and part time technical school instruction with provision for service in each department,

(2) Encouraging the employment in the mills during vacation months of technical school students,

(3) Introducing a policy of promotion in the mills whereby proficiency attained at industrial night classes will be recognized and rewarded.

Speaking generally, some form of apprenticeship is necessary whereby the apprentices have the opportunity of becoming familiar with the operations of each department. One of the greatest marvels of the present war was the ability of Great Britain to double and treble the output of munitions in a years' time. What made this possible? — The apprenticeship system under which nearly every man is trained to be competent to take a higher position. When the crisis arrived and the metal industries were inundated with a flood of green labor, both men and women, a proportion of journeymen were distributed among new factories and converted factories. These men acted as instructors and in a very short time the green laber was so well organized and taught that output increased by leaps and bounds. To my mind the apprenticeship system of the Old Country has more than justified its existence, and I am sure a system somewhat similar, amended to suit conditions, could with great advantage be introduced into the industries of Canada.

Promotion Policy.

In talking of promotion, I include not only a step up to a higher position but also promotion by increase of wages as a reward for increased efficiency in the same job. The policy of never increasing an employee's wages until forced to do so, is one of the most short-sighted that can be perpetrated by the management of any factory. Take for example the case of a bright,

intelligent young man starting in a strange factory at a low wage. After getting accustomed to the surroundings, his value to the Company increases rapidly in the first month or two. He is conscious of his increased efficiency and works hard for promotion. The Company not having taken the initiative, he approaches his foreman for an increase and more often than not is put off with some indefinite promise for the future. What is the result? He either becomes indifferent or if of stronger fibre, looks round for a position elsewhere in which better remuneration is to be had. Thus the firm who have paid the initial cost of breaking in, lose what they have expended and at the same time lose an employee who would rapidly become expert. How much better would it be to reward merit by an unsolicited increase in wages, thereby encouraging employees to continue to do their best and binding them to the factory by the sure knowledge that they will be treated justly by the management. Any student of human nature must be aware that an unsolicited increase causes a warm feeling of satisfaction in the recipient and the knowledge that progress is being observed and appreciated will act as a stimulant to further efforts. Where this feeling of loyalty is fostered, the problem of labor turnover is well on the way to solution. The bringing in of outside men to fill vacancies as foremen, etc. should never be resorted to except in exceptional circumstances. During a ten years' experience of factory management and having tried both methods, my conviction is that it pays better to promote an employee than to bring in an outsider. In the former case the new foreman receives the congratulations of his co-workers, is loyally backed up, and the feeling of satisfaction amongst the other employees that one of their number has been selected as foreman, goes far to make things go smoothly. In the latter case an outside man although he may be better qualified, invariably creates a feeling of coldness and distrust among the employees, who consciously or unconsciously do many things detrimental to his interests and authority. To make good under such circumstances, an outside man must have special ability and great tact, by the exercise of which he will gradually win the confidence and respect of those under him. Invariably, however, such conditions lead to wholesale dismissals by the new foreman before he feels he has a grip of his department.

Conclusion.

An important development in the administration of the Workmen's Compensation Act of Ontario may help to focus the attention of employers on the labor turnover as an accident hazard. At the present time the system of assessment is based on the division of industries into classes, each class being assessed separately at so much per $100.00 of payroll. The monies so collected forming pools, a separate pool for each class, out of which all accident compensation is paid. It was felt that an element of injustice existed as firms who were active in accident prevention received no better treatment than other firms who were non-progressive or indifferent. It is now proposed to adopt a merit rating scheme under which the whole environment of each plant will be taken into consideration and questions such as accident record, organization for accident prevention, turnover of labor, proportion of non-English speaking employees, etc. will receive careful consideration when fixing the amount of assessment.

The conditions in the Pulp and Paper industries in Canada could be greatly improved, this state of affairs having been brought about by various causes, some of which I will enumerate:—

(1 Lack of systematic industrial training,
(2) Scarcity of qualified teachers,
(3) The ability to draw skilled men from other countries.

After the present war is over indications point to the advent of one of the greatest trade booms the world has ever experienced and woe beside the country that lags behind in industrial training and all that it implies. Canada up to the present has been fortunate in being able to draw skilled labor from other countries such as the United States, Great Britain and France, but these countries now and probably for some years will require all their own skilled men, so Canada will require to face the problem of training her own skilled labor. The educational system of the country requires careful reconstruction, particular attention being paid to securing an adequate supply of competent instructors by offering salaries large enough to attract higher grade of intelligence, and with opportunities of promotion which will make it worth the while of bright students to adopt teaching as a career. Too many members of School Boards as at present constituted, are men whose families are beyond school age and they themselves beyond the age of usefulness, and so they have not a direct personal interest in education. It would make for efficiency if such men were removed from the Boards and their places taken by men whose families were attending public schools. These latter men would be interested in securing the best education possible as the prospects of their own children would be involved. Greater proportion of representatives on the School Boards should be women, not the variety seeking after notoriety, but mothers who are keen and ambitious for their children. Who is it that thinks most of the future of the family and has the least to say in the matter? Why the mother. Who is it that is most ambitious for the family and works year after year unselfishly to promote their interests and prospects? Why the mother. Then the mothers should be well represented on the School Boards by mothers.

The excellence of organized effort, the triumph of ability over influence and the unwinding of red tape so evident in Great Britain and France at the present time, is going to have great industrial influence after the war. The men who are in the heart of things when they return to their places in industry, will not be satisfied with inefficient methods but will introduce scientific principles such as they have used with such great effect on the battle-fields of Europe. In the efforts and influence of such men lies the industrial salvation of Canada. This will not be the last war; other wars will follow but the battles will be fought between armies equipped, not with heavy artillery, machine guns and poisonous gas, but with the most scientific tools of industry; the battleground will be the world's markets and the nations most highly organized, educated and trained, will win many victories, thereby leading the other nations and prospering accordingly. Now is the time for the industries of Canada to put their house in order that they may be ready to take the place, which the wonderful natural resources of the country entitle them to, in the world's march of industrial progress.

Technical Association Meeting a Complete Success

By A. I. WITNESS.

From the cordial and enthusiastic welcome of the reception committee at the Holyoke station to the last farewells at the mills in the Berkshires, the joint meeting of the Technical Association of the Pulp and Paper Industry and the Technical Section of the Canadian Pulp and Paper Association was a real success. The organization of arrangements by committees was as perfect as could be imagined and showed that an enormous amount of effort had been efficiently applied.

Most of the visitors arrived Thursday morning and were taken in automobiles to the splendid new Nonotuck Hotel, the headquarters of the convention. After breakfast and registration, the latter greatly simplified by the scheme of colored cards and tags adopted, the morning session was opened in the K. of C. hall near the hotel. In the absence of Mayor White from the city, President J. J. Osborne of the Board of Trade was introduced by President H. P. Carruth. Mr. Osborne quicly made the visitors feel that they were cordially and heartily welcome to Holyoke. Mr. Martin L. Griffin, of the Oxford Paper Co. was called on to respond for the Technical Association and Dr. John S. Bates of the Canadian Forest Products Laboratories and Chairman of the Technical Section, for the Canadian contingent.

Mr. Griffin began his career as a chemist in Holyoke and related in an interesting manner the difficulties of a consulting chemist in the go's. He told of the two early soda pulp mills who delivered bleached pulp around in carts. One of his print jobs was to make daily moisture tests. ome of his chemical predicaments were quite numerous as viewed in retrospect.

He spoke of the recognition of engineers in other fields and emphasized the work of the chemists, in such lines as Portland cement, iron, steel, etc. The relation of textiles to paper making makes a loom of a paper machine and a poor man's tapestry of wall paper.

Dr. Bates said: "Times have certainly changed. In the same town where Mr. Griffin started in with a fine chance of starving to death, we have all our wants taken care of by a committee. Twenty-five Canadians are here to prove our appreciation. The keynote of this convention is co-operation. Much can be accomplished by joint work of committees. On behalf of the Technical Section I wish to thank you for the welcome to Holyoke."

Among the committee reports, the following were submitted by members of the Technical Section.

REPORT OF COMMITTEE ON STANDARDS.

A Meeting of the Committee on Standard Methods of Testing was held on Monday, Sept. 10th, 1917.

This was the first Meeting of this Committee which had been appointed for the purpose of studying the various standard methods which are recommended and adopted by other organizations. The purpose is to determine which of these methods would be most suitable to recommend for the use of the Paper Trade in Canada.

At this Meeting two of the Directors of the Committee were unable to be present, viz. Mr. J. O. Mason and Mr. R. E. Cooper. The remaining members of the Committee, Messrs. Hovey and DeCew, did some preliminary work with reference to the sources from which the standard methods should be obtained, — it being generally agreed that the first duty of the Committee is to collect for further study and investigation the methods of testing which have been already standardized.

It has been ascertained that standard methods which might be suitable for our requirements can be obtained from such recognized societies as the American Society for Testing Materials, Society of Chemical Industry, The American Chemical Society and the Technical Association of Pulp & Paper Industry of the United States.

There are certain materials which are in general use by all manufacturers and the methods of testing these have been thoroughly studied and standardized by the American Society of Testing Material. These materials are Portland Cement, Quick Lime, Coal, Lubricants, Preservative Coatings, etc.

With reference to standard methods of water analysis this subject is being discussed at a special meeting of the Canadian Section of the Society of Chemical Industry to be held in Ottawa on Friday, Sept. 28th. The paper presented by Dr. A. McGill the Chairman of the Committee on Standard Methods of the Society of Chemical Industry in Canada.

Your Committee propose to co-operate with the above Committee in connection with any other methods they may standardize which might be of service to the paper trade.

With reference to the methods of testing these materials which are used almost exclusively by the paper manufacturer, it is the purpose of this Committee to maintain the closest possible co-operation with the general Committee of the Paper Section of the United States Paper Trade.

It will be the general policy of this Committee to recommend wherever possible, those methods which are most in harmony with the methods of other organizations. The object of having standard methods is to avoid confusion both in methods of working and results obtained. A standard method may not necessarily be the best method, but if it is sufficiently accurate for the purpose required and is in general use, then the benefits of standardization are obtained. After the best known methods to date have been chosen then there will be ample work for your future Committees dealing with this subject in the study and revision of these methods.

We propose at our next meeting to submit a list of the methods which have been fairly well standardized to date and the sources from which these methods can be obtained.

Yours truly,

J. A. DeCEW,
Chairman of Committee on Standards.

REPORT OF COMMITTEE ON TECHNICAL EDUCATION.

This committee has been giving its attention to the following points.

1. **Educational Survey.**—A questionaire has been sent out to all mills in Canada covering literacy language and school conditions in mills. This survey is not complete but gives following indications.
   Illiteracy is not so prevalent as supposed.
   There is need for special attention to English in many communities.
   The failure of mill authorities to take interest in educational work, results in lack of co-operation with local school boards for special vocational work.

II. **Room for Employees** to use for reading and study with equipment for writing and drawing and some reference books. Some mills have expressed the intention of installing such a room. Progress is being made and it is hoped that this will become a regular feature in mills.

III. **Special Work for Selected Men.** — Several mills have expressed a willingness to defray the expenses of selected men for special intensive courses at central technical schools. It is estimated that with a class of ten men the tuition and equipment would cost about $75.00 per capita for the three months' course. A special instructor would be attached and the class would work 5 to 8 hours per day, covering the elements of such subjects as Chemistry, Physics. Drafting. Arithmetic, and Mensuration with Writing and English.

IV. **Evening Industrial Classes.** — Some of the mills in towns where these are available and the Technical section are endeavoring to increase the attendance of mill men at these classes. A successful school of this kind was carried on at Thorold. Ont., last winter and enters on its second season shortly with installation of appropriate equipment for the different courses. In connection with this work the committee is considering the question of suitable text books to relate paper mill work to its scientific basis.

We cannot over emphasize the fact, indicated in our work, that the great majority of the executive heads of our industry do not look upon brains as raw material.

We have well organized wood supply, purchasing and sales departments. Each mill of any size should seriously consider a "brain supply" or education department.

The educational organization of our mill towns now is chiefly in the hands of men not directly interested in any industry and whose chief aim is to keep expenses down.

The industrial interests of the community should be represented by their own special nominees in local school boards.

Too often, especially in our mill towns the schools are very elementary and in the hands of the lowest paid and least experienced teachers. In these places need for good tuition is imperative as many of the pupils will be employed in the mill. Co-operative continuation classes should be organized in mill towns on the Cincinnati basis. The pupils graduating from the local schools could be paired off and work alternate weeks in the mill and class.

We cannot too strongly urge the need for increased practical attention to education work by the management of mills. It is not enough to say that the mill will be "behind" any move. This mill executive must be "ahead" of any such work. The community organization should be used. Its interest would be aroused by seeing the value attached to education by industrial executives.

Respectfully submitted by the Committee on Technical Education. Geo. Caruthers, A. P. Costigane, Dan Daverin, J. N. Stephenson, T. L. Crossley, Chairman.

OTHER COMMITTEE REPORTS.

For the **Executive Committee,** Mr. Ernst Mahler reported that a new form of membership is to be adopted. The qualifications are to be more rigid, in order to maintain a high standard.

In regard to local associations, it is the intention of the Executive to give full moral support and encouragement to any organization that will benefit the manufacture of paper. Emphasis was laid on the fact that PAPER is the official organ of the Technical Association (American) and as such is entitled to first right for publication of addresses at its meetings and reports of its committees.

Mr. T. J. Keenan, as **secretary-treasurer** reported a membership of 350, a gain of 42 in five months, and a very substantial balance in the treasury.

In the absence of Chairman Wolf, of the **Sulphite Committee,** Mr. P. A. Paulson made a few remarks on the Klason method for removing SO_2, sulphur, etc., from the sulphur dioxide. This report will be printed in full in an early number of the Magazine.

There was no discussion of Dr. Kress' report for the **Sulphate** Committee, nor of the report of Mr. Thickens for the committee on **Mechanical Pulp.**

Mr. Raymond S. Hatch reported for the committee on **Testing Materials.** He commented on the use of the ball mill for testing the strength of sulphite and explained that the indications of the ball mill test are borne out in the quality of the sheet. Temperature plays an important part in beating. A change from 60 to 80 deg. Fahr. means a loss of 2 to 6 per cent. in strength.

In reply to a question, Mr. Hatch said his laboratory thinks the ball mill will give satisfactory results, but the method can still be improved upon. It is necessary to clear the pulp of knots and to cut sheets a standard size. Variations in the moisture in wet pulp seem to have no effect. Work is to be done on comparing the strength of wet or air dry pulp with that dried by steam. The indications are that the latter is weaker.

Mr. V. E. Nunez reported for the Committee on **Abstracts** that a plan of co-operation with the Canadian committee had been worked out. The expenses will be divided equally between the two countries and additional magazines are to be abstracted. The corps of abstractors is pretty well organized. The abstracts are to appear simultaneously in PAPER and in the PULP AND PAPER MAGAZINE.

Mr. J. N. Stephenson was called on to speak for the corresponding committee of the Technical Section. He confirmed the statements of Mr. Nunez, and mentioned the advantage of an annual volume of transactions and of having original articles available to those

anting to read them after seeing the abstract. There as some discussion of the relative merits of the ard system of filing and of binding the whole page ith an index. The former would involve including classification number in the title of the abstract. his matter is to receive further consideration.

Reports were also submitted by the committees on oda Pulp, Paper Testing, Bibliography, Vocational ducation, and Heat, Light and Power.

At the afternoon session on Thursday, the following apers were read:

An Investigation of Stresses in Digester Shells, by rof. H. O. Keay, of the Laurentide Co., Grand'Mere, .Q.

A Review of Different Processes for Causticizing odium Carbonate Liquors, and the Separation of the ludge, by Martin L. Griffin, of the Oxford Paper Co., umford, Me.

A Method of Determining Moisture in Hydraulic ressed Lap Pulp, by J. B. Woodruff; read in abract only.

Clay Retention; Influence of Clay Concentration, lum Concentration and of Alum and Size, by Prof. ohn D. Rue, of the Fletcher Paper Co., Alpena, Mich.; ead by title only.

Some Observations on the Retention of China Clay y Paper Pulp, by Dr. Otto Kress and George C. Mcaughton, of the Forest Products Laboratory, Madison, Vis.; read by title only.

THE BANQUET.

Two hundred and forty-eight sat at the banquet on riday evening, given by the paper makers of Western Iassachusetts. H. P. Carruth, President of the Techical Association, started the ball a-rolling by calling



ARTHUR C. HASTINGS.

n A. C. Hastings, President of the American Writing aper Co., to act as toastmaster. It was while Mr. Iastings was President of the American Pulp and aper Association that a committee of one, in the perin of Henry Fletcher of Alpena, Mich., started the echnical Association. The toastmaster said he realled this beginning distinctly and was gratified with ie remarkable progress that had been made. This rganization of knowledge of the business is very important. He spoke of some of the duties of technical men. In calling on Mayor White, he carefully explained that his Honor had been arrested for speeding in New York and had to be bailed out at great expense.

THE MAYOR OF HOLYOKE.

Mayor John J. White, of Holyoke, disagreed with the explanation of his inability to arrive in time for the address of welcome in the morning. His explanation was that the driver was "pinched" for a collision, and the delay caused him to miss the train. He assured the visitors of the typical, cordial, Holyoke welcome and promised to keep them out of jail. The Mayor comes from a paper maker's family, and told of the vast quantities of paper that the neighbors used to make on the doorstep, when he was a boy.

His Honor stated that conventions of this kind are bound to do much good to each individual and to his concern. A meeting of men in a certain line of work gives ideas a chance to grow. We owe it to the industry to give ideas. The resulting combination amounts to something. We not only take away knowledge, but leave some behind. There is no need for jealousy. Competitors can and should be, friends.

The Mayor said he would like to see one word eliminated from business. It is spelled R-U-S-H, and pronounced "damn." When a job is rushed for one customer it is unfair to others, it upsets the factory, raises cost of production and is a general nuisance.

DR. JOHN S, BATES, OF CANADA.

Mr. Hastings said, "I have often looked across the line at 'Our Lady of the Snows,' and considered the water power and wood resources of the Dominion. A mill in Pennsylvania is getting wood from within 200 miles of Hudson Bay. We are honored with the presence of Dr. John S. Bates, Chairman of the Technical Section of the Canadian Pulp and Paper Association."

Dr. Bates remarked: "The growth of the two Technical Sections has been remarkable when you consider that they were formed only three years ago. Americans are learning about Canada, and it is a good thing. This is the first real joint meeting of the two technical organizations. The Canadians really want to co-operate with the American association. It is hard to know just where to start, but a beginning has been made. Co-operation can be effected and can be effective as separate organizations working together.

"I might say a word about Canada and war work. The chemical industry has grown enormously. There is now talk of mobilizing all technical men. No chemists would be exempted. They may be transferred to war work or left where they are if doing necessary work."

MR. GEORGE HARVEY, OF MIDDLETOWN, OHIO.

"The opening of mills for inspection is a marvel," said Mr. Hastings. "It speaks well for the future of the industry when we can come together on such a friendly basis. One of those whom we are glad to see back in Holyoke, where he made paper years ago, is George Harvey, of Middletown, Ohio."

"I was born under the Union Jack," Mr. Harvey replied, "and I am proud of it. Now I am proud of the Stars and Stripes. Every paper maker is proud of working in Holyoke. I take pride in my business. I have no sympathy for a man who does not like his trade. There is no business with more opportunities than the making of paper.

"The scarce thing in our business is not groundwood

nor sulphite, but men capable of running a mill. It is hard to get the young technical man and the old experienced paper maker to pull together. The old men are sensitive about having a young man tell them how. But we can learn from each other and we need to work together.

"The big problem is the human element, especially the attitude of manager and foreman. The old time driving of labor has passed. Your men must have the feeling that they are not working so much for you as with you. Give the young man a chance to make good and don't discourage him. Let promotion be made on ability and merit, and not because of favoritism. This will give you better men and there will be a better feeling among them. The foreman should not be allowed to hire or fire a man."

MR. BEHREND, OF ERIE, PA.

In introducing Mr. Behrend, President of the Hammermill Paper Co., Mr. Hastings referred to the competition between high grade and low grade papers and welcomed Mr. Behrend to the home of high grade papers.

Mr. Behrend referred humorously to the Strathmore Paper Co. as a competitor. He said, in part: "There is a side to your work that means more than actual knowledge. It is a man's attitude to his job. His worth, his salary value to the company depends on the manner in which his influence is for good or bad in the organization. The technical man and the practical man should think well of each other and make their differences a source of strength to the mill.

Labor records, curves and charts should be kept for each department. Any trouble can then be traced to its source and corrected, whether it be low wages, sanitary conditions, housing, too hard work, wrong type of man, etc. Not enough care has been taken in choosing men. From errand boy to fourth hand, get boys whom you want to progress with the firm.

We are too apt to neglect civic duties and legislation. The industry has not been treated fairly.

In closing I want to say that I am proud of my membership in this association. These conventions are a means of education and bound to broaden us and fit us for a larger work and bigger responsibilities."

MR. JAMES G. TAYLOR, OF HOLYOKE.

Mr. Taylor is known for his high grade paper and witty speaches. He told a number of good Scotch stories and then in a more serious vein, said that it is fortunate for the industry to be getting where rule of thumb is replaced by certain knowledge. He referred also to the fact that employers are encouraging their technical men to meet and swap ideas.

MR. C. A. CROCKER, OF HOLYOKE.

In introducing the last speaker, Mr. Hastings said that co-operation among manufacturers of fine papers is due mostly to C. A. Crocker, treasurer of the Crocker-McElwain Co.

Mr. Crocker said, in part: "It means a lot to have such an organization as this in the industry. When I think of the changes within the last 40 years it makes me proud of this industry.

The cotton men have reduced their business to a science. The Lowell Textile School and other opportunities for learning about textile manufacture have done wonders for that industry. I have visions of a similar school for paper makers.

We are going to have keener competition than ever before. The belligerent countries must get our gold by selling goods here. If we are going to compete with them (and not among ourselves) we must get our industry on a scientific basis and work for the industry. The key note of the future of our business is co-operation. There was opposition at first to the technical man in the mill from the business end, from the superintendent, and others, because he was new and not understood.

The opposition of the old line superintendent to the mechanical engineer or chemist was often because he had been the whole show and was prejudiced and jealous.

But the mills that have made the biggest success and the superintendents who have developed most took in the chemical man and worked with him. Team work is the basis of future success. We must think, not of the mill, but of the industry. What is good for the industry is good for me. That you technical men can meet here with the sanction and encouragement of the mills is an astonishing development and capable of bringing untold good to the industry.

My final word is—co-operate, and strive to make good on the Stars and Stripes."

With a toast to "The Boys in Khaki", the banquet was over.

One of the pleasant features of the banquet was the music. An excellent orchestra played some classical pieces interspersed liberally with popular tunes, to some of which were set new words, appropriate to the convention. Among these were the "Song of the Technicals," the "Song of the Superintendents," and the "Good Old Eagle A."

VISITING THE MILLS.

Friday dawned with rain but cleared before noon, so that there was no discomfort in getting around in the numerous automobiles to visit the paper mills of Holyoke. The following 12 plants were divided into 4 routes; those on each route visiting 6 plants: White & Wyckoff Mfg. Co., National Blank Book Co., Buchanan & Bolt Co.,—wire cloth, United States Envelope Co., Laboratory—American Writing Paper Co. Central Power Plant—A. W. P. Co., Hampshire Paper Co., Crocker Division and Linden Division—A. W. P. Co., Parsons Paper Co., Crocker-McElwain Co., and the Chemical Paper Mfg. Co.

THE ROOF OF MASSACHUSETTS.

After making the tours of the mills the guests were assembled at the foot of Mt. Tom and taken to the summit house on the cable railway. Although the air was still somewhat misty, a wonderful view was possible in every direction. An excellent dinner was served, during which several songs were sung. When the digestive capacity of the guests of the paper makers had been reached or exceeded, President Carruth introduced some novel features. He first called on representatives from the various States and Provinces to rise. Ontario, Quebec and New Brunswick were well represented. There was one man from Oregon and one from California, while the long distance record went to Mr. Rao, of Bangalore, India. Mr. Paulson motored from Appleton, Wis., and Mr. Fletcher from Alpena, Mich. The roll call by colleges showed that the great majority were college men.

The speeches were all extemporaneous. Some were called on in vain but the following responded: Mayor White of Holyoke, Mayor Battle of Thorold, Ont., Geo. Carruthers of the Interlake Tissue Mills, Thorold, Henry Fletcher of the Fletcher Paper Co., Alpena, Mich., Otto Kress of the Forest Products Laboratory, Madison, Wis., Fred Booth of John R. Booth, Ottawa,

Ont., W. F. Robertson of Hindsdale, N.H., and George Harvey of Middletown, Ohio.

THROUGH THE BERKSHIRES.

Early Saturday morning, with a beautiful day in prospect a string of automobiles started for the Berkshire Hills. The first stop was the fine new mill of the Strathmore Paper Co., at Woronoco. From there on it was mostly up hill to the top of "Jacob's Ladder," where a stop was made to get the view from the summit. At Lee some of the party visited the tissue mill of the Smith Paper Co.

An excellent dinner was served at the Maplewood, in Pittsfield. The accommodations were exceeded, so the overflow went to the American House. An early start was made for the Byron Weston mill, and the Pioneer mill of Crane & Co. The latter mill is making about 2½ tons a day, some contrast to one of our Canadian news mills. The Byron Weston mill is supplied with artesian well water at 48 deg. Fahr. the year around. Both these mills make nothing but the highest grade rag papers. Crane & Co. have had two cargoes of linen rags sunk by submarines.

Some of the party returned to Holyoke over the Mohawk Trail, while others took trains from Pittsfield, going in all directions. Hand baggage had been sent by motor truck to the Pittsfield station. The arrangements for the whole convention and trips were fine.

CANADIANS PRESENT.

Canada was represented by at least twenty-seven, including: E. P. Foley, H. C. Buncke, O. F. Bryant, J. A. DeCew, Dr. J. S. Bates, Olivier Rolland, J. H. Thickens, R. W. Hovey, Prof. H. O. Keay, H. Helin, Edward Dore, G. C. Piche, A. W. Sykes, C. G. Arbo, W. Lawry, A. L. Dawe, Mayor Battle, of Thorold, Sygmund Wang, Dr. Bjarne Johnson, E. K. Mansfield, Fred Booth, John Hedalen, P. Byrne, Dan Daverin, Geo. Carruthers, Howard Taylor, J. N. Stephenson, L. H. Shipman, Mr. Best, Mr. Strachan, Mr. Slack, Mr. Courtney and Mr. Delvaulx.

EMBARGO ON COAL FROM LAKE PORTS.

A despatch from Washington on Monday states that Harry A. Garfield, U. S. Fuel Administrator, has stopped for the present the shipment of coal into Canada from the lake ports. This order is issued to prevent if possible an almost certain coal famine in the northwest states, supplied from lake Superior and lake Michigan ports with coal shipped from Lake Erie ports. Bitter complaints have been made to the fuel controller because so much coal found its way to Canadian ports while American buyers were in want. It is not stated what effect this order will have on shipments to Eastern Canada. If it continues till the close of navigation is seems certain that some localities will suffer severely this winter.

The irregular receipt of bituminous coal from the United States due to the shortage of both fuel and cars is being felt by many paper mills and during the past week has caused anxiety with other industrial firms at Ottawa. None of the paper plants so far have the supply of coal they should have or which they stocked or placed in reserve in peace times. Already some of the plants have to draw on their reserves on account of the irregular shipments. Prospects for a regular delivery sufficent to permit storing of reserve supplies appeared to be bright in July and August, but, during September irregular shipments to the paper mills were made with the result that the outlook for the present, considering present stocks, is none too bright.

EXTENSION SCHOOL STARTS AT OTTAWA.

Employees of paper making mills and others interested in the manufacture of newsprint and other grades of paper have so far failed to evidence interest in the special afternoon and evening technical classes which were commenced at the school for Higher English and Applied Arts Monday October 1st. About eight hundred persons had enrolled to take the course which so far does not include classes relating to the pulp and paper industry. Under the system in operation by the committee in charge of arranging the classes, courses will be given on any subject for which fifteen or more students make application.

Only the small fee of two dollars in the form of a deposit is all that the committee requires from the young men who are desirous of enrolment. In the event of their attending eighty-five per cent of the lectures of the course the deposit will be refunded. The deposit for young women is one dollar. The term for the technical classes opened Monday and classes will be held four days each week, Monday, Tuesday, Wednesday and Thursday.

As an instance of how the popularity of the classes have grown since the course last winter is evidenced by the efforts that are being made to form a class for plumbers, architects and their assistants. This course has the endorsation of the plumbers' union. Sheet metal workers may join draughting classes. Some of the other courses to be taught are applied mechanics, chemistry and shop mathematics which should particularily appeal to paper workers.

This year an opportunity for girls to learn architectural drawing is being provided. In this direction it is interesting to note that a young lady recently inquired about this course and told the Committee that she desired to assist her father, a contractor, who was unable to read the blue prints of the buildings he had contracted to erect.

Since last year the technical school has become available for afternoon classes and the following new features are worthy of mention. There is a woodworking shop large and well ventilated and lighted equipped with twenty-four benches with tools; drawing for builders, artisans, mechanics, etc., with tables of the latest type. Special provision has been made for freehand, architectural and mechanical drawing; household arts for which there is a dining room, two kitchens and three workrooms designed and equipped with all appliances to carry on women's work in the most efficient manner.

At Ottawa there are scores of employees in the paper making and pulp and sulphite branches of the John R. Booth and E. B. Eddy firms. Many of them are skilled and expert workmen. Many are not. They all probably "know something" about manufacturing paper but, do they "know all about it?" If they do not it appears that there is a particularily fine opportunity for them to find out what they don't know through the formation of a technical class for pulp and paper workers and those connected with the paper trade generally. Paper mill employees it appears to the correspondent of the Pulp and Paper Magazine are passing up a golden opportunity to enhance their technical knowledge and increase their efficiency and earning power by not becoming active as trade workers and having special courses on the pulp and paper industry arranged for or commenced. Fifteen applications will start a class. A large number should be interested.

UNITED STATES NOTES

A Massachusetts charter has just been granted to Walter K. Trotman, Inc., of Holyoke, "to manufacture all kinds of paper." The new concern is capitalized at $25,000 and its incorporators are as follows: Frank Hoy, S. A. Shields and R. A. Dean.

The following comment has been made by a respected source on the statement of the U. S. Envelope Co.: "United States Envelope long ago earned the title of Croesus of the paper industry. Of the various paper stocks in which the public has a substantial ownership, United States Envelope, with its under-capitalization undoubtedly makes the most consistent and strongest showing."

The following interesting comment has been received about American Writing Paper Co. 5 per cent bonds: American Writing Paper Co., first mortgage sinking fund 5s, 1919, sold recently at 85½ to yield about 13½ per cent, compared with a high for the year of 92. Although corporation bonds are now selling near the low price of the year, and at lowest level since Nov. 1914, strange enough the corporation was never in better financial condition. Prosperity of the last two years, has enabled it to improve working capital and surplus and, in many cases, the bonds have been retired by a sinking fund, redemption and purchase in the open market. There was authorized originally $13,000,000 of Writing Co. 5s, but through operations of sinking fund and by purchases in the open market, they have been gradually retired so that approximately 11,000,000 are outstanding. Interests connected with the company have no doubt of ability to pay off bonds when they mature July, 1919. By that time, the amount outstanding, it is expected, will be materially reduced and a refunding issue of first mortgage bonds will take care of the balance. All of this is considered remarkable in the industry, when it is realized that about a little over two years ago, the status of the corporation was regarded as somewhat doubtful.

Paper makers have been interested in a case at Washington, which would seem that the Government has about come to the conclusion, or is coming to the conclusion that the idea of fixing as a just price on any commodity it was — "cost plus ten per cent" — is rather precarious. It came out, with regard to some munitions contracts, that some plants had been taking advantage of this phase — and were acting legally in doing so. Reckoning that the government would pay them ten per cent over cost these manufacturers went to extremes in getting labor. They allowed their costs to go up materially by offering big inducements to labor — and thus drawing help away from other industries in certain vicinities. Of course, the government got its goods, but it was compelled to pay an unusually high price, because of the labor element that has just been described. Under present conditions, if the government were to make the same offer to paper makers, they would be justified in acting along the lines just described, it is said, and thus be able to get help to allow working at capacity. It now seems, however, that the government has some other scheme in view.

A new measure that had not been considered previously is now understood to have been brought into existence by the Government in its prosecution of the war. This is a request to pulp manufacturers in certain sections of the country, to restrict their use of spruce wood. Large quantities of spruce are used in aeroplane construction.

Interest has been shown in an announcement coming from Appleton, Wis., to the effect that a new paper making course is to be started there soon. Coming shortly after the announcement of the educational work that is to be done by the American Writing Paper Co., this is regarded as the start of a movement to develop trained men for the places of importance throughout the producing centers of the industry. The new course is being arranged by W. F. Faulkes, head of the Appleton Vocational School and will be for employees of the paper mills in the section. The course will include the essentials, embracing chemistry and other subjects. It is understood that plans are being made for a sort of postgraduate course to make possible a higher training in some of the subjects vital to the paper mill man.

Word comes from the Bird Machine Co., of East Walpole, Mass., that it will be represented in this country and in Canada by Thomas H. Savery, Jr., who fill act in the capacity of salesmanager of the concern during the absence of Phillip Dennett, who has recently gone into the service of the Government. As is well known, the Bird Machine Co., is the manufacturer of Bird Screens, Bird Save-Alls, Wandel Screens and other devices used in paper making.

It is understood that it will soon be possible for the Cohoes Envelope Co. of Cohoes, N. Y., to start operation . It is understood that arrangements have been made so that matters will be greatly facilitated through an association of the interests of the envelope company with that of the Frank I. Gilbert Paper Co.

Reports state that the International Wire Works at Menasha, Wis., is making extensive additions to its plant, preparatory to an increase in production. It is understood that the company has already placed orders for new looms. The rapid growth of this concern reflects the remarkable demand that domestic screen manufacturers have experienced since the outbreak of the war.

The plant of the St. George Pulp and Paper Co., at Norwalk, Conn., was damaged by fire early this week. One report stated that the loss was estimated at about $50,000. The mill manufactures news and hanging paper and has a daily capacity of 250,000 pounds. The ground wood mill is located at St. George, N. B.

The International Paper Co., has just made a new acquisition in securing for its Chicago office W. A. Goodwin, who was for many years associated with the Chatfield and Woods Co., of Cincinnati. Mr. Goodwin is well known to the Western trade. He has also had a wide experience in the manufacture of coal tar products and derivatives, having been associated with the Chatfield Manufacturing Co., which is engaged largely in this sort of business.

A fairly active demand is reported for bleaching powder, and while quotations have failed to undergo any marked revision, the tendency is strongly forward and advancement seems assured in the near future. Pulp manufacturers are buying in heavier volume than for some time and spot stocks are growing lighter in consequence. Prices are on a comparatively low level and the concensus of opinion among dealers is that they cannot remain thus much longer: Quotations on the product in domestic drums range from 1½ to 1¾ cents per pound. Demand for caustic soda rules brisk and present prices are said to be the highest ever reached. Sales at 10 cents per pound flat have been made and buyers are having difficulty in locating supplies.

The John Strange Paper Co., of Menasha, Wis., has agreed to give the city of Menasha its present office building for a rest-room if the city will move it from its present site. The company has nearly completed a new large mill, office and huge warehouse.

The Interstate Commerce Commission, at Washington, has suspended until March 29 next, the operations of certain tariffs containing revised carload commodity rates on news print paper and wood pulp from Sault Ste. Marie, Ont., to various destinations in the Central Freight Association territory.

The new factory at Cleveland, Ohio, of the Mid-West Box Co., will be in operation in Oct., it is announced.

The Kokomo box plant for the manufacture of corrugated fibre board products and solid fibre containers is operated by the same concern, which has moved its offices from Anderson, Ind., to the Conway Building, Chicago.

E. C. Rogers, for many years manager of the Chester Division of the American Writing Paper Co., at Huntington, Mass., has resigned to take effect Oct. 1. Mr. Rogers is one of the oldest men in the paper making business having been engaged in it since 1859. He became treasurer of the Holyoke Paper Co., in 1868 and later became treasurer of the old firm of Greenleaf and Taylor, of Holyoke, which afterwards was incorporated as the Massasoit Paper Co. Later he became president of the company and also of the Chester company.

The Moon Paper Co. has been started at 101 Crosby street, New York, to handle tissues, cardboard and paper specialties, under the management of Jacob Scher. Mr. Scher was formerly president of the Borough Paper Co., Inc.

An increase in capital from $50,000 to $250,000 has been announced by the Impervious Container Corporation of Buffalo, N. Y. Enlarged activities on the part of the concern are said to have made this action necessary.

It is reported that work is already in progress on the new million-dollar box board mill in Stockton, Cal. It is now learned, according to reports, that the city of Stockton bid well to have the mill located in its bounds, agreeing to take care of the sewage and refuse matter from the proposed plant.

A loss of $15,000 was recently sustained by the Amherst Wax Co., when its storehouse at Cushman, Mass., was destroyed by fire. It is understood that the warehouse contained 60,690 pounds of wax, 16,800 pounds of finished paper, 2,500 bundle cores and machinery. The cause of the fire is said to be unknown.

J. C. Matlack has been elected vice-president of the American Writing Paper Co. Mr. Matlack recently resigned as secretary and general manager of the Ajax Rubber Co.

AN INTERVIEW WITH THE DU PONT DYE MAN.

(Special to Pulp and Paper Magazine).

Your representative had an interview with C. H. Hudson, assistant-manager of the Providence branch of the Du Pont Chemical Works, at the National Exposition of the Chemical Industries, held at Grand Central Palace last week. In view of the recent announcement by this concern that it was to undertake the manufacture of dyes on an enormous scale, it was but natural that many paper makers should have crowded about the booth, eager to find out what the "latest" on the subject was. However, Mr. Hudson was not able to give out very much information. His concern had not yet started on paper makers' colors, but was hard at work rushing arrangements to completion. According to Mr. Hudson, there are about 150 to 200 chemists in the Wilmington plant of the company engaged in the work of completing the experiments on dyes that have been in process for some time. Because of the uncertainty of results along this line, it was impossible for him to make any definite statement as to when the concern should have its products ready for the market. Aside from this, he stated that there was being experienced considerable trouble in getting the proper machinery. "It is possible," said Mr. Hudson, "that some of the dyes will be ready for the trade before the first of the year. The dyes that the Du Ponts expect to produce first will include fast dyes, vat dyes, fast salt dyes and all of the sulphur colors. George M. Snow, who is in charge of the Providence branch of the concern has had a staff of men working among the mills in New England, studying the most advisable course of action."

WEEKLY PRODUCTION REPORTS TO GOVERNMENT.

To keep a check on the news print paper stiuation, the Federal Trade Commission will institute a system of monthly and weekly reports by manufacturers. The aim is to keep publishers constantly informed as to the rate of production and consumption, and as to the amount of paper on hand. The commission hopes that the system will put newspaper publishers in a position to demand fair prices and make it impossible for producers to raise prices through fear of a shortage. The Canadian Government will be asked to co-operate in the plan. The following letter has been sent to every American news print manufacturer:

In order that accurate information regarding conditions in the newsprint industry may be available for manufacturers, dealers and publishers, the commission has decided to collect, compile and publish statistics of production, consumption, shipments and stocks on hand. Manufacturers of news print paper are required to furnish a partial report each week, and a more complete report each month. The weekly reports are due for the operations of each mill, and the monthly reports for the operation of each company. The first weekly report should be mailed on pany before Tuesday, Sept. 25, for the week preceding, and the first monthly report on or before Oct. 5, for the month of September.

PULP AND PAPER NEWS

George E. Challes, of Toronto, sales manager for the Riordon Pulp and Paper Co., is spending a few holidays at Lac Cache in the Laurentian mountains on a fishing trip.

B. Tilton, who for the past quarter of a century has been connected with the Toronto Paper Mfg. Co., Cornwall, and for some years has been assistant superintendent, has been appointed superintendent and entered upon his new duties last week. He succeeds Forbes Wood, who has resigned.

J. F. Ellis, President of Barber-Ellis, Limited, Toronto who has been spending several weeks in the west going as far as the Coast and visiting Alaska ,has returned to Toronto. He was accompanied by Mrs. Ellis and greatly enjoyed the trip. Mr. Ellis visited all the branches of the firm in Winnipeg, Calgary and Vancouver and reports that the outlook for a good fall trade is promising. The new envelope factory, which the firm started a few weeks ago in Winnipeg now has seven machines and a capacity of over three hundred thousand envelopes a day.

R. S. Waldie, President of the Toronto Paper Mfg. Co., has purchased the residence of Mrs. Elizabeth Boulton, at 1 Cluny Ave., Toronto, and has made extensive improvements to the property. Mr. and Mrs. Waldie moved into their handsome new home last week.

Mr. Follis, buyer for the T. Eaton Co., at Winnipeg, accompanied by Mr. J. B. Piper were in Thorold recently visiting the Montrose Division of the Provincial Paper Mills and a few of the other mills in the district.

Mr. Thomas Pickett who has been boss machine tender at the Montrose Division of the Provincial Paper Mills Co., Limited, Thorold, for the past four years, has resigned from that company in order to take up the position of superintendent for the Houpt Paper Mills Co., at Camden East, Ontario.

A charter has been granted to the Soo Pole and Tie Co., Limited, with headquarters at Sault Ste. Marie, Ont., and a capital stock of five hundred thousand dollars. Extensive powers are granted to the new organization.

A new arrangement has been made by the National Paper Co., of Valleyfield, Que., who have opened an office and warehouse where stock will be carried at 112 Bay street, Toronto. E. G. R. Clarke, who recently resigned from the service of the company has rejoined the organization and will be in charge of the Toronto selling end.

Good progress is being made on the new raw storage warehouse of the Toronto Paper Mfg. Co., at Cornwall, Ont., which will be completed early in November. The building is of re-inforced concrete and brick, three stories with basement, and is erected south of the mill. A quarter mile of coal trestle has been built at Cornwall for the unloading of fuel and a car of coal can now be emptied in about fifteen minutes, thus effecting a great saving of time and labor.

M. E. Nichols, former manager of the Montreal Mail who was for several years manager of the Winnipeg Free Press, will shortly return to Winnipeg to resume his former post.

A judicial sale by the liquidator of the assets of Fibre products, Limited, of Penetanguishene, Que., is being held in the matter of the winding up act. Tenders will be received up to Wednesday, October 10th, by J. A. C. Cameron, official referee. Osgoode Hall, Toronto. The stock of goods and supplies on hand is valued at $5,847 and the plant and equipment consisting of finishing room, drying plant, press plant, pulp mill, transmission equipment, boiler house, digester tank, etc., at $68,809.

The Education Department of Ontario is advertising for tenders for the publishing of two blank drawing books for a period of three and one half years to be computed from January 1st, 1918.

S. R. Armstrong, general manager of the Mattagami Pulp and Paper Co., Toronto, is spending a few days in Toronto and reports that the finishing touches are being put to the plant, which will be in operation, it is expected, by the end of the month.

Robert Wolf, of Sault Ste. Marie, manager of manufacturing for the Spanish River Pulp and Paper Co., and John G. Sutherland, of Dayton, Ohio, general sales manager, were in Toronto last week attending the annual meeting of the company.

Travice A. Tod, who has been appointed manager of sales for the National Paper Co., of Valleyfield, Que., paid a visit during the past week to Toronto, Hamilton and London, calling upon members of the trade.

Several federal charters have been granted during the past week and among them are J. R. Walker and Co., Limited, with headquarters in Montreal and a capital stock of $250,000 to manufacture, sell and deal in paper of every king including roofing paper, felt paper, friction board, leather board and fibre board. The C. E. Fleming Tie and Lumber Co., of Ottawa, with a capital stock of $100,000, which concern, in addition to powers as timber and lumber merchants, may manufacture, buy and sell pulp and paper. F. X. Plaunt and C. E. Fleming of Ottawa, are the prnicipals behind the new organization; Thurston-Flavelle, Limited, of Port Moody, B. C., with a capital stock of $250,000 are authorized to do business as loggers, lumbermen and timber merchants and also to carry on the manufacturing of pulp and paper of all kinds. The incorporators are R. J. Thurston and Aird Flavelle, of Port Moody, B. C., and William Flavelle, and J. D. Flavelle, of Lindsay.

C. B. Smith, who for the past year has been purchasing agent of the Mattagami Pulp and Paper Co., Toronto, left this week for Cleveland where he will in future reside. He has been appointed secretary of the American Safety Shipping Brace Co. This is a brace of steel for holding fast all cars and vehicles in transit. It is simple, strong and effective.

A. G. Pounsford, General Manager of the Port Arr Pulp and Paper Co., Port Arthur, Ont., spent a days in Toronto, last week on business and reports t excellent progress is being made on the new sulte mill. The new digester building is completed. e first digester, which is 16 x 52 feet, has been set up, etted and is ready for testing while the shell of the ond digester is now being erected. The acid tanks ve been erected, the blow pits set up and the screens talled. The roof is on the finishing room, the screen om, the blow pit and digester room and the wood om. The trestles have been put up for the boiler ise and the first boiler is being placed in position ile the others will be completed within three weeks. ere will be three boilers, each of 365 horse power. e drum barker, 10 x 30, has been installed and also



A. G. POUNSFORD.

chipper. The last building to be put up is the phur and burner room. It is fully expected that first cook will take place in November and the capcy of the plant will be sixty tons per day, half ached and the remainder unbleached. There will sufficient sulphite to supply all the mills of the vincial Paper Mills Co., Limited, while about the d of the output will be for sale. The heating system ow being installed in all the buildings. Considering t ground was not broken for the Port Arthur plant il April 13th, a record for quick and efficient conction is being established by A. G. Pounsford, Gen Manager, Thomas Murphy, chief engineer, and A. Hinzke, superintendent. Some twenty thousand ds of pulp wood have already been bought and the k of it is on the ground.

eorge Carruthers President of Interlake Tissue ls, Toronto, Dan Daverin, superintendent of the ntrose plant of the Provincial Paper Mills, Co., at rold, and P. Byrne and S. Wang of the Riordon p and Paper Co., at Merritton, attended the joint vention at Holyoke of the Technical Section of the adian Pulp and Paper Asociation with the Amer Technical Association. They were accompanied Mayor Battle, of Thorold.

obert Rolland, of Paper Sales, Limited, Toronto, nt the past week in Montreal calling upon the trade.

E. Pullan, of Toronto, last week took a motor trip through the Thorold district and called upon many old friends among the millmen.

A federal charter has been granted to the British-American Publishing Co., with headquarters in Montreal and a capital stock of $250,000 to carry on printing, publishing, book binding, engraving, stationers, etc.

The junk trade is likely to be controlled in Canada and a supervisor of metal and fibre appointed. An order-in-council has been passed at Ottawa authorizing the Minister of Customs to fix the price of scrap iron, scrap steel, rags, waste and other materials of metal or animal, vegetable or mineral fibre. The supervisor is authorized to make inquiries into the quantity, location and ownership of such materials and penalties of fines up to five thousand dollars or imprisonment are provided.

Revised bylaws have been adopted by the Canadian Paper Box Makers Association and the next annual convention will be held in January. One of the new provisions is that any person, firm or corporation of reputable mercantile standing engaged in a line of business supplying or serving the paper box trade shall be cligible for associate membership. S. J. Frame, 24 King street west, Toronto, is secretary-treasurer of the Association.

OTTAWA NOTES.

The resumption of the newsprint inquiry this week was the principal theme of interest with the local pulp and paper trade. Post session comment dwelled on whether or not the grouping system would be used. As explained in these columns last week the attempt to use such a system to arrive at the production or actual cost would meet with stiff opposition from the newsprint manufacturers generally and especially from the higher cost mills.

The fuel situation has begun to cause some concern on account of irregular shipments but so far this has been confined to the paper and pulp manufacturer. The local retail paper trade is patiently waiting for the inquiry into book, ledger, writing and other grades of paper to commence. Trade after the late August and early September lull is beginning to pick up both with the manufacturers and the retailers. So far as can be learned the market has a noticeable tendency toward firmness in prices. The labor situation with the paper mills and in the woods operations has shown little change either way. One report is current in lumbering circles that even higher wages are to be offered for woodsmen the new scale from $58 to $60 per month with board a substantial advance over previous prices. Inquiry at some of the employment agencies failed to secure confirmation that such prices were being paid.

The late Richard E. Bell, well known paper box manufacturer of Ottawa, who died May 31st, 1917, left a real and personal estate valued at $52,207. The personal estate formed the largest portion being listed at $48,707 with real estate valued at $3,500. The deceased died without a will and thus the estate will be divided one third to his widow and the remainder to his two daughters Ethelwynne Bernice, and Grace Elizabeth.

The Markets

Toronto, October 1st, 1917. — The past week has developed no new features in the pulp and paper arena. The demand for news print grows apace and interest will centre on the inquiry which is to be re-opened in Ottawa this week. Manufacturers are not taking any great concern in the outcome other than wondering whether the prices will be fixed or not. There appears to be a general impression that nothing will be done in this direction until after the elections. All are hoping for a three cent rate as the cost of maintenance and operation is going steadily up and the labor problem becoming all the while more acute.

In the book and writing arena there has been a slight improvement and the hope is expressed that orders may come in a little more freely. Some of the mills are operating only five days a week while others have machines shut down part of the time. One of the leading makers of high class papers, who has been rushed to the limit for the past year, admitted during the past week that he had not business ahead sufficient to keep his machines going for a month.

There is no likelihood of prices being cut, at least, by some of the mills, for one influential maker said this week that rather than use up his high cost material and make paper at a loss he would close altogether. Paper firms are pretty well stocked up and one big consumer has over four hundred thousand dollars worth on hand. There is no disposition to enter the market when perhaps values may go down and many concerns, who have used large quantities of paper in the book and writing line in the past, are economizing in every possible manner. These houses recognize that they cannot cut salaries and have sought to bring about reduction in overhead in other ways and one of these is using less paper in every line.

"Why," declared a big business man, "I received a letter today written on both sides of the sheet, a thing that has not come to me in years before." The Dominion is still being flooded with representatives of American paper houses who are anxious to clean out certain lines and are offering their product at fabulously low figures. Not much business has been done, however. In a few instances Canadian plants have met their figures and the trade has been kept in Canada. Some jobbers are reported to be cutting prices on certain lines of wrappings.

From reports presented by all paper concerns the past year has been the best in their history and all are showing earnings at higher levels. The Pacific Burt Co. shows an advance of about twenty-five per cent in earnings over the last year and the F. N. Burt Co. also demonstrates a very gratifying gain.

There are no new developments in the pulp conditions. The market is moving slowly and most of the mills are still piling. Foreign importations are few, there being less than fifty thousand tons on American docks. Prices are holding their own and even with the advent of several hundred tons of sulphite on the market in the near future, there is no note of discouragement heard. When all the paper mills get active the demand will be as good as ever and now that the decks are being cleared and industry is expected to resume its wonted activity, there is no fear but matters will come out all right. Envelope factories are fairly busy and concerns making pads and papeteries for the Christmas trade report a good demand. Coating mills are fairly well employed but could stand more business. Paper box factories are getting more orders and while the volume of trade may not come up to last year, still a fair turnover is expected. Toilet and tissue mills are running steadily on business that is offering and there is no tendency to reduce prices.

Matters in the pulp and paper arena appear to be quieter by contrast than they really are after the abnormal business of the past year. Naturally after such a congestion any let-up emphasizes the situation and makes it seem more acute. Then there are any number of elements of doubt such as the labor supply, conscription, investigations, coal shipments and transportation difficulties which involve the situation. Advertising with newspapers is keeping up remarkably well and larger editions than ever since the war are being put forth. Special numbers of trade papers, which reveal the state of affairs in the different lines of commerce and merchandising, disclose increased size and everything betokens that, in spite of several flurries on the surface, there is going to be a good fall business, only it is slower in coming than most manufacturers of paper have expected. Jobbers report a moderate business for the month of September and while not equal in volume to a year ago, they are well satisfied with results. Some printing establishments are busy with fall catalogues and more inquiries are coming in.

"I never knew the market so spotty in all lines as it is at present in regard to the rag and paper stock situation" remarked a Toronto dealer this week. "Two weeks ago things looked very bright and there was considerable trading but during the past fortnight, there has been little or nothing doing."

Reviewing the ground wood pulp situation another manufacturer remarked that it was very dull and he was still hanging onto his lot. He had been offered only thirty-five dollars but was not disposed to take that. "If I can get thirty-eight at the mill I think that I will let matters go rather than trust to the future," he added. A leading concern, who are taking out pulp wood along the Transcontinental and the T. and N. O. Railways will ship about fifty thousand cords between now and spring and are looking for a very good supply for the coming winter. They are paying from six to seven and a half dollars for rough wood on cars but the great difficulty is in getting labor. The bidding of one company against the other has upset conditions generally and caused some of the settlers to hang back.

In reference to kraft which has been pretty dull for some time, one firm states that their M. G. machine is now fully employed for the next six weeks and they anticipate an increased demand for this quality of paper. They also say they are now prepared to undertake specifications or unglazed kraft paper on basis of 24 x 36, 480 without extra charge and, in the event

f any customers of wholesale houses specially desir-ng to have their sheet orders counted into reams and olded into quires, the company will undertake this. Where sheet orders are equally acceptable put up lap-ed and in one hundred pound parcels they hope to till receive permission to despatch in this way as the hortage of labor is very serious.

"I still adhere to my previous prediction that there s going to be a shortage of paper in most lines late this fall" said a manufacturer who has been carefully siz-ng up things, "and one of the great causes of it will e the scarcity of labor and buyers hanging back until oo late to get deliveries when they expect them in-tead of placing their orders now. Just wait and see f I am not right in my conjecture."

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $17.50
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$38.00 to $40.00
Sulphite, easy bleaching	$80.00 to $90.00
Sulphite, news grade	$65.00 to $70.00
Sulphite (bleached)	$120.00
Sulphate	$85.00 to $90.00

NEW YORK MARKETS.

New York, September 29.

The situation in domestic sulphite has taken on considerable firmness during the past week and it is said that the situation will continue to strengthen for some time. It is true that, in some quarters, reports of shading are still heard, but this cannot be regarded as any indication of the general conditions, for the tendency seems to be to hold firm to quotations. It is evident that the manufacturers realize that once the paper mills begin to feel the usual fall stimulation of business, they will be almost solely dependent upon the domestic or Canadian production of sulphite, for some time at least. Where domestic unbleached sulphite was selling at as low as $65 a ton at the pulp mill a month ago, it is doubtful whether much could be secured today at below $75, while bleached sulphite is held at 5½ cents to 6 cents a pound and higher. On the other hand, the question of wood has yet to be contended with. It is true that various pulp manufacturers have had difficulty in getting pulp wood, even at high prices, the worst is yet to come. It is predicted that wood will see very high prices for the reason that the labor is almost unobtainable.

At the same time, it is understood that the demand for pulp wood has been of such a nature, that the buyers have forced the market up against themselves. A fair volume of trade in pulp is reported although consumers are buying in such parcels as 100 or 150 tons at a time. Consumers continue to fill their requirements mainly with domestic pulp.

Importers, nevertheless, are holding for high values on what supplies they have on dock and are indisposed to sacrifice their holdings. Domestic soda pulp is being sought in some volume and sales at around $100 a ton are being recorded. Limited shipments of sulphite are being received at Baltimore and New York from time to time but little of this finds its way to warehouses, as the bulk of it is on contract and the remainder is of such negligible tonnage that importers invariably are able to dispose of it very shortly after arrival.

In some quarters, a slight weakening in ground wood was reported early in the week. Dealers and mill agents in this city continue to ask around $42 or $43 per ton at the grinding plant and assert they are disposing of practically all the pulp available for sale. Rumors that prices sagged down to $40 and less are not believed by local men, who say that it is ridiculous under present conditions. Grinders are still hampered in their operations by unfavorable manufacturing conditions and the production of pulp is being curtailed.

Few mills have any surplus tonnage stored up for the fall trade and are not pressing their offerings. News print mills are taking good commitments of fib-

re, while numerous sales to other paper makers are being recorded.

Cotton rags hold fairly steady in value despite the continued lack of active demand from manufacturers.

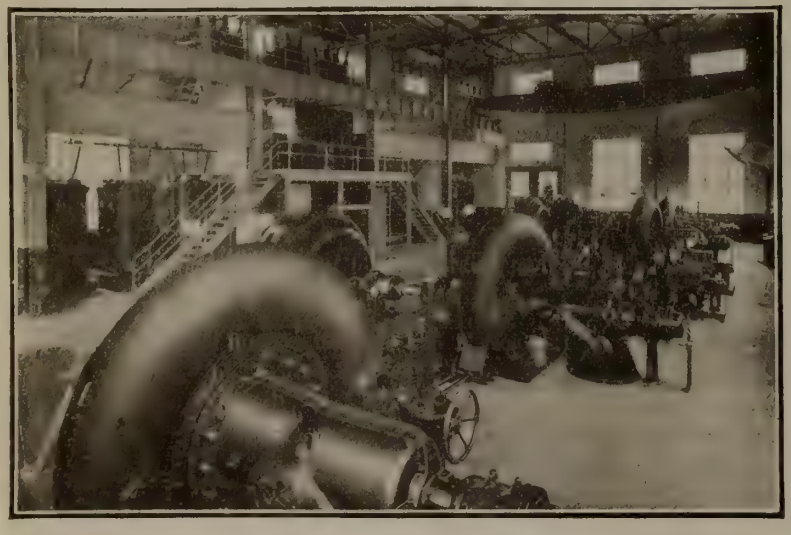
Satinets are unchanged in prices, but there is said to be a weakening in tone of this market. A fair interest in thirds and blues is reported, with quotations holding to about 3 cents and a little over. Old whites are being held for up to 5 cents; street soiled whites are bringing up to 2¾ cents; black cotton stockings, are quoted at 2¾ cents; In new stock, the market is quiet. Dealers have adopted a waiting policy in the hope that the market will strengthen soon. No. 1 white shirt cuttings are rather inactive, at about 9½ cents; fancy shirt cuttings are quoted at about 5¾ cents; new light silesias are held for over 6 cents.

Paper stock values continue to sag under a quiet demand. Dealers and brokers of waste papers say they are unable to interest manufacturers and are receiving orders for but few big lots. The demand for mixed paper and similar grades plainly reflects the curtailed operations of the box board plants for the present. It is said many of the board mills are running only on a 4-days-a-week basis and that one or two have shut down temporarily . Hard white shavings are quoted up to over 4½ cents; soft white shavings are quoted up to 3½c; colored shavings, up to 2 cents; heavy books and magazines, 1¾ cents; ledgers and writings, 2¼ cents; solid ledger books, 2¾ cents; No. 1 manilas 1¼ cents; ordinary manilas, about 90 cents per hundred pounds; old krafts, about 3¼ cents; white news over 2 cents; bogus wrappers over 1¼ cents; No. 1 mixed paper, up to 75 cents per hundred pounds.

A medium demand is reported from consumers of scrap bagging with the cheaper qualities still most eagerly sought. Some local dealers have orders from manila paper mills at as high as 2 cents per pound, while felt mills are willing to pay around 1.85 cents for large lots of roofing stock. The market for old rope is still quiet. Dealers generally complain of the lack of interest on the part of the mills. Quotations are at about 6¾ cents, but it is questionable whether that much is being paid for the stock.

The paper market is regarded as being in somewhat of a peculiar state. In some lines, the mills have been working on a greater scale during the past few weeks, but this does not seem to reflect the general attitude in the trade. It appears that a good many of the dealers still have considerable "summer" stock on hand and are slow at buying. Some say that business has been picking up, but it is generally agreed that it has not yet found its stride. In newsprint, it is understood that things are pretty active. This is the time of the year when a number of contracts expire, and it is interesting to wait and watch just how things turn out. It is understood that the contract price for large lots will be held up to 3 cents. At the same time, it is interesting to know that a new price fixing bill for newsprint has just been introduced into the Senate by Senator Smith, of Arizona, chairman of the Senate Committee on Printing. The opinion has been expressed that this bill may have more weight than some of its predecessors and that at all events, it will be reported favorably. From the American Writing Paper Co., comes word that, because of a sudden improvement in business, it is very likely to find it necessary to start operations at one of its Riverside Division plants. Two of these mills had been

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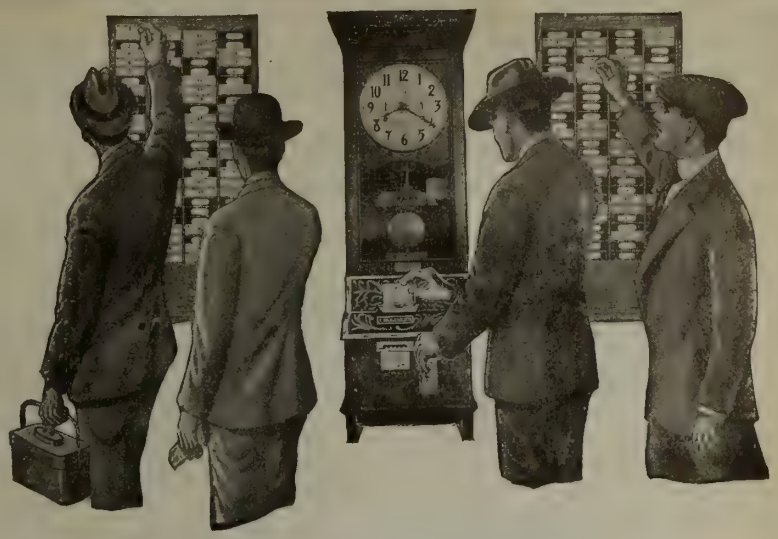
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Gulf Pulp & Paper Co.
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Chicoutimi Pulp & Paper Co.
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St. Maurice Pulp & Paper Co.
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They get the original pay-roll entry printed by the employee himself. It's bound to be accurate, indisputable and represents solid working time only. These mills may be amongst your competitors. If International Time Recording equipments pay them —it will at least pay you to investigate.

Internationals are made in Canada, by Canadians, with Canadian capital and wherever possible with Canadian materials. They are used in hundreds of the best known mills in Canada.

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shut down because of lack of business since early last summer, but, according to an official of the company, the prospects are bright for an early reopening of these plants. The concern is now busy on large government orders. There is considerable strength shown in the market for wrappings. Tissues have become a little stronger, but not enough so to make any material difference in the situation. Books are holding well.

PERIBONKA MILL STARTS.

The Peribonka Co., Ltd., commenced operations last week. The company's groundwood mill, located on the Little Peribonka River, near Lake St. John, has been completely overhauled, new machinery installed, and everything placed in first class shape. The mill had been closed down for some three or four years owing to the former owners having gone into liquidation. New interests purchased it some few months ago and propose running it at full capacity. The mill has a daily output of 20 tons, and is sold up for some time.

NEW PRICE SHOULD BE RETROACTIVE.

It seems that some publishers got the impression from an item in this Magazine for September 20 that, when the price of newsprint is finally adjusted, it will not be retroactive. That is not the understanding of the situation by the Pulp and Paper Magazine, nor by the manufacturers. The order to sell paper at 2½ cents was accepted as a war measure and obeyed under protest as an unfair restriction on the industry. It has been distinctly understood and believed that the Government had no intention of requiring the manufacturers to sell their product at a loss and that the final price, based on investigation must be retroactive.



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LAST LAP IN FAVOR OF MANUFACTURERS.

By EVERETT ANDREW.

(Written specially for the Pulp and Paper Magazine.)

Five Canadian newsprint manufacturers and mills took the first hurdle clean and established a lead on the Government's price of two and one-half cents a pound for newsprint, when the fourth session of the Canadian Newsprint Probe was resumed at the City Hall, Ottawa, Tuesday, October 2nd.

Not a mill on an average basis for the accounting period contained in the report of Mr. Geoffrey Clarkson, auditor of the commissioners, showed production costs below fifty dollars. The lowest average production cost was that of Fort Frances, $53.05—**three dollars and five cents per ton above the Government's price.** Averaging the production costs of the five mills dealt with Tuesday, and striking an average of them, the average production cost, plus a "fair return" on capital invested was $57.26, a lead on the Government's present selling price of over fourteen per cent. That is what the auditor's reports show is a fair and just price after he has gone over the books and records of the five mills. Three cent newsprint all over the North American continent would not be surprising by the showing of the mills' reports submitted Tuesday, coupled with the utterance of the commissioner, Mr. Robert A. Pringle, K.C., who said: "When a price is set for newsprint paper it will in all probability apply to both countries.," i.e., Canada and the United States.

The newsprint manufacturers, however, did not have all the best of the showing, as in one instance stumpage was cut down from $2 to sixty-one cents. The Ontario Paper Company showed by this auditor's statement that it had cut down the cost of production materially by installing and operating its own sulphite mill. The July cost per ton of sulphite this year was shown to be $46.49 per ton, whereas formerly, this company had been paying between $65 and $100 per ton. Overcoming these two big obstacles and still showing a fourteen per cent. advance on the two and one-half cents per pound price is all the more worthy and creditable to the newsprint manufacturers.

Space this week will not permit of a full report of the fourth session of probe, which will be published in full in next week's issue of the Pulp and Paper Magazine. A report of part of the proceedings on Tuesday morning is contained in this issue.

Among those in attendance at the opening of the fourth session of the probe on Tuesday were: Mr George H. Millen, Mr. J. F. Taylor and Mr. John F

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Orde, K.C., representing the E. B. Eddy Company; George F. Henderson, K.C., appearing for Fort Frances; Mr. George H. Montgomery, appearing for the newsprint section of the Canadian Paper Manufacturers Association; Mr. H. A. Stewart, K.C., Crown Counsel; Mr. J. A. Bothwell, Brompton Pulp and Paper Company; Mr. George Cahoon, Jr., Laurentide Co.; Mr. J. B. Wilson, vice-president of Spanish River; Mr. George H. Biermans, and Mr. C. H. Lebrun, of the Belgo-Canadian Mills; George McKee, Donnacona Paper Company; W. H. Smith, Abitibi Power and Paper Co.; Mr. H. I. Thomas, of John R. Booth; F. J. Campbell, Canada Paper Company; A. L. Dawe, secretary Canadian Pulp and Paper Association, and others.

The early part of Tuesday morning's proceedings were as follows:

"Before we proceed I think there should be an attempt made to get an adjustment between the manufacturers," said Commissioner Pringle. Before Mr. Clarkson had commenced to submit his statements the matter of Canadian mills supplying the Canadian newspaper publishers at two and one-half cents per pound was briefly gone into. "During the past two months I have had to call on some of the newsprint manufacturers to supply the newspaper publishers of the Dominion with newsprint and take care of them in this regard," said Mr. Pringle. "Some of them (the newsprint manufacturers) have been reluctant. I have some letters from some of the manufacturers asking what they be relieved of their obligation. Some of the newsprint manufacturers are supplying the Canadian trade with more than their proportionate share of newsprint. This should be checked up by the auditors," added the commissioner.

"The time has come when the newsprint manufacturer who is supplying the publishers beyond his share has got to be protected," continued Mr. Pringle, and plainly told the newsprint manufacturers that they would be called upon to live up to the provisions of the Order-in-Ccouncil made April 16th, whereby the price of newsprint was fixed by the Minister of Customs at two and one-half cents per pound and provided for the Canadian newspaper publishers being ensured of their supply of newsprint at this figure for a time.

"Some of the manufacturers had contracts at the time (when the Order-in-Council was issued.) Such existing contracts are not to be taken into consideration at all," said Mr. Pringle, who continued by mentioning that he understood that the manufacturers had got together and had decided what would be best for them to do under the circumstances, and what manufacturers were in the best position to look after the supplying of Canadian publishers with the least hardship to themselves. "One or two manufacturers were not in it," commented the commissioner.

Mr. George H. Biermans, of the Belgo-Canadian Company, was asked by the commissioner how the situation stood with him. Mr. Biermans said he had been supplying double his proportionate amount to the Canadian newspaper publishers, which was meaning a loss of about $7,000 per month to his plant. "It is covered in the Order-in-Council that the Canadian newspapers have to be supplied with newsprint by the manufacturers," recalled Mr. Pringle, in answer to Mr. Biermans request, that something be done to adjust or equalize the situation between the mills which are not supplying the Canadian publishers and exporting their product and those who are carrying the burden of supplying the Canadian publishers trade.

"Fort Frances is anxious that Abitibi and Spanish River take over the supplying of some of the Canadian publications," stated the commissioner. Mr. George F. Henderson, K.C., who is representing Fort Frances read a letter which he had received Tuesday morning stating that Fort Frances was willing to supply a publisher in Moose Jaw. Mr. P. B. Wilson, on behalf of Spanish River, told the commissioner that the customers in the far west were unwilling to pay freight rates from the Spanish River Mills when they could get the newsprint from Fort Frances. From an economic standpoint Mr. Wilson thought it was best that Fort Frances supply the western publishers, as by so doing the publishers would save considerably on freight rates, as the two dollar and fifty cent rate for newsprint is f.o.b. the mill.

"That is the way that I thought it would be most beneficial to all concerned," remarked Mr. Pringle, mentioning that western publishers by purchasing from Fort Frances would save in freight rates. Mr. Wilson further said, that so far as Spanish River was concerned, that they would be quite willing to fall in with the suggestion to have Mr. Clarkson and Mr. Clarke look into the situation and decide what retroactive profits were due the mills who had supplied beyond their proportionate share to the Canadian publishers. From Mr. Wilson's remarks it appeared that Spanish River was quite ready to bear and pay its share of the retroactive profits due the mills supplying the Canadian publishers trade.

(The discussion of Mr. Clarkson's report must unfortunately be held over till next week, when a full account of the session will be given.)

Tenders for Pulpwood Limit

Tenders will be received by the undersigned up to and including the seventeenth day of December next for the right to cut pulpwood and pine timber on a certain area situate in the vicinity of the Kapuskasing River in the Districts of Timiskaming and Algoma.

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G. H. FERGUSON,
Minister of Lands, Forests and Mines.

Toronto, September 19th, 1917.

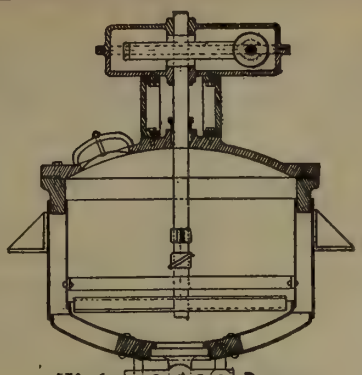
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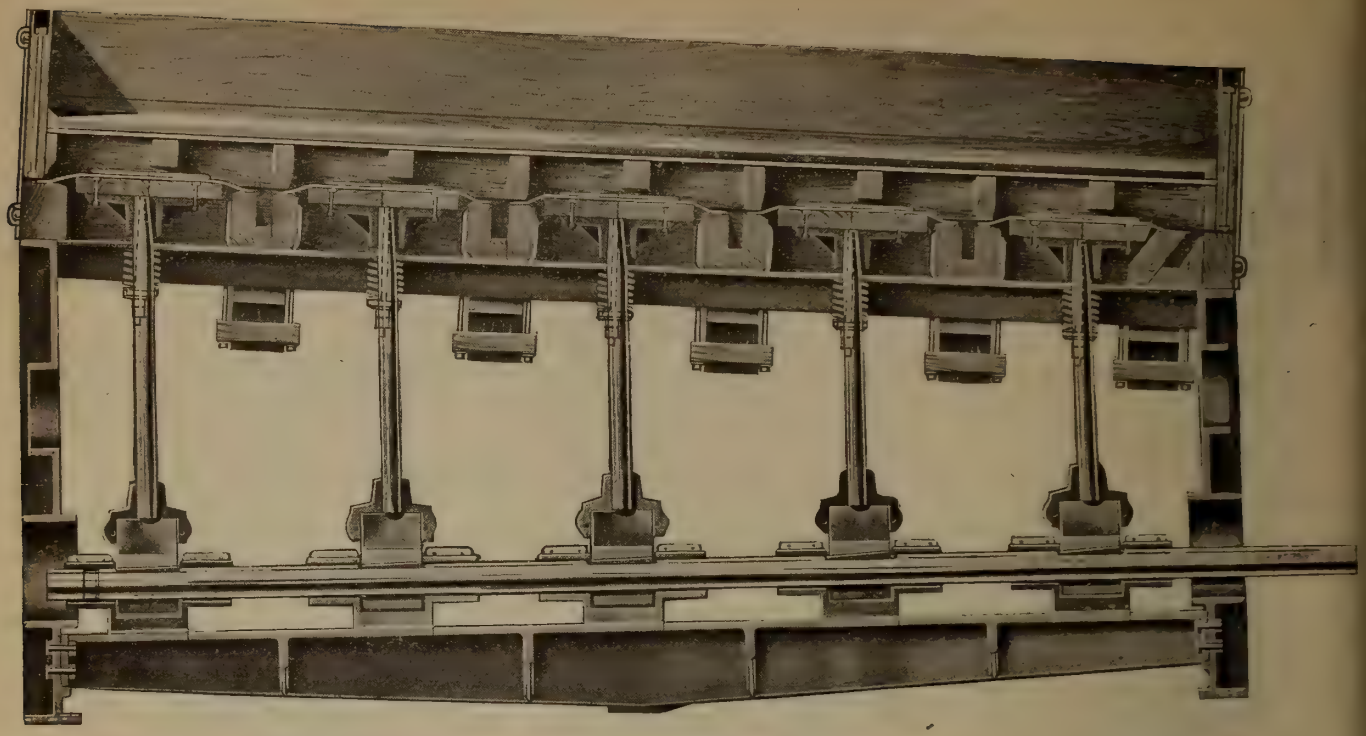
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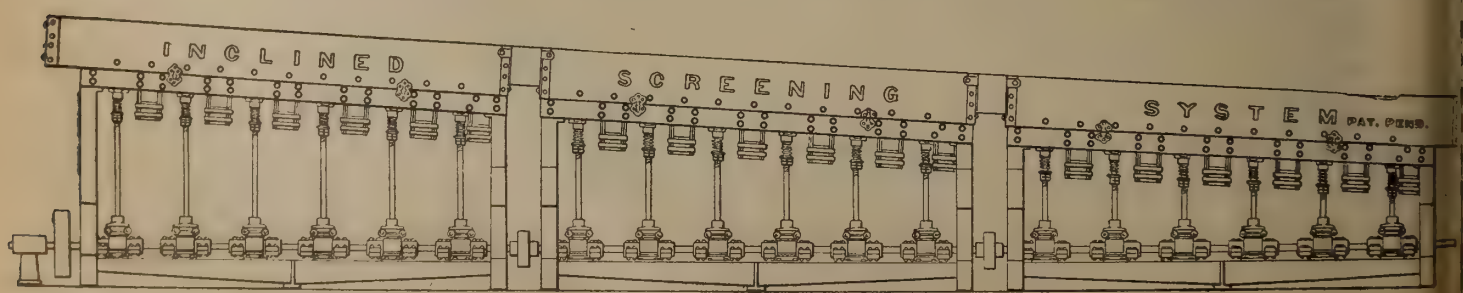
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EDITORIAL

THANKSGIVING.

Canadian paper makers should be thankful:

That there has been an abundance of rain, for this has practically prevented forest fires east of the Rockies and has maintained water powers;

That the Federal Trade Commission is across the border;

That Commissioner Pringle and Auditor Clarkson are working in a businesslike, fair-minded manner;

That the Commissioner promised to recommend a retroactive ruling;

That conditions are as good as they are when they might be so much worse.

That the American corn crop is the largest on record, and other food crops are abundant.

That we have an opportunity of using, in a good cause, a share of what prosperity we have enjoyed by subscribing to the new war loans.

"Freely ye have received, freely give."

WHERE IS THE ETHIOPIAN?

There appears to be an individual of that dark complexion commonly associated with members of the Ethiopian race concealed in the accumulation of portions of that product of the forest generally employed in the production of fuel, building material and paper. Or, to use a different phraseology, there seems to be "a nigger in the wood-pile."

Last January it was evident that the Finance Minister sought to make it possible for the press to obtain newsprint paper at less than the market price. In an attempt to arbitrate the matter the publishers clamored for a 2¼ cent rate. The manufacturers claimed that 3 cents was none too high, but to avoid unpleasant relations with their customers, seemed willing to arbitrate on 2¾ cents as the lowest price at which they could sell paper and make any profit. The government arbitrarily split the difference and decreed, as a war measure, that newsprint should be sold to Canadian publishers for three months, from March 1, at 2½ cents. This was with the assumption that from the profits on paper exported by other firms, a pool should be formed for the partial recompense of those mills who would suffer a loss by selling their product in Canada. This provision tacitly admitted that 2½ cents was not a sufficient price under present manufacturing conditions. It was further understood, that, if at the end of three months, the paper makers could show that the price was unfair, a new price would be set.

It is quite obvious, then, that the first ruling was made in an entirely arbitrary manner, and without the basis of any investigation or report whatever. The manufacturers had the choice of accepting this ostensible war measure or going to jail. Not wishing to burden the government with the expense of board and room, and attendance, they naturally decided to obey the Order-in-Council.

Realizing that they were being robbed in such a courteous manner, the manufacturers, being gentlemen, could not be so unfeeling as to close their mills and let the press starve for want of paper. So they availed themselves of the opportunity of proving that 2½ cents is unfair.

Robert A. Pringle, K.C., was appointed commissioner to look into the matter. The hearing of June 19, 20 and 21 brought forth manufacturing costs for practically all the news mills in Canada. Because the mills making their own sulphite and groundwood pulp used estimated figures for these materials and because arbitrary values were in some cases assigned to other factors in the cost of production, the Commissioner ordered an examination of accounts, Mr. Geoffrey Clarkson, an expert accountant, was appointed, and for several months has had a corps of men at work investigating the records and reports of the paper makers. The examination has been so complete that the auditor could doubtless tell us where each mill buys its typewriter ribbons and how much it pays for nails. In fact, the report of the auditor exposed so many strictly private matters that the manufacturers blushed as if they had overheard the family secrets of their competitors.

At the session last week, when the auditor's report was made to the Commissioner, six mills were heard from. Mr. Clarkson's figures, allowing for the assumptions necessarily made in the earlier reports of the manufacturers, substantiated with considerable closeness, the claims of the paper makers. The costs of production were found to be such that in no case could a respectable profit be made on 2½ cent paper.

Consequently, with such conclusive evidence of the unfairness of the 2½ cent rate, a deputation of paper makers waited on the Finance Minister, confident of

relief from their present difficult situation. Did they get it? Not much! The answer they got to their plea was that even an interim ruling could not be made until a report had been submitted by the Commissioner. This attitude was maintained by Sir Thomas in spite of the most convincing argument that the price of newsprint should be changed.

Mr. Clarkson's work will not be complete for some weeks. Mr. Pringle has set October 29 as the date of the next hearing when he hopes to conclude the matter. His recommendation can hardly be in the hands of the minister before the first of November. After that, no one can tell how long it will take Sir Thomas White to get around to making a new ruling. Commissioner Pringle's figures, set down during the last session, leave no doubt that the present price of newsprint is robbing the mills which supply the Canadian demand.

The outstanding facts in the case are, that Sir Thomas White, through an Order-in-Council, could decree a price of 2½ cents a pound for newsprint, solely on the plea of the publishers, without any investigation of the propriety of their complaint nor the fairness of such action to the manufacturer. But now, in the face of facts and figures gathered by his own commissioner and auditor, he says he cannot make a ruling. His first action is far different from the usual manner of dispensing government charities. A soldier's family may have to be in abject poverty before relief is given, and then only after the minutest investigation. (We are not unmindful of efforts of the press to improve this situation). But the publishers got their pension of half a cent a pound at the first squeal, without even a physical examination. If the payment of this pension had been from public funds it might have been different, but in the form of a compulsory charitable contribution from an industry that brings bread and butter to thousands of Canadians —it got by.

Now the manufacturers have the facts, obtained by the government's experts, and apparently because the facts are unquestionably in favor of the paper makers, the minister says he cannot make a ruling.

We realize that the Minister's task is a difficult one, but that is no reason for being obviously unfair to either party.

Where is the African?

DOES ONTARIO WANT REVENUE OR INDUSTRY?

The Ontario Government is advertising for tenders for another pulpwood concession—the Kapuskasing river section in the districts of Timiskaming and Algoma. The successful bidder must, of course, build a pulp mill on the territory. We are glad to see as many new mills in Canada as can prosper, but—

This new tender brings up the question of why Marks and Carrick are permitted to play "dog in the manger" with the Black Sturgeon and the Pic River concessions. The former was awarded in February last to Sam Marks, of Nipigon, at seventy cents per cord, in addition to the usual fees of forty cents per cord for spruce and twenty cents per cord for other pulp, and the Pic River concession, awarded several weeks previously to J. J. Carrick, M.P., of Port Arthur, at a bonus of fifty cents per cord. According to the terms of their contracts, the bidders were to spend two hundred thousand dollars the first year, three hundred and fifty thousand the second year, and four hundred and fifty thousand the third year, making an outlay of one million dollars during the first three years for a pulp mill of one hundred and fifty tons capacity and equipment. So far as can be learned nothing has been done, and the time for action is getting short. The question is arising in the mind of some members of the trade, if the successful tenderers intend coming back to the Ontario government in the near future and seeking an extension of time owing to the stringency of the money market in the matter of floating new propositions, the uncertainty of the situation by reason of government investigation, conscription, coal, etc. If such is the case why is the Ontario government going ahead with placing a third concession on the market? There are few new mills in the pulp and paper line being constructed at present by reason of the high cost of building, the lack of available supplies and excessive quotations and uncertain deliveries of machines of all kinds. This is a well known fact, and any one familiar with propositions which have been under way for a year and over, know that progress has been slow. New mills, which should have been operating six months ago, are not running yet. At least, half a dozen such enterprises can be named and some light on the intentions of the owners of the Black Sturgeon and Pic River concessions would be welcomed.

There have been many rumors of what the owners purpose doing, but so far as can be ascertained, nothing tangible has resulted. On the other hand, there is the case of the Port Arthur Pulp and Paper Co., at Port Arthur, Ont., a legitimate concern backed by ample capital, who were unsuccessful in obtaining one of these limits, and yet they have gone ahead and now have their undertaking well on the road to completion. They have set a spendid example and the Ontario government, in the opinion of many members of the trade, might make some announcement of what the other owners of the concessions obtained nearly a year ago are going to do.

Now that the vegetables have been gathered and the fruit is coming in, we offer the following from California: "Eat what you can and can what you can't."

Forced to Sell Paper at Less than Cost

By EVERETT ANDREW.

(Written Specially for the Pulp and Paper Magazine)

Prospects for an increased price for newsprint — hree cents or beyond with the possibility of it becom- ng a continental price for all America--seemed bright fter the two day sitting of the fourth session of the anadian Newsprint Probe conducted by Commission- r Robert A. Pringle, K.C. at the City Hall, Ottawa, ctober 2nd and 3rd.

The reports from six mills, Abitibi, Fort Frances, rompton, Canada Paper Company, Ontario Paper Co. nd Spanish River were reviewed at the inquiry by he auditor, Mr. Geoffrey Clarkson. From the averaged igures of five of the six mills the cost remained even dollars and twenty-six cents per ton beyond the wo and one half cent rate. Providing the reports rom the mills still to be examined maintain the same verage, "three cent" newsprint it appears is virtually ssured. The inquiry adjourned until Monday October 9th.

There was no sign during the inquiry that the grouping system" is to be employed. The reports rom the mills came in and were presented individual- r. The reports were more comprehensive and as xpected covered the paper mill operations thoroughly. hey were different in system and basis from the pub- shed report of the Federal Trade Commission.

A variety of new angles and circumstances in con- ection with the setting or recommendation of a Cana- ian price for newsprint have presented themselves rough the entrance of the United States into the ar.

Unofficially one of the biggest questions confronting inds dealing with the Canadian newsprint situation "Will three cent newsprint satisfy the publishers of orth America and the Canadian newsprint manu- acturing trade?" As a Canadian selling price it very kely will. As to its being the prevailing American les price, that is another matter. The question has en raised whether if a three cent price is found to be fficient for Canada will the United States not con- nd that such a price should also apply to them F.O.B. e mill? In case of dispute the question of sulphur pplies will weigh heavily in the balance from the wsprint manufacturers' standpoint.

The Tuesday session was principally devoted to the amination of reports, five of them being considered. ear the close of the afternoon session discussion arose stumpage and the value of pulpwood, it continued ednesday and was productive of much interesting in- rmation. Mr. Pringle has expressed his opinion at $2 per cord stumpage is not an unreasonable arge.

The question of Mr. Clarkson by the Crown on the orts chiefly dealt with Capitalization, cost of oundwood, cost of sulphite, cost of newsprint, in me instances sales prices, and on other occasions od costs and charges. The average price for the t six months of 1916 were averaged for the 1916 sts.

A report of the proceedings continued from the last ue of the Pulp and Paper Magazine is as follows:

Mr. Stewart offered to begin the examination of r. Clarkson, taking up as the first report to be sub- mitted, that of the Ontario Power and Paper Co. Mr. Pringle had something else in mind just then. "The Federal Trade Commission has asked me to have the Canadian manufacturers co-operate in making weekly and monthly reports, like those ordered of American mills", explained the Commissioner.

Scored Federal Trade Commission.

"If this information is for the purposes of this inquiry the manufacturers would, I presume, be willing to supply the items of information wanted. On the other hand, if it is not directed for this inquiry and to aid you (the commissioner) in arriving at a decision, it might be otherwise. Of course, I have not had time to confer with the manufacturers regarding this," said Mr. Montgomery.

"Of course, I am not in the confidence of the Government," continued the commissioner, and went on to express the belief that the Government would or should co-operate in many matters with the American Government. If such co-operation was brought about and it concerned the paper manufacturer, Mr. Pringle would likely have further powers and sufficient jurisdiction to compel the paper manufacturers to supply such statements as desired by the Federal Trade Commission.

"Has there been any willingness of co-operation between this inquiry and the Federal Trade Commission?" asked Mr. George Cahoon, Jr., of the Laurentide Company. Mr. Pringle said that he did not exactly go in with the Federal Commission, nor the Federal Trade Commission in with him. He referred to President Wilson ordering the International Paper Company to supply paper for the printing of the American War bulletins at two and one-half cents per pound.

"Two carloads a month," commented Mr. Cahoon. Some manufacturers grinned.

As late as August, Mr. Pringle said, the Federal Trade Commission had made the statement that the price of two and one-half cents per pound for newsprint had allowed the manufacturer a profit of five dollars per ton.

The review of this statement brought a criptic statement from Mr. G. Montgomery, K.C., who said the report of the Federal Trade Commission would have been much better received by Canadian newsprint manufacturers if the Canadian mills had been able to secure the individual figures for their mills as found by the auditors of the Commission. It was these figures, Mr. Montgomery said, that the report for the Canadian mills was based on, and became part of the report of the Federal Trade Commission, which lead to its recommendation of two and one-half cents per pound as being a fair and just price for newsprint paper. Counsel for the newsprint paper manufacturers stated, had attempts been made repeatedly by Canadian manufacturers to secure the figures for their mills from the Federal Trade Commission. So far they had been unable to do so.

"When a price is set for newsprint paper it will in **all probability apply to both countries.** Consequently it is essential that great accuracy is necessary in gath-

ering the information for the reports on which the findings are based," said the commissioner. "I hope to be in a position to know what the actual cost of manufacturing newsprint is in Canada, very shortly." Mr. Pringle went on regarding the report of the Federal Trade Commission saying, "Surely the Federal Trade Commission must have had information to base its report upon?"

Mr. George F. Henderson, K.C., replied on behalf of the papermen. "The whole trouble is that the Federal Trade Commission has made a report. We hear something about it every day in the newspapers or out of them. It is quoted in the Canadian newspapers, in Congress, and in the Parliament of Canada as something infallible. Whatever their system is they seem to adopt a different manner of investigation than you (the commissioner) and Mr. Clarkson do. There is something radically wrong with that report."

The reference to the International Paper Company having supplied newsprint at the American Government's request had further attention drawn to it by Mr. George F. Henderson, who tersely pointed out that even though the International Paper Co. had supplied the paper at the price, it had done so under protest and characterized the price as "arbitrary, unfair and unjust." Mr. Pringle referred to the difference in price and cost of manufacture between the American and Canadian plants calling attention to the five dollar profit per ton supposed to be made and pointing out that if such was so that the Canadian manufacturer would probably make a greater profit than the American producer at the two and one-half cent per pound rate.

Someone brought up the question in general discussion as to whether or not the reports of the Canadian mills as compiled by Mr. Clarkson were to go to the Federal Trade Commission. In conclusion of discussion on this point Mr. Pringle made the suggestion that the reports received at the Canadian Newsprint Inquiry might go to the Federal Trade Commission and that in return the reports found in the mills by the commission's auditors might come before the probe. Matters aside from the receipt of the reports of Mr. Clarkson were waived for the time being, and at 10.55 a.m. the first report, that of the Ontario Paper Company was taken up.

Mr. Clarkson's Testimony.

Mr. Stewart questioned as to the reports. Mr. Clarkson said there are eight or nine, and they had been made from information secured at the head offices or mills of the companies or paper plants concerned. "What general principles did you observe?" asked the crown.

The general principles observed, replied Mr. Clarkson, were, Capital, Limits, Cost of limits, Area of Limits, Conditions under which areas are held, Balance sheets, Renewal accounts, Wood costs, Groundwood costs, Sulphite costs, Newsprint costs, Selling price, Allocation of inventory, Other information as to contracts.

Ontario Paper Co.

By the report of the auditor it was shown that the Ontario Paper Company has limits, but it had not operated them up to the time the report or audit (July 31st, 1917) had been taken. This company manufactured groundwood and bought their raw stock of wood. The cost of manufacturing groundwood by this company, allowing three per cent for depreciation on groundwood mill was recited by Mr. Clarkson to be as follows: Average cost of production for 1916, $17.22; output 26,728 tons; January, February and March, 1917, $22.18; April, $23.12; May, $23.40; June, $23.12; July, $20.72.

In February, 1917, the Ontario Paper Company began to manufacture sulphite. The cost of manufacture of sulphite at this plant was as follows: February and March, *$55.92; April, $45.96; May, $48.33; June, $46.48; July, $46.49.

*In reference to the cost of manufacture Mr. Clarkson explained to the commissioner that he did not think this cost was a just one to be averaged, as the mill had just started operations.

Questions regarding the former source of supply of sulphite to the Ontario mills were put to Mr. Clarkson by the Crown Counsel. Mr. Clarkson said that in 1916 the Ontario Paper Company had been buying sulphite and had been paying from $43 to $100 per ton for it. It 1917 the purchase price of sulphite had run from $90 to $100, and the plant stopped buying and began manufacturing its own. In response to Mr. Pringle Mr. Clarkson said that some of the sulphite purchased by the Ontario Paper Company had been bought from the Riordon Company. Other of it was bought through H. G. Craig and Co., New York, and as high as one hundred dollars per ton had been charged for it. The Riordons had charged $65 per ton. Two months after the Ontario Paper Company began to manufacture its sulphite this commodity began to enter into the cost of its paper at $45.96 to $48.33 per ton. "The cost of producing newsprint went down when the small companies got out of the hands of the big sulphite companies," remarked Mr. Pringle, in comparing the respective figures.

Ontario Power and Paper Company provided the first cost figures for the production of its newsprint. According to the reading of Mr. Clarkson, they were as follows: 1916, *$40.89; January, February, March, **$58.98; April, $50.29; May, $48.56; June, $48.13; July, $45.32.

* Including depreciation for 1916.

** Including first two months of sulphite manufacture.

Mr. Clarkson was of the opinion that the decline in the manufacturing cost of newsprint at this mill was due to wood costs decreasing, a $4.50 drop per ton in convertion costs, and a further drop of $1.40 per ton in coal costs.

The figures for output and sales price followed. They were:

Date.	Output tons.	Sale price.
1916	35,838	$42.26
1917, January to March	8,374	47.02
" April	2,807	50.82
" May	3,638	50.52
" June	3,738	51.08
" July	3,573	50.94

Selling expenses, 1916, $3.72 per ton; 1917, January March, $3.75; April, $3.80; May, $3.78; June, $3.62; July, $3.83.

The capitalization of the company was given to be $2,609,000. Allowing a ten per cent profit for manufacture on the capital invested, this company, according to Mr. Clarkson, would have to spread $260,000 over its output or leaving it around $7.28 cents per ton of newsprint. Here is how Mr. Clarkson figured up

the total cost and allowed ten per cent. for capital invested:

Cost of production	$45.82
Selling cost	3.83
Interest on capital and overhead expense	7.28
Total sale price, on actual cost, plus fair profit	$56.43

On the auditors own figures and reasoning this is just six dollars and forty-three cents per ton more than the Government allows by its fair and just price in compelling the Canadian Newsprint Manufacturers to supply Canadian publishers at two and one-half cents per pound.

The Brompton Report.

The report of the Brompton Pulp and Paper Company was the second to be considered. On the Commissioner's averaging of the five mills it showed an increase in production cost of one dollar and seventy-eight cents per ton over the price averaged for the



F. M. McCRAE,
President Brompton Pulp & Paper Company.

Ontario Paper Company. Brompton ranked second in the list of companies whose production costs were averaged by Mr. Pringle. Mr. J. A. Bothwell when asked at odd periods of the inquiry on certain points had little difficulty in explaining them to Mr. Pringle's apparent satisfaction.

Stumpage Tumbles.

The stumpage people were provided with much food for thought when the stumpage figures of the Brompton Pulp and Paper were announced to be sixty-one cents per ton of paper as against the arbitrary cost or assumed figure put in at previous sessions of the inquiry of two dollars. Brompton has around one hundred and eighty thousand acres of freehold limits and 107,000 acres of leasehold limits. The company owns certain limits and pays ground rent and other governmental charges. The old capital stock of the company used to be $5,177,000 against which about $9,000,000 worth of stock was issued. Three million two hundred and twenty-three thousand dollars was written off in lands and properties. The wood cost to the Brompton Company allowing ten per cent for sinkage, and stumpage at sixty-one cent per cord, as shown in the Company's books and told of by Mr. Clarkson, was as follows:

1916	$10.02
1917 (First part)	13.572
1917 June	12.029

The report showed that the Brompton Pulp and Paper Company does not make its own sulphite and has to buy this ingredient. In 1916 it had a contract for $40 per ton. This year it is paying seventy dollars per ton.

Groundwood by the report of the auditor was entered up under two separate headings one being for the East Angus Mill and the other for the Brompton mill. The groundwood production cost per ton as shown by the mill books and records were as follows:

East Angus Mill:	
1916	$15.4
1917, Jan.-Mar.	21.9
1917, April	21.034
1917, May	19.965
1917, June	17.357
Brompton Mill:	
1916	$17.917
1917, Jan.-Mar.	19.923
1917, April	27.283
1917, May	25.749
1917, June	27.018

Newsprint production costs per ton followed. They were:

1916	$41.765
1917, Jan.-Mar.	58.455
1917, April	53.767
1917, May	50.481
1917, June*	64.959

*In June the mills were not working to capacity, only having been in operation for ten days. Thus the high figure of $64.95 was brought about.

When the Commissioner made up his averages, alowing for return on investment, depreciation, operating costs, etc., he did not use the June figure as part of the basis for his calculation, reviewing the six months period inquired into. This gives an average cost of $55.92 for five months.

Newsprint sales and selling and freight charges were next taken by Mr. Stewart. The following figures were shown:

Date	Sale price	Selling Expense per ton
1916	$50.73	$4.03
1917, Jan.-Mar.	66.21	4.68
" April	65.67	4.33½
" May	61.483	4.22
" June	61.09	4.22

Questioned as to how the governmental and stumpage dues worked out with the Brompton Company Mr. Clarkson said they amounted to about fifteen cents per cord. Regarding the capitalization and investment of the company Mr. Clarkson said he did not know exactly how to get at it, but being fair to everyone he thought that about ten per cent, or around seven dollars per ton would be a fair allowance.

Argument developed on the figure $61.09 per ton as shown in the selling price for June, 1917, Crown Counsel pointed out that such a figure embodied a difference of between ten and eleven dollars per ton beyond the price paid by the Canadian newspaper publishers who purchase their newsprint at two and one-half

cents per pound. Two and a half cents per pound was recalled by the Crown Counsel as the basic figure of the Order-in-Council which went into effect or was issued on or about April 16th, 1917.

The report of the Federal Trade Commission contained the same figure as a fair and just price for newsprint. These facts are recited to show the unjustness of the comparison between the latest present day costs (so far as Mr. Pringle's audit went) with circumstances and figures existing and compiled months previous under an entirely different set of circumstances affecting the newsprint manufacturer. In short the June, 1917, production costs and sales costs were set against a price arbitrary or assumed that related to April, and in the other circumstance went back to the first half of 1916 during which period the auditors of the Federal Trade Commission made their report relating to the Canadian newsprint mills.

"They (the Brompton Company) were making a profit of from one to three dollars per ton over their ten per cent return on investment," said Mr. Stewart. On the Commissioner's reasoning, the figures for Brompton were $58.21, and Brompton's June, 1917, selling price was $61.09 in the United States. Thus the Brompton Company had a sales price eleven dollars and nine cents per ton above the Canadian sales price.

Mr. George Cahoon, Jr., of the Laurentide Company, who had been taking careful note of the proceedings. figures, etc., reminded the Commissioner that pulpwood costs within a period of three years had increased to the manufacturer between two and three hundred per cent—or from $4.25 per cord three years ago to $13.50 per cord in 1917. Such an increase Mr. Cahoon maintained could not be overlooked. Mr. Stewart would have liked to have the official court record say 200 per cent increase, but Mr. Montgomery made a minute calculation of the figures and said: "Yes, Mr. Stewart, a good deal closer to 300 per cent. than 200." The point taken by the Crown Counsel did not have much effect apparently as the Commissioner did not comment upon it or go further into detail. Brompton's average cost of production for the last six months stood at "fifty-eight, twenty-one."

Fort Frances Figures.

The report of the Fort Frances Company was the last one to be taken up at the Tuesday morning session. Mr. George F. Henderson, K.C., appeared at this session as the legal representative of the Fort Frances Company.

Mr. Clarkson in response to questions from the Crown said in effect that for the purposes of the inquiry it was not possible to exactly determine the actual costs of operation. It was explained by Mr. Henderson that there was more or less a connection between the Fort Frances Company and the Minnesota and Ontario Power Company, and in turn the Ontario and Minnesota Power Company. Also the International Bridge Company was a consideration.

Mr. Clarkson told the Commissioner that the cost of production given for this plant was not prepared on the same footing as that of the other mills and should not be taken by him (the Commissioner) as such. Groundwood costs and "prepared" wood costs as cited by Mr. Clarkson in his report of this mill were as follows: 1916, $9.95; 1917, January, $11.40; February, $13.45; March, $13.34; April, $13.70; May, $13.66; June, $13.45.

The groundwood figures for the Fort Frances Mill showed only a slight increase—a little over ten per cent. —in operations covering a period from 1916 to whatever time in 1917 the auditors of Mr. Pringle went into the mills and determined the cost of groundwood. The time the auditors went into records of Fort Frances was evidently somewhere in July as records showed for June, 1917. The groundwood costs of Fort Frances were given to be as follows: 1916, $21.34; 1917, January, $22.48; February, $24.57; March, $21.98; April, $25.46; May, $21.73; June, $23.57.

The cost of production per ton of newsprint, including proportionate charges for rent and water power, viz., manufacturing costs were, according to Mr. Clarkson, as follows: 1916, $42.66; 1917, January, $44.67; February, $48.49; March, $48.47; April, $55.54; May, $50.10; June, $53.05.

The Fort Frances Company gets its power from the Minnesota and Ontario Power Co., and pays $25 per horse-power for it. The capital stock of the company as shown by the auditor's figures is about $50,000. Fort Frances was shown to have no timber concessions. The company purchases its pulpwood at the mills. The annual rental for the buildings is $150,000. No executive cost was entered for last year though it was stated it amounted to about forty-six cents per ton.

Last year Fort Frances sold its newsprint on "averaged sales" at a profit of seventy-seven cents per ton. Up to the time the audit was taken this year the figures showed it had been manufacturing and selling at a loss of $1.95 per ton. This is on the consideration of average sales. Fort Frances, it may be very properly recalled, is supposed to be one of, if not the biggest western Ontario newsprint mills which looks after the near and far western publishers, under the government's ruling of two and one-half cents per ton. In turn it is a very fair presumption that this mill for selling at the Government's price receives directly or indirectly its retroactive profit or "share" of other selling prices which some of the Canadian paper mills receive through their export business. The adjustment in this regard was not questioned upon or given.

Canada Paper Company.

The report of the Canada Paper Company, Windsor Mills, Que., was the first to be taken up Tuesday afternoon. Woods costs for this mill, without allowance having been made for stumpage, were told by Mr. Clarkson to have been as follows: 1916, $7.30; 1917, January-March, $11.72; April, $11.57; May, $12.21; June, $12.21.

Mr. Clarkson said that two dollars stumpage charges had been charged on some five hundred and thirty-one cords of wood, but the amount of this he said, would not make a great deal of difference, amounting to only about six cents per ton. The actual cost of stumpage to this plant was about eighty cents per cord.

Groundwood costs were shown to be as follows: 1916, $15.60; 1917, January-March, $20.31; April, $21.21; May, $21.76; June, $24.24.

The newsprint costs of the Canada Paper Company were given as being: 1916, $40.57; 1917, January-March, $52.75; April, $51.30; May, $50.33; June, $58.69.

Increased costs in convertion, wages and fuel were given as some of the reasons for the price of production in June, being $8.36 per ton above the May cost. The mill also in this month did not operate up to capacity.

Commissioner Pringle commented that some of the figures in the report of the Canada Paper Company tallied closely with those contained in the report of the Federal Trade Commission for this mill. Mr. Clark-

son, taking a brief look over the figures in the Federal Trade report added that they did not contain anything for interest charges. Another instance that Mr. Clarkson drew attention to was the increase in the cost of groundwood which was $12.96 in 1916, and had increased to $18.20 in 1917. Soda ash had jumped from $1.18 to $4.05; wrappers from eighty cents to $1.75 and coal from $3.04 to $4.48. Wires went up from 86 cents to $1.81. Mr. F. J. Campbell, of the Canada Paper Company, told how labor had increased from $4.27 per ton in 1916, to $6.19 in 1917. The increases Mr. Campbell stated that had been made at his mill since last year amounted to about twenty per cent. The average production cost for the first quarter of this year amounted to $52.75 per ton.

The Commissioner averaged the production costs for the first six months of the year and this average showed a production cost of $53.09 per ton to which was added $2.49 for selling and $6.50 interest and return or investment bringing the average selling price of this mill for the first six months of this year up to $62.08. Mr. Montgomery pointed out that during the summer months the costs of manufacture with the mills was probably less than those of the winter, mentioning heating and other extra winter costs.

In 1916 the Canada Paper Company exported 8,000 tons of newsprint selling it at $43.40. The rate of production, in tons, per month, for the first half of 1917, was given to be as follows: January-March, 6,550 (average); April, 6,913; May, 6,289; June, 6,496.

The Canada Paper Company markets some of its product through branches. Its selling expenses, per ton, were shown to be as follows: 1916, $2.75; 1917, January-March, $2.75; April, $2.35; May, $1.69; June, $2.49.

The export sales are handled by H. C. Craig and Co. on a three per cent. basis.

In 1916 the Canada Paper Company purchased 110 tons of sulphite at $50 per ton. This year it has received 100 tons at prices between $37 and $38.50. At present the Canada Paper Company has another contract for sulphite at $50 per ton, f.o.b. the mill.

Another instance of the advancing charges that figure largely in the cost of production was recalled when it was stated that peeled spruce, which in 1916 cost the Canada Paper Company $8.25 per cord had advanced to $13.00 per cord, and in addition the 1916 cost included freight charges, and the 1917 cost did not. The freight charges amount to about $2 per cord.

Mr. Stewart brought up the question of stumpage saying: "Stumpage is a big question. In some cases it is put on the books of companies at fifty cents per cord and sixty-one cents per cord, but when it comes to making up the cost of paper, it is put in at two dollars."

"I would like to hear evidence on that," remarked Mr. Pringle. "Suppose you have an area and go to the expense of erecting a mill. The area becomes depleted, your mill is greatly lessened in value. Do you say stumpage has not value? What would it cost for reforestration? When we come to the mill we allow ten per cent for depreciation and so on, but the limits is another thing."

Abitibi Power and Paper Company.

The Abitibi Power and Paper Company followed. It has limits of 1,560 square miles. The limits were acquired from the Government in 1912, the agreement being between the Ontario Government and Shirley Ogilvie and F. H. Anson. Abitibi agreed to erect a mill with a capacity of 300 tons per day and spend thereon $3,500,000, and also spend sums up to $50,000 in clearing, erecting buildings and preparing settlement lands in the neighborhood of Iroquois Falls, Ont. Abitibi pays the Government forty cents per cord for the spruce on the limits when it is cut, and twenty cents per cord for the other woods when they are cut.

Several transfers of rights or properties appear to have been made. First a transfer was made to a company with a capital stock of $4,000,000, and whose timber rights were estimated to be $3,500,000. Later on another transfer was made and the timber rights increased $2,000,000 more. Woodlands of the company were estimated at $5,745,000, bonds and loans around $206,000, buildings $20,000, newsprint mill $2,193,000, and the townsite $313.000. The net surplus, as told by Mr. Clarkson, was $11,985,000. Regarding stumpage it was shown on the books of the company that fifty cents per cord was charged. Two dollars per cord was not claimed in the books for this charge. About five per cent. for sinkage and wastage was carried in the records, but the company did not exactly know what this amounted to. Mr. W. H. Smith, treasurer of Abitibi, said he thought this loss was around 11.3 per cent., which would make a difference of about twenty cents per ton of newsprint.

Costs for two grades of groundwood were given by Mr. Clarkson to be as follows:

Date.	Slush Groundwood.	Lapped Groundwood.
1916	$11.55	$15.93
1917 January-March	12.15	17.61
" April	11.53	16.73
" May	11.84	16.83
" June	11.53	16.83

Discussion as to the amount of wood going into a ton of groundwood arose, from the information contained in the report of the Abitibi and from the remarks of Mr. W. H. Smith, who said that Abitibi had ascertained the proportion through tests. "I maintain that the Abitibi Company does not know what amount of wood is going into a ton of groundwood pulp. It is calculated, but not measured," objected Mr. George Cahoon, Jr., of Laurentide. "It is a physical impossibility to calculate it and it must be measured going into the mill to find out what amount is used per ton," continued Mr. Cahoon, and went on to explain on this particular point the difficulty of determining the exact quantity of wood used per ton of groundwood.

"We enter what we believe is the amount of wood that goes into a ton of groundwood. We have made tests at the mill and take the average of the tests," explained Mr. Smith. Mr. H. I. Thomas, of John R. Booth, asked Mr. Smith how he found out what amount of wood was in the slush that was lost through the process of manufacture, and went on to show where loss that occurred through such a channel would not be comparable as in the case of the manufacture of lapped groundwood. Mr. Smith went on to explain the process by which the tests were made. Finally it drew from Mr. Thomas the remark: "Then your test, after all, is only an estimate."

Finally the argument narrowed down on this point to one, or one and one-eighth cords being used per ton. An eighth of a cord meant, Mr. Clarkson said, about seventy-five cents per ton, wood cost about six dollars and nine cents. Food and camp supplies was another point touched on. In 1916 Mr. Smith said meals could be supplied at between 16 and 18 cents

each. This year they cost between 30 and 35 cents each.

Mr. Pringle made an estimate on the costs of the five mills before him, averaging for the six month period inquired into, the cost of newsprint. Allowing a return on the capital invested in the plant and taking care of selling and other incidental expenses which might properly be charged up to the cost of manufacture. Mr. Pringle's figures were as follows:

Company:	average cost.
Ontario Power and Paper	$56.43
Brompton Pulp and Paper	58.21
Canada Paper Co.	62.08
Abitibi	56.66
Fort Frances	53.05

Average price per ton for the five mills covering the last six months operations was $57.26.

Mr. Pringle continued to inquire regarding stumpage. Of Mr. Smith he asked, "at what figure could you hire a man to cut pulpwood per cord?" "Mr. Pennington, a pulp wood contractor, informs us that it is worth about $2.50 per cord," interjected Mr. Montgomery. "How much does the settler charge you for his wood?" asked Mr. Pringle. It was stated that in the region of the Abitibi mills the settlers wood was worth around $4 and $4.50 per cord, and it cost about $1.50 more per cord to bring it out.

"I had an idea pulpwood was worth something, the same as the ore in a mine," commented the Commissioner in rebuttal more or less to the contention of the Crown counsel that pulpwood was of little value and should only be put into the cost of production for the purposes of the inquiry at its actual cost. Mr. Pringle recalled that Mr. George H. Millen, head of the E. B. Eddy Company, had testified to having paid $12.25 for peeled wood in the Gatineau Valley district. In addition to this there were freight charges to land the wood at the mill. Mr. Smith looked on the situation in Northern Ontario as the settler being anxious to get his land clear and did not place a great deal of value on his spruce. This settler, Mr. Smith thought, might get four or four and one-half dollars per cord for it when it was cut.

Sulphite costs under two headings were given by Mr. Clarkson as follows:

Date:	Slush Sulphite.	Lapped Sulphite.
1917 January-March	$36.71	$41.17
" April	36.73	40.75
" May	36.24	40.88
" June	36.98	42.79

Sales and selling expenses through the George H. Mead Company were shown to be one dollar and fifty cents per ton for newsprint, groundwood and sulphite.

The newsprint costs and sales for Abitibi were shown by Mr. Clarkson to be as follows:

Date.	Production Cost.	Sales Price.
1916	$32.20	$40.06
1917 January-March	36.73	62.95
" April	40.58	62.62
" May	41.40	62.59
" June	39.93	63.00

Mr. Pringle called upon Mr. Smith to supply information regarding what would be an actual price for the pulpwood used by Abitibi per ton of newsprint, Mr. Smith calculated and believed certain charges to be approximately right but he could not definitely tell the exact charge. He said that the charge of $6.09 as shown was for last year's wood some of which had been used in this year's production. For 1917 after June 1st Mr. Smith stated that Abitibi figured that it would cost them around ten dollars. "Can you tell me what the cost is or can you not? If you cannot we will put more auditors into your mill to find out," exclaimed Mr. Pringle to Mr. Smith. The best Mr. Smith could do was state that to the best of his knowledge and from what the Abitibi Company believed the cost of wood for the 1917-18 operations would be ten dollars, an advance of three dollars and ninety three cents per cord more than last year. "That is taking innocently required Mr. Pringle. "I certainly do not" Pringle. Mr. Smith said "Yes".

David Henry Pennington, former Harbor Commissioner of Quebec and ex-member of the Legislature, was called by Mr. Montgomery to show the value of pulpwood. Mr. Pennington is engaged in the pulpwood business. He said he had twenty-five years experience in pulpwood. He told of how last year he had paid a jobber $1.75 per cord but this year he expected to pay $2.50 for the same wood. Last April he said he had sold a pulpwood tract of about 8,000 acres on which it was estimated there were 70,000 cords of pulpwood for $90,000 in a lump sum. He believed that this wood was worth $2.35 per cord on the stump. Another sale was that of a 40 mile limit this year at a price of $1,400 per mile. Even in 1914 the witness told the Commissioner he had sold pulpwood for $1.90 per cord on the stump. He was of the opinion when asked by Mr. Pringle that pulpwood limits at their cost or value today would double in value within a few years.

Peeled wood costs Mr. Pennington around $7.00 per cord to make. Then he had to get it to the train. He sells some of it at $14 per cord. Most of it is exported and goes to the port of Ogdensburg, N.Y. Regarding the outlook for getting out pulpwood this year Mr. Pennington told the Commissioner that he did not think that he would be able to get out over fifty per cent of what he had formerly expected to cut.

"You do not agree that pulpwood is of no value?" innocently inquired Mr. Pringle. "I certainly do not," replied Mr. Pennington. "It is of value to him because he deals in it" interjected Mr. Stewart. Cross firing between Mr. Montgomery and Mr. Stewart as to the methods employed by individuals and companies to secure timber leases and water power rights concluded the Tuesday afternoon session.

At the outset of Wednesday morning's sitting the Commissioner drew attention to a report published in an Ottawa newspaper on Tuesday complaining about the statements (official reports) submitted at the inquiry not being available to the press. Mr. Pringle made it plain that the reports were open to the Press. "The press can have copies of any statement that comes before this Commission said the Commissioner. As a matter of fact Mr. Stewart the Crown Counsel gave Mr. Imrie, of the Canadian Press Association, complete copies of all the official reports to the Commission as complied by Mr. Clarkson which were examined upon up to Tuesday night.

Before continuing to take up the reports Mr. Stewart said that he would like to have some evidence put in regarding stumpage. He classfied the evidence given Tuesday night by Mr. Pennington as "worthless" for

the purposes of the inquiry as Mr. Pennington was not a paper man or a paper manufacturer. Besides the Crown Counsel counsel contended that most of the wood that Mr. Pennington had sold was converted into pulp in the United States. Mr. Pringle remarked that to the best of his information the United States was using seven million cords of pulpwood annually. "I feel safe in saying that over three million cords come from Canada" said the Commissioner. "I do not think pulpwood is to be looked upon as waste and has no value." The Crown counsel contended that pulpwood should only be entered in the cost of production of newsprint at its actual cost ——— i. e. what it cost the owners in dues to the Government.

"The moment the owner starts to remove pulpwood from his limits, these limits begin to decrease in value. I have a very strong view that pulpwood has a value," countered Mr. Pringle. Mr. Stewart replied that he did not want it to be taken or understood that he claimed pulpwood had no value whatever but he thought it should not be taken for more than "FIFTY CENTS PER CORD."

"It strikes me that **two dollars per cord** is not an unreasonable figure for pulpwood" stated Mr. Pringle.

Mr. J. A. Bothwell general manager of the Brompton Pulp and Paper Co., was called as a witness on the pulpwood value question. He explained that in 1912 the Brompton Company had purchased limits embodying 5,150 acres at a cost on the stump of $2.55 per cord. Carrying charges today made it worth $3.42 per cord on the stump. In 1913 Brompton purchased another limit of 4,349 acres at a cost of two dollars and fifty nine cents per cord on the stump. Carrying charges made it worth $3.59 cents per cord today. In 1912 there another limit of 4,600 acres that Brompton paid $4. per cord on the stump and carrying charges they estimated made the wood in this limit on the stump worth five dollars and forty-eight cents per cord.

Since 1912 the Brompton Company, so Mr. Bothwell testified, had been in negotiations with another party and had offered $4. per cord for the wood on the stump. This offer was not satisfactory. "We will have to pay more today for those limits if we want to get them," said Mr. Bothwell. Altogether the Brompton Pulp and Paper Company has 300,000 acres of timber and pulpwood limits. The company charges the timber lands on money invested. The carrying charges include fire ranging, taxes, and other incidental expenses. "What do you think would be a fair price for the settlers wood in Ontario?" asked Mr. Pringle of Mr. Bothwell. Mr. Bothwell said he could not speak for the price in Ontario but estimated that in the Province of Quebec pulpwood was worth from two to three dollars per cord on the stump.

Mr. F. M. McCrea, M.P. and president of the Brompton Pulp and Paper Co., and indentified in one capacity or another with various other pulp and paper manufacturing companies followed. Regarding the value of pulpwood, Mr. McCrea told the Commissioner that its value very largely depended on its location. Mr. McCrea thought that at two dollars per cord on the stump. "As president of the Brompton Company I authorized Mr. Bothwell to pay four dollars per cord for the wood on the stump and if he could not get it for that to pay more " said Mr. McCrea referring to the pending transaction between the Brompton Co. and the owner of the limits in question.

Mr. H. I. Thomas of the John R. Booth plant gave a wealth of information regarding the value of pulpwood and cited experiences in the John R. Booth business that clearly showed that pulpwood has a considerable value and that acquiring pulpwood limits is quite a big financial undertaking as is the carrying charges on them through the years.

Mr. Thomas first told of a purchase made in 1907 by John R. Booth of a pulpwood tract in one of the most remote locations known as the Montreal River district. The wood out on these limits takes from two to three years to reach the mill, "it is never less than two years," said Mr. Thomas. Mr. Booth purchased three hundred and fifty miles in this district by public tender from the Government, he having twenty one years to cut over the tract. The price paid was $350,000. "We have cut about one hundred and twenty thousand cords in ten years," said Mr. Thomas. This expert of the Booth plant explained that some time ago a fire swept over part of the limits and destroyed about one third of the total footage thereon. Mr. Booth incidentally had to bear this enormous loss. As a basis Mr. Thomas said about 12.000 cords were cut annually on this limit. The cost of carrying this limit for a period of ten years Mr. Thomas said brought the cost to $570,000 — **over half a million dollars** — for, on an estimated average, 250,000 cords of pulpwood. The cost of this wood now was about $2.30 to which price had to be added fire-ranging and other costs. The wood originally cost about eighty five cents per cord. This year Mr. Thomas said Mr. Booth had paid around $10,000 for fire ranging. In response to a question from the Commissioner Mr. Thomas said "taking Mr. Booth's holdings, pulpwood is at least worth two dollars per cord and I think a reasonable charge would be three dollars."

Mr. H. Biermans of the Belgo-Canadian Mills followed and produced six judgment awards in Quebec courts in connection with pulpwood disputes and trials. The first was an award made in 1906 whereby pulpwood was shown to have a value of $1.80 per cord. The second was also in the year 1906 and was for $1.80 per cord. The third was an action between Price Bros. and one Lambert in which judgment was given for $2.40 per cord. The fourth was Ritchie Vs. the Union Bank of Canada and the price per cord was $2.40. This judgment was made in 1909. In 1910, in the St. Maurice Vs. Belgo action, an award of $2.10 per cord was made. In 1917 Belgo Vs. McDougall, O'Brien et al regarding a limit on the line of the Transcontinental Railway an award of $2.40 per cord was made and the successful applicant reserved to himself the right of cutting on the burned over land, which Mr. Biermans estimated retained a value of fifty per cent. of its original worth. On this analysis the wood was worth $4.80 per cord on the stump to the Belgo-Canadian mills.

Mr. George Cahoon, Jr., was the next witness heard. He said Laurentide at the present time was developing a nursery and expected to plant 1,000,000 trees a year. He estimated the cost of planting at about $7. per acre. The limits run about four cords to the acre. Mr. Pringle questioned if it was the purpose of the Laurentide Co. in reforestration to put in "tree for tree" and Mr. Cahoon replied: "We intend to put in a hundred trees where one used to be."

"It strikes me that with sixty per cent of Canada, apart from the Prairie provinces, being suitable and favorable for the growth of timber that reforestration

is a very important if not to say a profitable work." Getting back to the presumed, alleged, inflated, or so called profits of Canadian paper companies Mr. Pringle called attention to the fact, that if the newsprint industry appeared to be profitable now, one had to remember the "lean years" through which some of these companies had passed.

The questioning turned to the reduction in sulphite sale prices. Mr. Cahoon when asked for his opinion said he believed the non-interference of the Government in attempting to regulate the sales price for sulphite had brought about the reduction which in turn was governed by the law of supply and demand. Mr. Cahoon advanced the belief that in a very short time sulphite in Canada, with the increased tonnage of the new mills, would be selling below cost. Competition between the sulphite mills, and the demand as compared with the increased supply would bring about a considerable reduction in price, Mr. Canoon thought. "I do not believe that Laurentide has made a cent out of sulphite lately," said Mr. Cahoon.

Commissioner Pringle read from a paper trade publication the annual statement of the Laurentide Company, commenting at the termination of the article: "That's a very nice statement."

"We had a few nice months of business," countered Mr. Cahoon. Mr. Pringle inquired further, which brought from Mr. Cahoon the statement:

"We are proud and justly proud of that statement."

Mr. Pringle inquired of Mr. Cahoon if the paper manufacturers were having any trouble with the sulphur situation. Mr. Cahoon said that he understood that the embargo on sulphur from the United States had been lifted for thirty days. All the Canadian paper manufacturers, Mr. Cahoon presumed, were in the same boat as regards sulphur. None of the paper plants in Canada had large supplies, and most of them were supplied by monthly shipments from the Union Sulphur Company.

Spanish River.

The statement of Spanish River Pulp and Paper Co. was the last report to be examined at the last period of the fourth session of the newsprint inquiry. Regarding the capitalization of the company Mr. Clarkson said that he thought the company should be asked to give evidence in this respect before the Commissioner. The capital stock by the return to the Commissioner was said to be $8,000,000, and the preferred stock $5,600,000. Depreciation last year was charged up at about five per cent. Previously it had been around two and one-half cents per ton. The Crown dues on the wood cut amounted to about forty cents per cord. Sinkage was about four per cent.

Groundwood costs under two headings, the first without allowing for stumpage, the second including stumpage were given to be, per ton, as follows:

Date.	Without stumpage charge.	Including Stumpage.
1916	$10.59	$12.27
1917 January	14.70	16.59
" February	14.26	16.14
" March	14.46	16.35
" April	14.41	16.30
" May	14.60	16.50
" June	14.44	16.34

The costs of sulphite "slush" pulp were given by the auditor to be, per ton, as follows:

Date:	without stumpage.	including stumpage.
1916	$24.25	$27,31
1917 January	36.52	40.12
" February	34.86	38.46
" March	37.07	40.66
" April	37.41	41.07
" May	35.11	38.74
" June	35.86	39.51

"Lapped" sulphite costs, inclusive and exclusive of stumpage, were given to be, per ton, as follows:

	No stumpage.	including stumpage.
1916	$25.80	$28.86
1917 January	38.36	41.97
" February	36.98	40.58
" March	39.40	43.00
" April	39.29	42.90
" May	37.26	48.89
" June	38.22	41.86

The newsprint costs inclusive and exclusive of stumpage and without allowing anything for profit or selling, which amounted to about sixty cents per ton, through George H. Mead and Co., Dayton, Ohio, were given as follows:

Date:	Cost per ton, No stumpage.	Cost per ton, *With stumpage.
1916	$24.65	$26.80
1917 January	35.59	38.00
" February	34.77	37.23
" March	36.39	38.88
" April	36.40	38.90
" May	36.00	38.50
" June	36.64	39.17

*Stumpage exclusive of Crown dues.

The profit on sulphite sales in 1916 amounted to $112,000, or about $11.50 per ton on sulphite and screenings. The profit on groundwood was about $6.73

When attempting to figure out the proportionate return allowable on capital invested with this company, Mr. Pringle was properly "stumped" when he came down to making allowance for the common stock. Mr. Clarkson was of the opinion that upwards $1,000,000 worth of the capital stock was "watered." Here is how Mr. Pringle tried to proceed in making up his cost for Spanish River.

Cost including stumpage dues	$39.17
Selling charges	.60
Timber dues	.60
Bonds and investments	4.67
Interest on preferred stock	2.93
10% on common stock	5.88
Total	$53.85

The figure $53.85 was taken exception to by the Crown as thirteen dollars and forty-eight cents beyond production costs. In the case of the other mills, from five to seven dollars per ton was allowed as a return on investment. In the case of Spanish River this allowance or charge was considerably in advance of the figure for other mills. In view of the situation Mr. Pringle suggested that Mr. Wilson and Mr. Clarkson go more closely into the matter of Capitalization and later on make a report, as an exhibit, for the Commissioner's information.

In conclusion, Mr. Pringle said that he wished to wind up the inquiry as soon as possible, and set Monday, October 29th, as the date on which the probe would be continued and the reports from the other mills received.

Paper Pointers from a Practical Pressman

By. H. MALIN, MONTREAL.

(The following article is contributed by a practical ewspaper pressman, having many years experience the operation of all kinds of newspaper printing esses. It is suggested that the hints given may be und of use to mill men who may be sent to inquire to complaints that may be received as to the quality the paper supplied by their mills to newspaper offices.)

It is the ambition of every responsible man in a per mill manufacturing rolls of newsprint, to produce paper which shall give the maximum number of eets to the pound; which shall be opaque and give od printing surface which will need a minimum nount of color, which shall be as free as possible from st; and which shall at the same time be strong, reble, and without flaws; so that it will pass through st running newspaper printing presses without causg waste, delay and inconvenience in the production the finished newspaper, by breaking.

To enable the papermakers to do this, several govnments and private interests have equipped many boratories for research work, and highly trained emical and technical engineers are employed to rect and supervise in a scientific way, the actual rformance of the work at the mills.

It occasionally happens, however, that complaints e received at the different mills, that the rolls of per are damaged, and are failing to give satisfaction cause they are badly out of shape. Investigation the part of the mill representative will frequently ow that the trouble has come about through the way which the rolls have been handled after leaving the ll. Many mills place large labels on the wrapper of ch roll, warning the carriers not to use hooks and t to place the rolls on end. Often for the sake of onomy of space, however, the rolls are stood up on ds, and if this is done carefully, no great harm is ne; but when it becomes necessary to move them ain, these rolls, weighing between twelve and fourn hundred pounds, are brought down to the horiztal with a force that not only knocks them out of the undness that is so necessary if the rolls are to run cely in the presses, but also bursts the ends open, and uses a considerable amount of damage to the paper. paper must be handled in this way, and there is not fficient help available to bring down the rolls gent- bags, well filled with sawdust, or loose paper, well cked, should be used to break the force of the fall. mplaints on this score are easily stopped by a little endly instruction to the persons found to be at fault. Other complaints as to the strength of the paper, its liability and quality, are not so easily dealt with. me complaints are genuine and are justified; whilst ners may be made from ignorance, or from incomtence; and occasionally in bad faith; as for instance en a certain newspaper pressman, considering himf overlooked at Christmastime, condemned a numr of rolls of paper as unusable, and wished to have em returned to the mill. Feeling doubts as to the n's good faith, and for other reasons, the newspaper oprietors replaced him with a new man, who ran off the rolls through the press without a word of complaint, and without any delay on the various editions.

Of the complaints that are genuine, the most frequent are those dealing with the strength of the paper; poorly made splices or joins in the rolls; weak spots and breaks that have escaped the notice of the machine tenders in the mills; dry and brittle paper; and rolls that are badly out of shape, or have slack and tight ends. All of these troubles can be, and are, dealt with in the mills, but most of them can be overcome in the newspaper pressrooms by a pressman willing to exert himself, and make the best of conditions as he finds them.

As before stated, rolls badly out of shape are not the most desirable to run through newspaper presses, but their shape can often be improved by a few taps with a flat iron bar. The press manufacturers recognise the difficulties these wobbly rolls cause, and most presses are now equipped with pipe rolls and springs, which act as justifiers or equalizers, and help to deliver the paper to the printing cylinders at an even rate. These springs, however, must be set carefully, or they will do more harm than good in the hands of an inexperienced workman.

With regard to rolls having slack and tight ends, many presses of the flat bed type will not run them unless the slack end is put to one particular side of the press. Experienced men take care that the rolls are placed in the press in the best way, and it is always possible to find which the best way is by percussion—the tight end sounding solid and the loose end sounding flabby. It would be a great advantage if the paper to be used on these presses could be supplied with both ends a little slack, but owing to the large size of the modern papermaking machines, it is not always possible to do this.

The ends of rolls that have been in stock in a warm room for some time, tend to become dry, and should be damped a little just before they are to be used. This also softens any dirt or paste that may have got on, and enables the paper to unwind without tearing.

Frequently breaks are caused by the roll being loose on the shaft; whilst much paper is damaged by forcing the chucks into the paper centres too far, and thus bursting them.

Of the complaints due to the ignorance of the pressman as to the conditions in other branches of the printing industry, and their relation to his own particular branch of the trade, we may quote the following instances. A pressman was supplied with a can of ink which he believed to be too stiff to use. He thinned it down with a quantity of coal oil. Had he added only a little, it would have been alright, though coal oil is not the best means of thinning down ink; but he overdid it, and made it too thin, and sloppy. The result was that he had to carry quite a large supply on the press to get a colour of some sort, with the consequence that the coal oil penetrated through the paper, and gave it a very disagreeable appearance. The man thought that his trouble was due to the paper being too soft and absorbent, but after he got through with the spoiled ink, and procured another supply, his troubles were non-existent.

Very similar, too, in a different direction, was the trouble of another young pressman. Thinking to improve the look of his paper, he added a quantity of drying varnish and turpentine to his ordinary news ink. The effect of this was to pull up the face of the paper when it came in contact with the type, and the press had to be stopped and washed up in the middle of the edition. Not grasping the real cause of the trouble, the young man blamed the paper, claiming that it was full of dust; but after cleaning out his fountains and returning to the use of ink as supplied by the ink-makers, he made no further complaints.

Practically everyone at the present day, knows that it is impossible to print fine half-tone etchings of 160 lines to the inch on ordinary newsprint, but in the following instance, we have a case where the correct screen was being used, and yet was failing to give satisfaction, for which the paper was unjustly held responsible. The proprietors of a newspaper in a large provincial centre were very dissatisfied with the printing of their illustrations The proofs received from the photo-engravers showed very excellent pictures, the stereotyper and the pressman were known to be capable men with many years' service; yet the final results in the newspaper were very poor. The pressman showed by practical demonstrations that his press was capable of printing well on art paper, but not on newsprint as supplied, and it was assumed that the paper was too rough and absorbent to be suitable for the work. Knowing that the same sort of paper was giving good results in other offices, investigations were made, and it was found that the etchings were being made in a rocking tub, and that a large amount of undercutting was taking place. The tub was displaced by a blast etching machine; the undercutting ceased, and no further complaints were made regarding the paper. Had the pressman or some other person examined the etchings with a microscope the source of the trouble would have been discovered at once, and much irritation prevented.

Coming now to the complaints which are unjustified, and which owe their origin to the want of care, or to the want of mechanical knowledge on the part of the pressman, we find that the most frequent one is that of the breaking of the paper while it is running through the printing press. The causes for this breaking are several, but we may take it for granted that if the paper will unwind, and enter the printing cylinders under tension, without breaking, that with very few exceptions, the sheet is a perfectly good one; and given proper conditions in the press itself, should go through in a satisfactory manner.

In some web machines, the cylinders are supported by heavy springs. If these springs are not acting properly, they will allow the cylinders to fall at the gutters, leaving them down to receive a sharp blow from the edge of the oncoming metal plates. This is enough to break any paper, and the springs must be attended to.

On many of the older pattern presses, the first blanket cylinder is only one half the size of the second one. This means that it performs twice the amount of work, and that the blanket becomes beaten down in half the time. Consequently it fails to supply sufficient paper to the second cylinder, and the web is broken between them. The remedy is to bring the circumference of the first cylinder back to its proper size, by the addition of a sheet of cotton drawn tight over the outside of the blanket, or by pasting a sheet of brown paper under the rubber. Incidentally, this will give a brighter appearance to the printing, as it will allow the sheet to run more freely, without dragging, over the second cylinder. The cylinders must also be clothed to travel at the same rate as the plate cylinders, though it will be found in practice that presses are very accomodating in this respect.

In setting the impression cylinders, a gage should be used, and if it is desirable to have one cylinder set a little heavier than the other, let it be the first, and never on any account the second. Pipe rolls and compensating rolls must be in alignment, and faulty plates should either be discarded, or should be adjusted by underlaying the low parts and scraping away the heavy ones. It is a thoroughly bad practice to try to bring up bad plates by putting on extra impression.

On all newspaper presses running plates of fixed sizes, the blankets will be worn or beaten down where they come in contact with the printing surfaces of the plates, leaving high ridges elsewhere. These high ridges must be removed either by hammering, by sandpapering, or by searing with a hot iron. The last is probably the best way if care is taken to burn off only the wool, and not to injure the cotton fabric. Unless these ridges are removed, they will cause lots of trouble if the paper is at all on the dry side, by cracking it, because dry paper is not flexible enough to accommodate itself to the uneven blankets.

When several rolls are running at the same time, care must be taken to set all the tension brakes in harmony with each other. Paper is often broken by tightening up a brake on account of a loose sheet, when the proper treatment is to loosen off the other brakes. The compellors at the head of the former, and the nipping rolls at the bottom, must be set so that they will just dispose of the web as it is delivered from the printing cylinders. If the nose of the former is too high, it will cause the sheets to burst in the back of the half page fold; if it is too low, it will cause the sheets to crease.

Unfortunately, there are no educational facilities at present in existence whereby a man can obtain any training which will enable him to improve his knowledge of the trade. The old apprenticeship having died out, the youth goes into the pressroom as a labourer, and takes his chance as to whether he ever learns anything. In the larger places there is no time to train men, while in the smaller offices, the man who knows is not always willing to pass on his knowledge to others. Until such facilities are established, the paper-makers must expect to occasionally receive complaints that are not justified. Every printing pressman that is worth while becomes expert in handling his press in course of time, but the process can be materially hastened by the hints given to him by the men who have been so fortunate as to have received their training in the paper-making industry.

IDENTIFICATION OF LONGLEAF PINE.

A method of indentification for distinguishing longleaf pine from loblolly and shortleaf pine has been worked out at the Forest Products Laboratory. It is based on the diameter of the pith and the second annual ring. This is for botanical identification. For strength purposes there is no necessity for distinguishing the species of southern pine, provided the timbers are graded by the density classification.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Chemistry of Cellulose and its Important Industrial Applications. H. S. Mork, J. Franklin Inst. **184,** 2-370. (Sept. 1915). Cellulose is a carbohydrate of the ipirical formula $C_6H_{10}O_5$, but the cellulose molecule very complex and made up of a large aggregate of oups of this composition. There is not sufficient ta existant on which to base any definite structural rmula. The solvents of cellulose (—as distinguish- from the cellulose esters—) are all very strongly id or very strongly alkaline. Those in industrial e are sulfuric acid, zinc chloride or bromide, and cu- ammonium solution. This latter is a strong solution copper hydrate or carbonate in ammonia. The sul- ric acid is used in the manufacture of parchment per, the zinc chloride in the manufacture of vulcan- ed fibre, and the cuprammon has been extensively ed in Europe for the manufacture of artificial silk. hen cellulose is dissolved and recovered from a solu- on by coagulation the original fibrous structure is ways destroyed. These coagulated products are rious forms of hydrated cellulose. It is a matter of ntroversy whether a cellulose hydrate is a cellulose a form capable merely of mechanically holding a rge amount of water, or whether this water, in part least, is chemically combined with the cellulose. The rden of the evidence is in favor of mechanical ab- rption. Besides **cellulose hydrates,** there is another rm of combination of water and cellulose, called "**hy- ocellulose.**" This is a real hydrolyzed form of cel- lose, and is produced when acids and alkalies act on llulose, with the proper conditions of time and mperature, and not necessarily with accompanying so- tion. Hydrocellulose may still preserve the form of e original fibre. In hydrolized cellulose the amount water combined is variable depending upon the verity of the hydrolysis. The ultimate result of ntinued hydrolysis is the formation of dextrose. It probable that the hydrolysis of cellulose proceeds ong lines closely analogous to the hydrolysis of arch. Hydrolysis is the basis of the carbonization pro- ss for separating cotton from wool in the manufacture shoddy. The complete hydrolysis of cellulose to gar is assuming considerable industrial importance the manufacture of ethyl alcohol from sawdust and her cellulose wastes. This is an established process demonstrated merit. Hydrocellulose is soluble in all e cellulose solvents and therefore a hydrocellulose drate is a possibility. Cellulose is susceptible to idation with the formation of oxycellulose. Oxy- llulose always is produced when cotton or wood pulp subjected to overbleaching and the extent of its rmation can be ascertained by determining the cop- r number or its ability to reduce Fehling's solution. limitation of the copper number is frequently insert- in specifications for bleached linters for nitrating rposes. The formation of oxycellulose is always co- cidental with a loss in strength of the fibre. There as been developed in the last few years a new product hich is not an ester but an ether of cellulose. It is aimed for the ethers that, like simple ethers, and not ters, they are not susceptible to saponification and as ere is no acid radical in their makeup, they remain rfectly neutral and stable. These do not appear to made to any extent in the United States as yet. The st thirteen pages of this article are concerned with the cellulose esters including a discussion of the use of cellulose acetate in the manufacture of airplane cloth varnish. Anything concerning the cellulose esters must necessarily be largely a discussion of solvents and these subjects are so far removed from any possible application of cellulose with relation to paper as to render further abstracting inadvisable.—A. D. C.

Colloidal Chemistry in Paper Making. Judson A. Decew, Jour. Soc. Chem. Ind. through Sci. Am. Supp. Sept. 22, 1917. The cellulose materials of fibrous character from which paper is made are gel-forming colloids. The only exception to this is paper made from asbestos, and even in this case it is necessary to add colloidal material in order to obtain a satisfactory product. The colloidal properties required in paper making are developed by mechanical treatment with but slight alteration in the fibre structure. Under grinding action the fibres may swell by the absorption of water until they have a greatly increased weight. This phenomenon is known as hydration. The colloidal properties of the fibre produce both transparency and increased strength in the product and at the same time reduce the capillarity. The greatest density and translucency are seen in the grease proof or "glacine" papers. The voids in these papers have been filled by pressing tightly together the cellulose fibres which have been previously beaten until they have taken on a gel-like character. "Brown" or "white kraft" is made from fibres which have been brought to a very colloidal state by long beating without reducing the length of fibre. "Water finish" paper is made translucent by wetting the paper and crushing the fibres together by means of hot calender rolls. In this case the colloidal property of the cellulose is made evident by means of pressure alone. No increased strength is obtained in this way, such as results from the drying together of well hydrated fibres. The more drastic the grinding and crushing action, above mentioned, the more rapidly will the material become gel-like. This action may be accelerated by chemical means. Some hydration takes place in cellulose fibres by mere contact with cold water. Although this is small and takes place very slowly it is enough to cause trouble when a hydrated product is not desired. In the manufacture of newsprint upon high speed machines the amount of hydration which is secured by allowing the wet pulp to lie in the vats over Sunday is sufficient to cause such sticking on the presses of the machine that considerable time and paper is lost. It has been found that lignocellulose fibre, such as jute or wood, does not gel so readily by cold mechanical treatment as does cellulose, but conversely to the cellulose, its hydration is accelerated by the application of heat. Rosin used for sizing is distributed throughout paper making material in the form of a colloid. A high free rosin soap, properly diluted, gives, when coagulated with a salt of aluminum, a highly colloidal precipitate of rosin and alumina. When rosin is in colloidal solution in a highly diluted soap, a portion can be taken up by the fibrous material by absorption. This is more efficient than the aluminum resinate obtained from a soap where the rosin has been more or less completely saponified.—A. D. Conley.—See Pulp and Paper, p. 607 for brief abstract and references.

UNITED STATES NOTES

Word from Utica, N. Y., states that the Graesonia Paper Mills, Inc., has filed a voluntary petition in bankruptcy with the Federal Court in that city. The Graesonia Paper Mills, Inc., has its factory plant and offices located at Frankfort. The petition was filed through Walter H. Gleason, president of the concern. The liabilities are estimated at about $22,711.27 and assets at $1,775.11.

The Century Colors Corporation, which recently increased its capital to $200,000, has taken over the sales and technical staff of the Cassella Color Co., will sell the dyestuff products of the National Aniline and Chemical Co., Inc., with which the company has become closely associated. This company, with headquarters at 182 Fulton street, will also handle other lines of dyestuffs and chemicals.

The news print manufacturers that were recently indicted, are to be tried in this city, on Nov. 12, it is understood on what is considered good authority. The trade of the city looks forward to this event with considerable interest, to see just how it will reflect on the other branches of the trade. It is hoped that the prejudice against the paper men, created by the newspapers will not be allowed to manifest itself. The hearing was postponed because of injuries sustained by Counsel H. A. Wise in an automobile accident.

Plans are being perfected for the erection of a large plant to manufacture paper cans and bottles in the vicinity of Sacramento, Cal., by the Universal Paper Can Syndicate trustees of San Francisco. A plan has been laid out whereby the money will be raised. It is hoped to start work in the near future.

It is understood that the new mill of the Frank Gilbert Paper Co. is now operating to get out westbound shipments. The mill, the product of which is sold through the Forsythe Paper Co., of Chicago, will be in a position to take good care of the Western trade.

New York is to lose its expert traffic man temporarily, for Thomas G. Smiley has just accepted a commission as captain in the Ordnance Department and is already in Washington on duty. Mr. Smiley has been manager of the New York Pulp and Paper Traffic Association since its start and has been among the foremost of the workers in this country to protect the mill interests against the schemes of the railroads. Mr. Smiley has come to be known as a man of unusual keen foresight — as a man who scented trouble long before it was visible and prepared in such fashion that he was ever ready for anything that the railroads might try to spring on the mills. He was one of the chief witnesses in the important traffic hearing held about two years ago in this city, at which the railroads were prevented from putting into effect increases in rates that would have meant large expenditures for the various mills throughout the United States and Canada. Mr. Smiley has been prominent in practically any movement for the better of freight conditions and fairplay for the paper manufacturers. It is understood that the commission was offered to him because of experience during the Spanish-American war, when Captain Smiley had charge of transportation facilities. He will have charge of the field service of the supply division of the Ordnance Department under direct supervision of the sending of men to France. Mr. Smiley has the congratulations and best wishes of the trade in his new capacity.

It is understood in official circles in this city that a shipment of indigo and coal tar dyes valued at about $1,000,000, is now enroute to this country from Switzerland. It is also understood that one local concern will receive dyes and indigo from this shipment, valued at close to $850,000 and that the duty on this consignmetn will probably amount to $250,000. This will probably be one of the largest shipments of dyes ever received in this country at one time. The customs officials from whom this information was received, would not reveal the name of the consignees, but it is generally believed that A. Klipstein and Co., one of the big concerns catering to the paper trade, will be the recipient of the shipment. No definite statement was made at the offices of A. Klipstein and Co., nor was anything said that would tend to make one believe they were not the consignees.

The Patten Paper Co., of Appleton, Wis., has purchased a large tract of land near Lake Michigan, involving more than 4,000 acres of timber land. The timber will be utilized for pulp wood and will be shipped to Appleton.

The Impervious Container Corporation of Buffalo, N,Y.. has filed notice of an increase of capital stock from $50,000 to $250,000.

The North Carolina Paper and Pulp Co., of Wilmington, N.C., is reported to be planning an investment of $100,000 for site, buildings, machinery, etc., for the manufacture of kraft paper.

A fair amount of business has been reported in paper makers' chemicals. Consumers are said to be showing considerable interest and the various markets are looking upward. Washed high grade china clay is very strong and quotations are now quoted at about $13 to $20. Alum has been in good call, but supplies continue scarce. Rosin is holding firm. It is expected that pale grades will be scarce at primary markets for the balance of the year and no declines are looked for on these qualities, though on the others the situation is not viewed so favorably. Bleaching powder is holding up and prices for domestic drums continue quoted about 1¼c to 1½c. Casein is in movement, but quantities taken are none too extensive. Caustic soda and soda ash continue strong.

The paper mill of the plant of Sears, Roebuck and Co., Chicago, Ill., established about a year ago for the production of wall paper hanging, will shortly have a fresh source of supply. This will come through the annual publication of the catalog of Sears, Roebuck and Co. Tons of paper in the form of clippings, trimmings and other waste, will go to the sorting room of the mill where it will be classified according to kind and thrown into the beaters. Stewart Waring, manager of the wall paper department ,says that all mechanical difficulties in the operation of the mill have vanished, and that the company expects to further increase its output of wall paper during the coming year.

PULP AND PAPER NEWS

Among the lumbering camps of J. McD. Grosart, the ogging contractor at the Matiagami Pulp and Paper o., there are this year no less than one hundred and wenty children and some forty women with the four o five hundred men employed in the woods. The hird day after the jobbers arrived on the grounds all amps were built and on the fourth day logs were eing piled on the river banks. The record for high ages has probably been reached in these camps here $65.00 to $80.00 a month is being paid choppers. n one instance as high as $90.00 a month (and board f course) is being paid.

An extra provincial license has been taken out by olph-Clark-Stone, Limited, of Toronto, a corporation reated under the laws of the Dominion, to do busiess in Ontario and to employ a sum not exceeding nine undred and fifty nine thousand dollars. Frank A. olph, manager of the company, has been appointed s attorney in the province. An extra provincial li-ense has also been taken out by the International umber Co., a corporation created under the laws of linnesota, to do business in Ontario.

Joseph Gatti representing the Gatti-McQuade Co., aste paper dealers of Hoboken, was in Montreal st week calling upon the trade.

A charter has been granted to the Harris Tie and imber Co. of Ottawa, with a capital stock of one undred thousand dollars and with power to carry on ie business of timber and lumber merchants and deal wood of all kinds. F. X. Plaunt and H. P. Plaunt Ottawa, are among the incorporators.

The Observer and the Canadian, the two newspapers, hich have been published in Sarnia, Ont., for some ears, have amalgamated and will be run as one paper nown as the Canadian-Observer, with daily and week- editions. Leslie Macadams, now of the Canadian, President of the new merger, A. D. McKenzie, late usiness manager of the St. Thomas Times, Vice Pres-ent, and Wm. Lowery, late of the Petrolia Topic, ecy.-Treas. Harry Gorman, proprietor of the Sarnia bserver retires from newspaper work.

The Canadian Y.M.C.A., operating in France, sup-ies one million sheets of writing paper and half a illion envelopes every month. Magazines are cir-ulating every month and the number runs into many ousands, all of which are supplied free to the Can-dian soldiers.

Lord Northcliffe, the eminent British publisher, ho recently visited Toronto and other cities, and ddressed the Canadian Club, has consented to return Toronto on October 15th to launch the campaign raise $500,000 funds for the British Red Cross. A g mass meeting will be held in Massey Hall, which ill be addressed by Lord Northcliffe.

A charter has been granted to the Delta Chemical o., Limited, with a capital stock of forty thousand ollars and headquarters in Toronto, and among the owers of the new incorporation is to manufacture nd deal in pulp wood, wood pulp and paper.

William Jephcott of the Dominion Paper Box Co., Toronto, and wife who have been on a motor trip in the Berkshire Hills for the past two weeks have returned to Toronto.

C. Nelson Gain, sales manager of the Don Valley Paper Co., Toronto, and wife, have returned after spending a pleasant holiday in New York and among the Catskill mountains.

A number of circulation managers of Toronto newspapers left this week for Atlanta, Georgia, where they will attend the annual convention of the International Circulation Managers Association.

Norman Beveridge, superintendent of the Dryden Timber and Power Co., Dryden, Ont., was in Toronto last week for a few days on his way home from Chatham, Sackville and Campbellton, N.B., where he was spending a three weeks holiday. He was accompanied by Mrs. Beveridge.

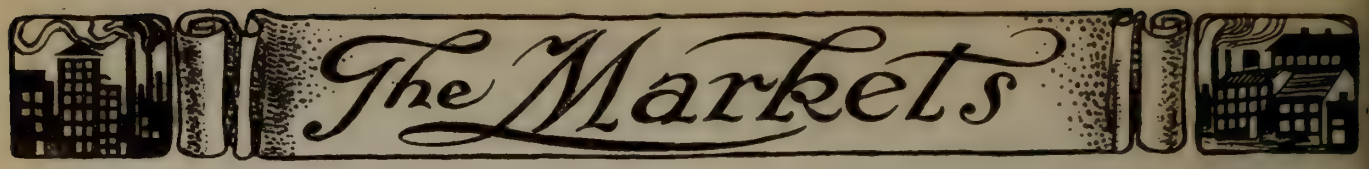
Three young men, Messrs. Hansen, Johanson and Oleson, who had been employed with the Canadian Pulp and Lumber Co., at Latchford, Ont., and were turned back by the immigration officer at Niagara Falls, Ont., on their way to get to Buffalo to ship aboard a vessel, secured a skiff and attempted to row across Niagara river above the falls after dark. The current was too strong and soon swamped their boat. They all fought for their lives in the raging waters and two of them landed on Navy Island but Oleson was carried over the Falls and was drowned.

James Beveridge, of Chatham, N.B., who for some months past has been engaged in a consultatory capacity with the Rainy River Pulp and Paper Co. which recently put in operation the kraft plant at Port Mellon, B.C., has returned to the East.

A fire, which is supposed to have been of incendiary origin occurred in the paper storage at Bishop's Falls, Nfld., last week destroying nearly nine thousand bales of pulp and damaging the surrounding structures considerably.

Pulp and paper firms along the St. Lawrence river are considerably aroused over the report that a new scheme to dam the stream has been quietly going on during the last few months. Preliminary steps were taken with the utmost discretion and the promoters, who have organized a company with half a million dollars capital, will shortly apply for a federal charter, and for authority to dam the river. A similar attempt was made a few years ago by other power capitalists to dam the river at Cornwall. As in that case, the promoters of the present ambitious plan propose to provide a lock through which boats may pass if everything works satisfactorily.

The Dryden Timber and Power Co., at Dryden, Ont., are working to full capacity and turning out about fifty-five tons daily of sulphate pulp and twenty tons of sheathing paper. A 114 inch Fourdrinier machine is being installed and, when it is in operation, the company will make about twenty tons a day of kraft paper and will also increase their sulphate production to about seventy-five tons.



CANADIAN MARKETS.

Toronto, October 9, 1917.

The big feature of the past week was, of course, the resumption of the new print inquiry at Ottawa, the proceedings of which are fully covered in this issue of the **Pulp** and **Paper Magazine**. The opinion expressed on all sides is that the news print men strengthened their case with the Commission in the fight for a higher price, and there seems little doubt but that the figure will be fixed at three cents or more. It is likely that, after the next sitting which will be on October 29th, all the evidence will be cleared up and Commissioner Pringle will make his report to the government. By himself, it is understood that Mr. Pringle has not the sole power to fix the rate, but it is presumed that his recommendation will be given earnest consideration by the government and that it will be acted upon by order-in-council. There would be little sense or reason in appointing a Royal Commission to fully investigate if the report was not acted upon sooner or later by the government and no one thinks that the recent inquiry is any sort of make-shift or subterfuge.

The one doubt that looms up in the mind of the paper makers and the newspaper publishers as well, is how long it will take the administration to act on Mr. Pringle's recommendation and, if they think the rate named is too high, what course will the Canadian Press Association, who some time ago withdrew from the proceedings, pursue? There are those who profess to believe that a new price will be fixed before the election but again there are others, who are firmly of the conviction that nothing definite will be done and newspapers will be better pleased to have the present arrangement of two and a half cents continue until after the contest, for there is one thing certain and that is, it is taken as a foregone conclusion that the rate will be higher. Two and a half cents has now prevailed from last March and it has been established that, if it were not for the higher figure which has been secured by Canadian plants in the United States where three and three and a quarter cents have been obtained, mills in the Dominion could not operate and pay expenses at two and a half cents, with overhead costs going up all the time, in spite of the utmost effort to keep expenses down to a minimum.

As one authority remarks truthfully and pertinently, it is now a matter of record that the profits made by Canadian mills have been entirely through the great market Canadian manufacturers had in the United States. This has always been an open market fortunately for Canadian producers, who have been subjected to price restrictions at home.

Now comes word from across the border that the Federal Trade Commission will take steps to prevent future news print price increases on false reports of short supplies. Publishers throughout the country have been directed to keep the Commission informed monthly as to their rate of consumption and the amount of paper stocks on hand. Already manufacturers are required to furnish weekly and monthly reports. It is alleged that the sharp rise in price last year was charged by the Commission, in a large measure, to the suggestion of the manufacturers that they could not keep up with the rate of consumption, and the federal trade body now assert that there was no actual shortage and intend that a similar situation shall not arise.

Reports received from the other side of the line are to the effect that the business situation, so long uncertain by pending legislation concerning income and war profits and, by the extension of the government's program of controlling domestic and foreign trade by various means including price fixing, is now clearing and trade is improving. This will be good news to Canadian pulp manufacturers who expect that business in their line will pick up materially from this out. An interesting announcement is that the Mattagami Pulp and Paper, Co., of Smooth Rock Falls, will be operating this month and will specialize on strong easy bleaching sulphite fibre. There is no change in the ground wood situation but prices are holding up well.

The importance of the large daily newspaper and the cost of operating and maintaining same is cited in the case of the Ottawa Journal Press, which in a recent issue, pointed out that in a city of that size, with one hundred thousand people, fifty or sixty thousand dollars yearly would cover all expenses. This was before the war. Now it requires a thousand dollars a day for every working day and every dollar that it earns at home is spent in the city while over sixty thousand dollars annually, which it earns elsewhere, is also distributed in Ottawa. This outside capital finds its way into the channels of retail trade.

Another interesting paragraph is that a barrel of German red dye, which had been hidden away in the stock room of a newspaper in Lincoln, Neb., since its purchase three years ago for eighty nine dollars, had been sold to a New York concern for five thousand dollars. The paper plant recently was sold and the new owners found the dye and put it on the market.

Book and writing plants are getting busier and orders have come in more plentifully during the past few days. It is expected that the remaining weeks of fall will show a decided increase in business and that mills, which have been operating only partially or on short time, will be run to capacity for the whole week. Toilet and tissue plants are fairly full and are looking forward to a good fall trade.

"What business is offering now is healthy and orders are given because the paper is needed" remarked a leading manufacturer this week. "There is no speculative buying and stocks with paper houses and large consumers including printing establishments are getting lower all the while, so that when these customers do come on the market for supplies, trade will pick up perceptibly. If there should be an advance in paper, what a rush there would be in placing orders. I do not see how prices can take a drop. The labor prob-

n is getting worse all the while and help is so scarce at we are thinking of appointing a woman to be the ss finisher in our mill. So many persons leaving re- ces the efficiency of our staff and otherwise inter- es with production. We are doing the best we can der very trying conditions and cost of maintenance ends all the while, not to speak of coal, wires, felts, ."

To enable their customers to have good deliveries, e of the leading paper mills has adopted the plan sending out notices of the grades of paper that it ll run each week for a month in advance, and ask- patrons to anticipate their wants and send in the lers before the dates mentioned.

The business with board mills has picked up con- erably during the past fortnight, and one sales man- er stated this week that the past few days had been best for months. American concerns which lower- prices considerably a few months ago, have with- awn their quotations in some instances and raised m in others. Paper box factories are getting quite y with trade for Christmas and for spring delivery. In the rag and paper stock market things continue ll and the mills are not inclined to purchase very ch. Soft white shavings have taken a drop of twen- five cents and white blanks are slightly weaker. ere is a slight rise in clean mixed papers and kraft. herwise the market continues featureless.

The following prices prevail f.o.b. Toronto:

Paper.

ews (rolls) at mill, in carload lots	$2.50
ews (rolls) in less than carload lots	$2.75
ews (sheets) at mill, in carload lots	$3.25
ews (sheets) less than two tons	$4.00
ews (sheets) two tons and over	$3.50
ook papers (carload), No. 3	$7.25
ook papers (ton lots), No. 3	$7.50 to $8.25
ook papers (carload), No. 2	$9.35
ook paper (ton lots), No. 2	$9.50 to $10.50
ook papers (carload), No. 1	$9.50
ook paper (ton lots), No. 1	$9.75 to $10.50
lgers	15c up
phite bonds	11½c
ht tinted bonds	12½c
rk tinted bonds	13½c
itings	10½c up
ted book and litho, No. 2	$11.75
ted book and litho, No. 3	$11.00
ted book and litho, No. 1	$12.75
ted book and litho, colored	$13.00 to $15.00
ey Browns	$4.75
bre	$7.35
anila, No. 1	$7.35
anila B	$5.25
g Manila	$7.50
glazed kraft	$8.75
zed kraft	$9.00
sues, bleached	$1.40 to $2.00
sues, (unbleached sulphite)	$1.20 to $1.60
sues, cap	80c. to $1.15
tural, greaseproof	14c
f bleached greaseproof	16c
ached greaseproof	18c
uine vegetable parchment	23c
ug papers, whites and tints	9½c to 10c
per bags, manila	20% discount
per bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, super-calender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$38.00 to $40.00
Sulphite, easy bleaching	$80.00 to $85.00
Sulphite, news grade	$65.00 to $70.00
Sulphite (bleached)	$115.00 to $120.00
Sulphate	$85.00 to $90.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.75
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.70
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.25
No. 1 printed manila	$1.25
Folded news	70c
Over issues	80c
Kraft	$3.00
No. 1 clean mixed papers	55c
No. 1 white shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50
Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
Thirds and blues, repacked	$2.85
Flocks and satinettes	$2.10
Tailor rags	$2.10

NEW YORK MARKETS.

New York, Oct. 6.—In certain sections, there has been discussion of a report circulated a short time ago, that considerable quantities of imported pulp were being stored at docks at Baltimore. It was pointed out that, under present conditions, such a thing was impossible. It was to avoid such a thing that the domestic pulp manufacturers had fought to make it illegal for the railroads at Baltimore, Philadelphia and Newport News to grant free storage privileges to importers for their stocks of pulp. In previous years, it had been the practice among certain importers, to bring in large quantities of stock and keep them in storage, which could then be done without cost, waiting a pro-

pitious moment to bring them out on the market. Today, however, it is pointed out that this cannot be done for the roads must charge storage and this would soon mount so high that it would be ridiculous for an importer to keep his stock in this way. In the market, chemical pulp is reported to be moving somewhat slowly. Buying is said to be along a hand-to-mouth scale involving only immediate requirements. Domestic stock is still the feature in movement to the mills, imported pulp being quoted at prices that are considered too high compared with those that are prevailing on domestic grades. Prices on domestic pulp hold firm and stocks of imported pulp are not being pressed for sale despite the lack of interest displayed by consumers. The improvement in the demand for paper that has hitherto been expected as sure as the fall shows some evidence of being on its way, but the increase in buying by consumers is still far from marked. Importers are refusing to sacrifice prices, feeling positive that they will soon be able to obtain full values for their stocks. A cablegram from Scandinavia states that all sailings to the United States have been suspended for the time being. Brokers, however, are going ahead trying to book future business, as the suspension of sailings is considered purely a temporary measure. Domestic unbleached sulphite is going at about $75 per ton at the pulp mill. Domestic bleached is in good movement, the price most generally heard being 6 cents, although some sales are said to have been consummated at 6¼ cents and down to 5¾c, with some reports current of quantities going at as low as 5½c. Domestic soda bleached is firm at 4¾c to 5¼c. Scandinavian kraft is in fairly active movement at unchanging prices, ranging at about 5½ to 6c.

While the groundwood market is firm, buying interest is not yet up to standard. The aggregate movement of stock to consumers is good, but not as extensive as has been looked for. Newsprint mills, as before, are taking the bulk of stock moving. Jobbers and dealers are also buying fairly actively for stocking up purposes, it is said. Manufacturers insist that now is the time for consumers to cover themselves properly for pulp, declaring that the next few months may witness some extraordinary conditions in the market. It is declared that it will be a difficult matter to keep production up to where it ought to be for two reasons: First, the labor question, and second the difficulty in getting materials needed to the mills. It is also further pointed out that the freight situation is becoming worse continually. One man ventured the opinion that, by January, it would be a very precarious proposition to rely on shipments of pulp at any specified period. Prices are still unchanged at about $41 a ton at the pulp mill, in the East. Some trading is reported at $40, but this price is said to be fast disappearing from the market. Trading in the West continues to be done at about $43, pulp mill.

The movement of old cotton rags is described as being rather quiet, on the whole. White rags have been reported somewhat easy in value, although on No. 1 whites, the price is said to be practically nominal up to over 4¾c. Thirds and blues also are a little quiet, being quoted up to 3 cents. Roofing stock continues in fairly good demand and prices are firmly maintained. Prices on new rags generally are said to

WOOD PULP

Groundwood and Sulphite

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New York Office
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Sole Selling Agent

Anglo-Newfoundland Development Co., Ltd.

Albert E. Reed & Co., Newfoundland, Ltd.

Shipments New York and Atlantic Ports

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EFFICIENCY

In order to bring your plant up to the highest standard of efficiency, it is not only essential to have competent workmen, but it is necessary to have the very best Sheet Metal for lining your tanks.

The Hoyt Metal Company has had a great many years experience in experimenting along this line and have evolved an alloy which will not only stand up under acid, but which does not creep or buckle, and will stand rough usage without breaking.

If you are contemplating renewal or installation of a new unit please let us go into the matter with you in detail.

Write for our Babbitt catalogue.

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TRIBUNE BOND
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Howard Smith Paper Mills, Limited

MONTREAL

Mills at BEAUHARNOIS and CRABTREE, Que.

J. R. Walker & Co.

GRADERS AND PACKERS OF ALL KINDS
—OF—

Paper Making Material---Rags Cuttings and Paper Waste

Rag Warehouse, 35 Common Street.

Waste Paper Warehouse, Grand Trunk Siding Wellington Street.

Bleached and Unbleached

WOOD PULP

of every description

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be higher than the mills are willing to pay. No. 1 white shirt cuttings are quoted at up to 9½c; fancy shirt cuttings, at up to 5¾c; new light silesias at up to over 6c; washables, at up to 5½c; street soiled whites at up to 2¾c; and black cotton stocks at up to 2¾c.

Buying in waste papers continues to be somewhat conservative. Dealers find it hard to explain this situation, for it is known that the tendency toward the use of waste papers for reclaiming purposes has been growing of late and that it is regarded not only economical, under the present conditions, but also that various mills have succeeded in getting very satisfactory results from the use of such material. It was calculated, some time ago, that the waste paper market would remain strong and active throughout the period of the war. However, today, it is understood that buying is slow even when the dealers offer slight concessions. On the other hand, however, it appears that the foresighted among the dealers are holding firm for their goods, only sacrificing when it is necessary to make room for other goods, still confident that the market must turn in their favor in the very near future. Some of the quotations that are ruling to-day are as follows: No. 1 hard white shavings, up to 4½c; soft white shavings, up to 3¾c; colored shavings, up to over 1½c; heavy books and magazines, up to 1¾c; over-issue magazines, up to nearly 2c; ledgers and writings, up to 2¼c; solid ledger books, up to 2¾c; No. 1 manilas, up to about 1¼c; manila envelope cuttings, up to about 3½c; old krafts up to about 3c; bogus wrappers, up to 1½c; strictly over-issue news, selling at over 1¼c; strictly folded news at over 1c; and No. 1 mixed papers, of the best sort, selling at up to over 60c per hundred pounds.

The bagging market is said to be fairly active, with prices generally holding firm. The demand from roofing felt manufacturers is reported as steady. Dealers have been purchasing this stock from one another with a fair degree of freedom. Gunny is said to be going fairly well at up to 4c; bright bagging has almost reached the 3¾c mark; sound bagging has gone up to over 2¾c; mixed bagging is quoted as high as 2½c. In the old rope market conditions are reported as being fairly quiet. Only tiding-over quantities are being taken by consumers. While there is some easiness reported in the general tone of the market most holders are not granting any appreciable concessions, as stocks are said to be rather limited and arrivals of foreign goods are regarded as negligible. Manila rope is quoted as high as 6¾c.

In some sections, it is apparent that jobbers and dealers in paper are somewhat disappointed with conditions in the paper market. They had looked for an increase in activity during the early part of September and, thus far, there have been nothing more than indications that the usual fall business was to be enjoyed this year. As a result, it is known that certain jobbers, who have been fairly well stocked, have issued announcements of prices at which they would sell goods, showing that they were willing to shade some of the present figures by a big margin. The mills have been doing their best to check any such action, fearing that it would have somewhat of a demoralizing effect on the market at a time when the market could least afford it. The mills contend that it is ridiculous for the trade to think of lower prices at a time when labor is at such a premium and more than that, when the very production of the country is threatened. It is said that, as long as the war lasts there is likely to be a continued falling off in production, a condition which cannot be voided because of the situation in the labor market that has arisen — to say nothing of the crisis that is impending in freight and in express. On the other hand, the trade has become impatient. Valuable stocks on hand are fine things, but these are days when it requires large sums of money to carry on business and few firms seem to be willing to wait for things to become livelier. It is understood that several contracts have already been fixed up for news print at not lower than 3 cents. One report is to the effect that none of the news mills are willing to consider less than 3 cents, maintaining that it would be absolutely impossible for them to take business at such a figure. A stronger feeling has been reported in some tissue circles and the belief has been expressed that added strength will soon be noted in this market. Books have taken on some added life.

HOWARD SMITH DIVIDENDS.

Howard Smith Paper Co. has announced a regular quarterly dividend of 1¾ per cent on the preferred stock, payable October 15 to holders of record October 9.

BLEACH LIQUOR FROM POWDER.

One cwt. (112 lbs.), of dry bleaching powder of 3[illegible] per cent available chlorine strength will give:

250 gallons of liquor .. .. 5° Tw.
208 gallons of liquor .. .. 6° Tw.
178 gallons of liquor .. .. 7° Tw.

Tenders for Pulpwood Limit

Tenders will be received by the undersigned up to and including the seventeenth day of December next for the right to cut pulpwood and pine timber on a certain area situate in the vicinity of the Kapuskasing River in the Districts of Timiskaming and Algoma.

Tenderers are to offer a flat rate per cord for all classes of pulpwood, whether spruce or other woods. The successful tenderer shall be required to pay for the Red and White Pine on the limit a flat rate of $10 per thousand feet board measure.

The successful tenderer shall also be required to erect a mill or mills on or near the territory, and to manuracture the wood into pulp and paper in the Province of Ontario, in accordance with the terms and conditions of sale which can be had on application to the Department.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for Twenty-five Thousand Dollars ($25,000.00), which amount will be forfeited in the event of their not entering into agreement to carry out conditions, etc. The said Twenty-five Thousand Dollars ($25,000.00) will be held by the Department until such time as the terms and conditions of the agreement to be entered into have been complied with and the said mills erected, equipped and in operation. The said sum may then be applied in such amounts and at such times as the Minister of Lands, Forests and Mines may direct in payment of accounts for dues or of any other obligation due the Crown until the whole sum has been applied.

The highest or any tender not necessarily accepted.

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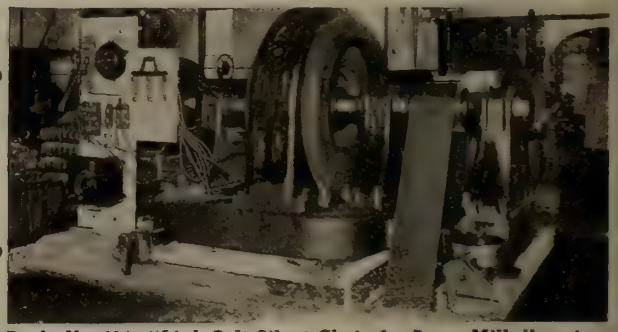


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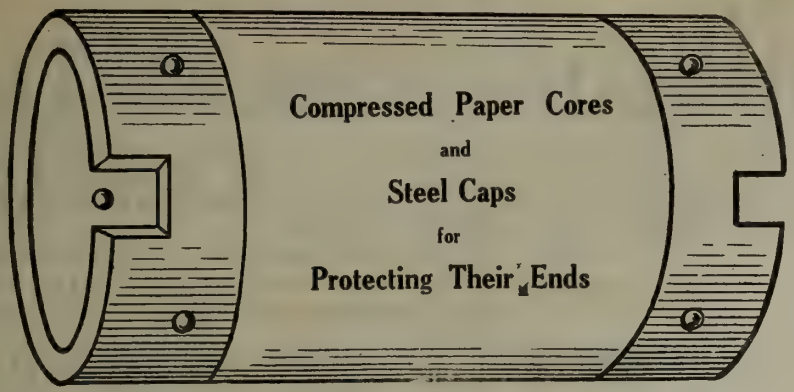
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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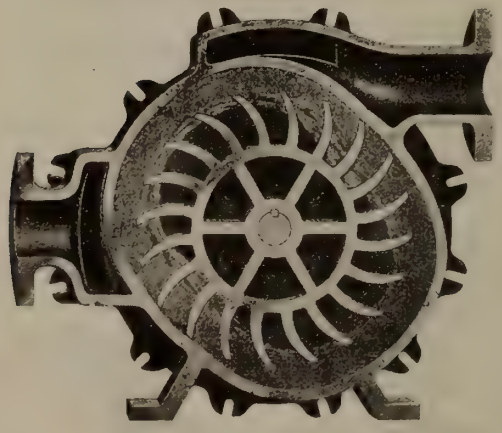
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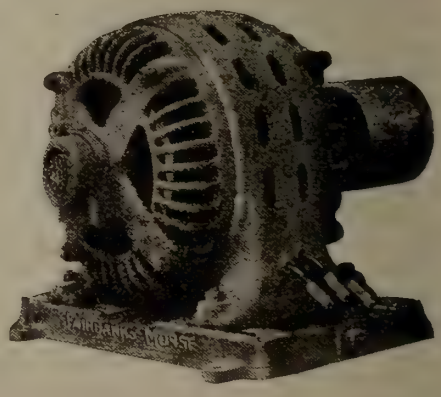
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EDITORIAL

HELPING THEM TO UNDERSTAND.

One of the best things we have heard of in a long while is the letter of Geo. H. Mead, President of the Spanish River Mills, to their employees. It would be hard to imagine a machine tender or reel boy who would not respond to this appeal **to do the job right,** with the purpose so sympathetically explained as in Mr. Mead's letter. In order that employees may better appreciate the relation and obligations of the company to the customer, the Spanish River News prints the form of contract and the trade customs relating to roll print paper.

The pertinent paragraphs of Mr. Mead's letter are:

"It is impossible for the Sales Department to accomplish satisfactory results from our Company, as well as for our customers, without the co-operation of every other Department of our organization from the 'Woods' to the 'Finishing Room.'

"It is the policy of the Company, in the delivery of standard newsprint, to furnish its customers at all times with **32-pound paper**; and while our formal contracts do not **guarantee** such weight we must consider the obligation to deliver this weight of paper, which is the weight agreed upon in the sale as absolutely binding.

"We all realize that it is impossible in our regular operations to maintain absolute uniformity of weight, and our contract therefore states that the paper shall be of substantially the same **average** quality as sample attached thereto and of **approximately** the following basis of weight: 24 x 36, 32-500, without reference to production basis.

"However, the Sales Department is instructed to assure customers that throughout each month, as well as the year, the average weight of paper **will be** 32 lbs.

"I wish to ask our entire organization to co-operate toward the maintenance of this uniform weight of paper, since it is the first principle of the Company to be fair in all things, and having undertaken the sale of paper of a standard weight it is evidently unfair to deliver paper of greater weight no matter what the demands for maximum production of paper or how prosperous the times may be."

A Portland, Me., paper advertises "Scribbling paper for sale. Seven cents a pound. Suitable for school use." This is getting a pretty good return for what would otherwise be a waste.

WHY ART THOU SILENT?

At several points in the report of the Federal Trade Commission it is explained that the figures shown represent cost of material that was bought or contracted for at low prices and that production costs would inevitably be higher when new material had to be used. The report shows that some concerns were losing money on newsprint in 1915 and 1916. A number of interesting tables and sets of figures on the industry are given, some of which have been admittedly changed from the figures on the books of some companies.

Attempts have been made by Canadian manufacturers to find out how and on what basis the Commissions costs for their mills were obtained. The accounts of these firms were opened to the Commission out of courtesy, and as two managers have testified, the accountants sneaked out in the night without a word of explanation. One of these men asserts that the Commission's figures do not represent the facts and they know. Why, otherwise, should the F. T. C. refuse to divulge or explain their method of juggling the mill figures.

The Federal Trade Commission were asked to submit to the mill the individual figures taken. They refused. They were asked to send the figures by a representative (whose expenses would be paid.) They refused again. Finally they were asked if they would show the figures to a representative of the manufacturer if he were sent to Washington, and again they said, "No!" Now when Bruno refuses to come out from under the porch, we have grave suspicions that his conscience (if he has one) is troubling him.

On the basis of the work of the Commission, the Senate Committee on Printing has made a report and submitted a resolution, again calling for operation of newsprint mills and sale of print paper on Government account. In the matter of price fixing, the Saturday Evening Post comments on the fixing, the wheat at $2.20 a bushel when some open-market sales were made at $3.00. This price was, of course, due to the action of supply and demand, encouraged by speculative bidding. Fixing the price of such an article in the way it was done eliminates the speculative features of the situation, and, as the S. E. P. points out, **the Government has guaranteed a minimum price of wheat at $2.00 a bushel,** about twice the normal price, for next year. This has been done in the case of no other commodity.

The Federal Trade Commission not only names a maximum price without any guarantee, but bases its price on obsolete costs of production.

If successful prosecution of the war demands regulation of business, let it be done fairly and on up-to-date information, and for the benefit of all.

English paper makers are in a somewhat similar fix. A conference was called for the purpose of arriving at a basis for computing costs. The manufacturers were given to understand that their information was for getting a proper basis, not for fixing a price. To quote the World's Paper Trade Review: "They (the paper makers) were rather surprised, therefore, when they were informed that a price had been fixed for four months at 4 1-16d. Paper makers, as a matter of fact have not the remotest idea how that figure was arrived at." An emergency conference has been asked for and the Commission was asked to hold its decision in abeyance.

Paper makers seem to be getting abused everywhere.

TWO BIG EVENTS FOR CANADA.

Last week two of the biggest events in Canadian history took place. A Union government was formed, which combines in the Premier's Cabinet men of prominence and ability from both the Conservative and Liberal parties. The result is a truly "Win-the-War" government.

The other event, and perhaps the more important, is the call to military service of men in class one, i.e., unmarried men between the ages of 20 and 34. With the uncertainty as to how many will claim and receive exemption, the effect of the call on the pulp and paper industry is likewise uncertain. It can, however, be fairly assumed that some mills will be seriously hampered for labor. Others already have lost so many men of this class, whose places have been taken by old men and boys, that further adjustment may not be difficult. This industry has already sent to the colors so many men, from woods-end to warehouse, that the operation of the Military Service Act can hardly affect it more unfavorably than other industries. But any further depletion of labor will surely curtail production of newsprint, which the Government thinks the publishers must have.

MR. EINAR SUNDT.

The founder and editor of "Farmand," Mr. Einar Sundt, died September 20 in a hospital in Stockholm, at the age of 63. In 1891 he established Farmand, the trade journal of Norway, which is published weekly in Christiania. This paper is widely quoted on business conditions in Scandinavia. Each issue contains a column of comment, in English, on the paper and pulp situation in Norway and Sweden.

It is with deep regret that we read of the end of such a fruitful life.

HARD ON THE PUBLISHERS.

After months of dickering and bickering, Congress has finally passed the War Revenue Bill and President Wilson has signed it. The bill contains a bitter pill for all publishers to swallow, in fact, some newspapers anticipate fatal results from the administration of the dose.

The bone of contention is the provision that imposes a zone system with graduated rates on advertising matter where this is more than 5 per cent. of the publication and a rate of 1¼ cents per pound on reading matter, which will be 1½ cents after July 1, 1919.

A number of Congressmen are decidedly opposed to this provision of the bill, but voted for the bill as a whole, in order to get something done with the taxation problem. It is predicted that a move will be started in December to repeal this tax on second-class matter.

Rates on daily papers dropped for mail carrier distribution and the present price in county provisions of the law remain unchanged.

It seems to us that the newspapers are the publications least affected by the bill, although their efforts in the matter will be welcomed by many publications whose existence would certainly be threatened by such a postal rate.

UNCLE SAM'S BUREAU OF STATISTICS.

The Bureau of Statistics of American book-paper manufacturers was discontinued last week. It was stated that there was no further use for the bureau as its work would henceforth be conducted by the Federal Trade Commission.

When the Commission gets its information bureau organized it will have an almost complete knowledge of the print paper business. To collect it will mean extra clerks for some mills and more elaborate accounting systems to answer the questionaires of the Commission. It will be some job for the book men to answer their seven questions and a bigger job for newsprint men to answer their 25 questions. In addition to this the Commission will collect data from jobbers and consumers as well.

What will they do with it? Some of these questions are of a most confidential nature. Are they to be exposed to the scrutiny of those who have been doing their best to put the paper industry on the rocks?

The situation seems fraught with the possibility of doing some little good to the publishers and of doing considerable harm to the manufacturer. The collection of data thus provided for, if further backed by the enaction on the recent resolution of the Senate Committee will result in giving into the hands of the Federal Trade Commission absolute control of the print paper mills, jobbers, and the publications of the United States.

Factors Affecting Retention of Clay*

By JOHN D. RUE AND C. W. HALLAHAN,
Department of Chemistry, University of Michigan.

In an earlier paper on this subject [2] a report was given of some preliminary work carried out in this laboratory on the effect certain factors had upon the retention of clay and other mineral fillers. The results of this preliminary investigation seemed to point to the need for a closer study of the influence of clay concentration, of alum concentration when used without size, and of size together with alum. The effect of these factors have been studied upon a domestic clay, an English clay and a talc. The two clays were mechanically analyzed in an elutriator into four fractions of varying degrees of fineness and the influence of the above factors was determined also, upon these individual fractions.

Experimental Method.

The method of carrying out the retention tests was the same as described in the earlier paper. The sheet machine used was improved by drawing the wire tightly over the cylinder and soldering it on permanently. After considerable difficulty this was satisfactorily accomplished so that the wire remained under tension and smooth and gave sheets of a uniform formation. All the tests recorded in this report with the exception of Nos. 1 to 6, Table 5, were made with the improved sheet machine. The duplicate tests show a satisfactory agreement for the retention values.

For each test 2 grams of pulp were used. This pulp was kept moist in well stoppered bottles. The moisture content was determined and a sufficient amount of moist pulp was weighed out to give 2 grams of bone-dry fibre. The clays and talc were used in the air-dry condition and the weights reduced by the moisture factor to the bone dry value. Where the furnish of the mineral, size or alum is expressed in per cent. their value is based on the weight of the pulp used. The weights of alum refer to the crystalline sulphate of alumina, $Al_2(SO_4)_3$ 18 H_2O; the weights of size refer to actual rosin content.

The pulp, in order to produce a more uniform stock, was beaten with pebbles for 1 hour and 20 minutes in a jar mill rotated at 44 r.p.m.

The pulp was suspended in 40 Cc. of water, the clay added and shaken in glass bottles twenty-eight minutes in a mechanical shaker. When size and alum were to be added, the size was added and thoroughly shaken by hand, the alum added and the whole shaken two minutes more in the shaker. The thoroughly suspended pulp was poured quickly onto the sheet machine, allowed to drain and ½ atmosphere suction applied.

The Effect of Clay Concentration.

Amounts of a domestic clay varying from 0.02 gram to 0.40 gram, or from 1.0 per cent. to 20 per cent. of the weight of the pulp, were used without alum or size. The retention values are shown in Table I and are plotted in Fig. I. As the clay concentration increased the amount of clay retained constantly increased, but not at a uniform rate, as shown in Curve I. The amount of clay retained, expressed as percentage of the amount added is shown in Curve II. This decreased from 67.8 per cent. for a 1 per cent. addition to a minimum of 20 per cent. for about an 11.5 per cent. addition and then increased again to 34.8 per cent. for a 20 per cent. addition.

TABLE I.

The Effect of Clay Concentration on Retention.

Two grams pulp used without size or alum. Domestic Clay.

Clay Added		Clay Retained	
Grams	% of Weight of Pulp	Grams	% of Clay Added.
0.02	1.0	0.0136	67.8
0.04	2.0	0.0190	47.4
0.10	5.0	0.0339	33.8
0.20	10.0	0.0418	20.9
0.40	20.0	0.1392	34.8

The two straight curves represent the 20 per cent. and 100 per cent. retention values for all proportions of clay added. It will be noticed that Curve I steadily recedes from the 100 per cent. curve and meets the 20 per cent. curve at about 11.5 per cent. clay addition. From this point it recedes from the 20 per cent. curve and approaches the 100 per cent. curve again. This explains the percentage curve.

It would appear, therefore, that where no size and alum are used the largest percentage loss may be expected with this clay when used in the proportion of 110 lb. to 1,000 lb. fibre.

The Effect of Alum Concentration on Retention.

TABLE II.

Two grams pulp. 0.2 grams clay or talc (10% of weight of pulp.)

Alum Added	Domestic Clay Retained	Talc Retained
% of wgt. of pulp	% of wt. aded	% of wt. added
0	20.9	29.5
0.1	20.7	36.9
1.0	18.4	36.6
3.0	21.0	38.9

Table 2 shows the effect upon retention of alum in amounts varying from 0.0 percent to 3.0 percent. Values were determined for both domestic clay and talc using in each case 10 percent of the weight of the fiber. The values are plotted in Fig. 2. Talc showed an increase in retention from 29.5 percent for no alum to 36.9 percent for 0.1 percent alum, which is at the rate of 1 lb. per 1,000 lb. fiber.

Larger amounts, up to 3 percent, gave only negligible increases in the retention. In the case of the clay, the alum caused no appreciable difference in the retention.

*Read at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 27, 1917.

[1] A partial report of the investigation carried on under the Michigan Paper Manufacturers Fellowship, University of Michigan, 1916-1917.

[2] Rue and Ford, Paper, Oct. 4, 1916.

The effect of the alum is to coagulate the negative colloidal mineral particles. That there is no more marked increase in retention produced by this coagulation is probably due to the disintegrating action of the subsequent shaking. It would appear, also, from this fact, that there was no mordanting action of alum

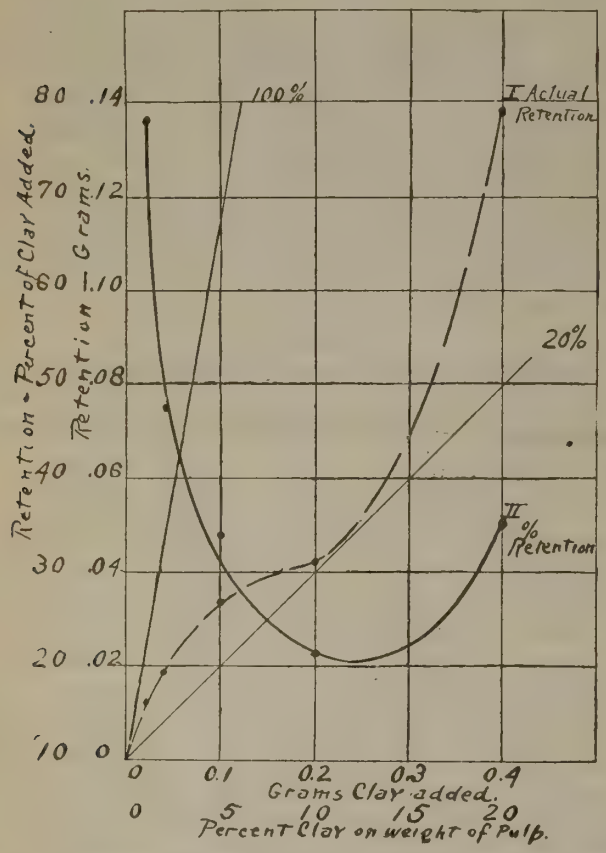


Fig. 1. Domestic Clay. 2 Gm. Pulp, no Size, no Alum.

tending to fix the clay upon the fiber as there is with negative colloidal dyes.

The use of alum, without size, therefore, has no detrimental action upon the retention of this clay. It actually favors the retention in the case of the talc when used in the proportion of 100 lb. per 1,000 lb. of fiber.

The Effect of Alum and Size and Alum.

In Table 3 are recorded the results of a series of tests made to show the comparative retention of a domestic clay, an English clay and a talc. The tests were carried out under the following sets of conditions:

First, without size or alum, second, with 3 percent alum, but no size and third with 2.5 percent size together with 3 percent alum. Fig. 3 shows the results graphically. Where no alum or size were used the domestic clay and the talc showed practically the same retention, about 34 percent. The English clay was decidedly lower than the others only 23.6 percent being retained.

The addition of alum showed a marked increase in every case although the domestic clay was much less affected than the other two. The actual increases in the three cases were:

Domestic clay. 9.9%
English Clay. 17.9%
Talc. 20.7%

It will be noted that 20 percent mineral was added in these tests. Where only 10 percent was used—Table 3 and Fig. 3, no such marked influence was observed, as we have already seen.

The introduction of size prior to the addition of alum produced a still further increase in retention in the case of the clays but showed a decrease in the case of the talc.

Domestic Clay. . . . . 4.2% increase.
English Clay. . . . . 7.8% increase.
Talc. . . . . 8.1% decrease.

TABLE III.

Effect of Alum, and Size and Alum on Retention.

Two grams pulp. 0.4 gram mineral (20 percent on weight of pulp). Retention expressed as % of mineral added.

Domestic Clay		English Clay		Talc.	
p.c.	Average	p.c.	Average	p.c.	Average
		Without Size or Alum.			
36.2	34.8	23.4	23.6	35.4	34.0
33.4		23.8		32.7	
		With 3% Alum and No Size.			
43.9	44.7	43.8	41.5	52.1	54.7
45.6		39.2		57.4	
		With 3% Alum and 2½% Size.			
50.0	48.9	48.9	49.3	42.7	42.8
47.9		49.6		43.0	

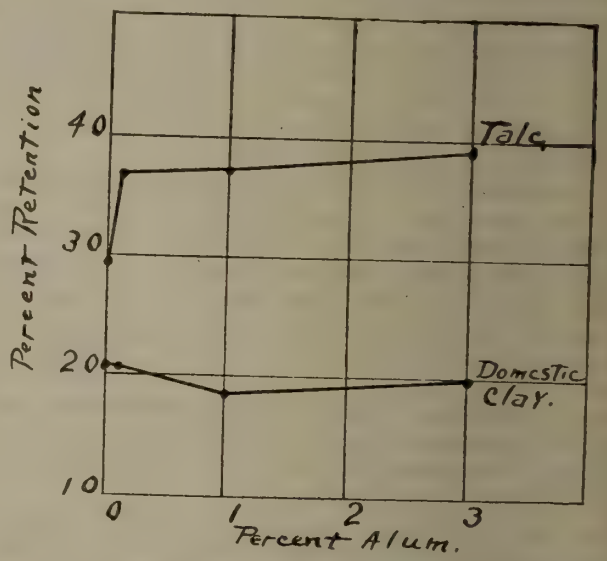


Fig. 2. Effect of Alum on Retention. 2 Gm. Pulp, 0.2 Gm. Clay or Talc (10%.)

Where size was used there seems to be very little difference between the retention of the two clays, both of which showed a higher value than the talc. In the earlier article mentioned above, the talcs were reported to have a higher retention than clay.

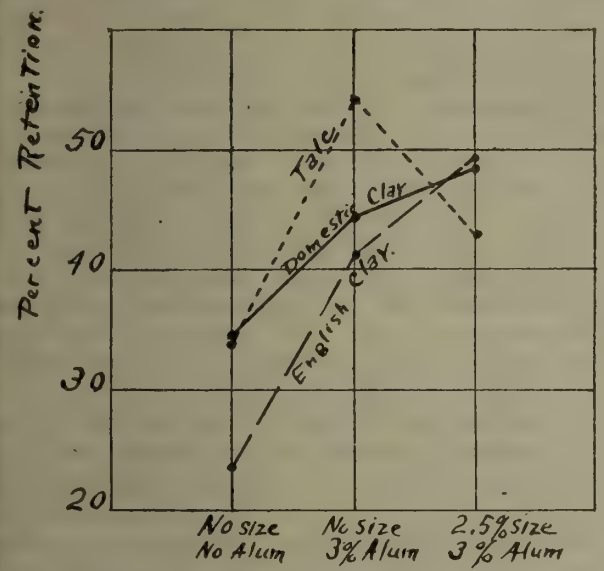
This apparent discrepancy can possibly be explained by the fact that the earlier tests were made with only two or three minutes' shaking by hand, while these samples were shaken in the machine for thirty minutes. It was demonstrated that agitation in a shaking machine decreased the retention even when both size and alum were present. The talc evidently suffered the greatest reduction from this cause.

It seems, therefore, that where as much as twenty percent mineral is added to the beater, the talc, provided alum with no size is added, will give better retention than either the domestic or English clays. Where size is also added there will be little choice

etween the clays, but either will be better than the lc. Whether these results can be extended to min-rals of other grades than those tested cannot be ated without further experimental evidence.

Elutriation Analyses.

The domestic clay and the English clay were sub-ected to mechanical analysis in the Nobel elutriating pparatus. (A sketch of this apparatus is shown in ig. 4.) Only three of the conical flasks were used r the clay tests. These contained respectively 285



ig. 3. Domestic and English Clays and Talc. 2 Gm. Pulp, 0.4 Gm. Clay or Talc (20%.)

c., 1320 Cc. and 2960 Cc. The test was conducted s follows:

A 50-gram sample was thoroughly worked up to a ream with a little water and placed in the smallest lask. Water was slowly admitted from a constant evel apparatus. In order to avoid any air bubbles the ther two flasks and the connecting tubing were first arefully filled with water and when the small flask as full the tube connecting it to the medium flask as inserted so as to avoid entrapping air. The rate of low was slowly increased so as to prevent eddy cur-ents being set up in the flasks. A number of trials howed that a maximum rate of 136 Cc. per minute ave a satisfactory separation into four fractions hich consisted respectively of a residue in each flask nd the very fine particles carried over in the over-flow. The separation was allowed to continue till the water passing from one flask to the next was prac-tically clear. This required about three hours. At the end of the run the flasks were disconnected and their contents rinsed out into separate beakers. These beakers together with the jar of overflow water were set aside to settle. The supernatant water was then syphoned off as completely as possible and the residue dried and weighed. The fractions were numbered consecutively beginning with the coarsest material which remained in the smallest flask.

The results of a series of analyses made on both domestic and English clays are recorded in Table 4. A good degree of accuracy was obtained by this method as shown by the close agreement of the four tests run on domestic clay and of the two tests on English clay.

These results show that there is considerably more relatively coarse material in the domestic than in the English clay. The small amount in English clay, 1.8 percent, separating in flask No. 1 was made up of round particles, rather soft and dull in appearance. The similar fraction of domestic clay, 13.2 percent, was sharp and gritty and composed of shiny particles or flakes. The English clay seemed especially rich in colloidal matter as indicated by the relatively large third and fourth fractions which amounted to 25.6 percent and 12.8 percent respectively and by the slow rate at which these settled out of water. The domestic clay showed only 9.4 percent and 5.1 percent for these same fractions respectively.

The elutriation test as described seemed to offer a sufficiently accurate means clearly to differentiate be-tween these two clays. Retention tests were next un-dertaken to determine, if possible, the relationship be-tween the elutriation results and the retention values.

Retention of Clay and of its Elutriation Fractions.

A series of elutriations were run on both domestic and English clay in order to secure fractions sufficiently large for the retention tests. These fractions were dried in the air without the use of the steam bath so as to avoid any change in colloidal properties which the application of heat might produce. Moisture determinations were made on each fraction and the air-dry sample calculated to bone-dry weight in the usual manner. Twenty percent clay was used for each test. The retention was determined, first, without the use of alum or size, second with 3 percent alum and no size, and third with 3 percent alum together with 2 and one-half percent size. The results obtained for the

TABLE IV.

ELUTRIATION ANALYSES

Maximum Water Flow 136 c. c. per minute. 50 grams clay used for each test.

Test No.	Clay used	Fraction 1 (In small flask)	Fraction 2 (In medium flask)	Fraction 3 (In large flask)	Fraction 4 (in overflow)	Total Recovered
1	Domestic	7.6 g.	31.8 g.	6.45 g.	3.85 g.	49.7 g.
2	"	6.0	39.5	3.80	1.70	51.0
3	"	6.7	37.1	3.65	2.20	49.65
4	"	6.0	36.8	5.00	2.40	50.2
Average		6.6	36.3	4.72	2.54	50.1
%		13.2	72.6	9.4	5.1	
5	English	0.8	30.9	11.6	6.5	49.8
6	"	1.0	28.5	14.1	6.3	49.9
Average		0.9	29.7	12.8	6.4	49.85
%		1.8	59.4	25.6	12.8	

two clays and their elutriation fractions are found in Table 5 and, graphically, in Figs. 5 and 6.

In the case of the domestic clay the retention of the whole clay as well as each of the elutriation fractions was lowest where no size and alum were used, while alum alone seemed to have less effect than size and alum combined, on the whole clay. Alum alone produced the higher retention with each of the fractions.

In the elutriation process we have a separation of the clay particles into four degrees of fineness. The amount of colloid actually present in a papermaking clay is small as indicated by the relatively low plasticity. If we assume that the colloid is distributed over all the clay particles, some of it coating, to a

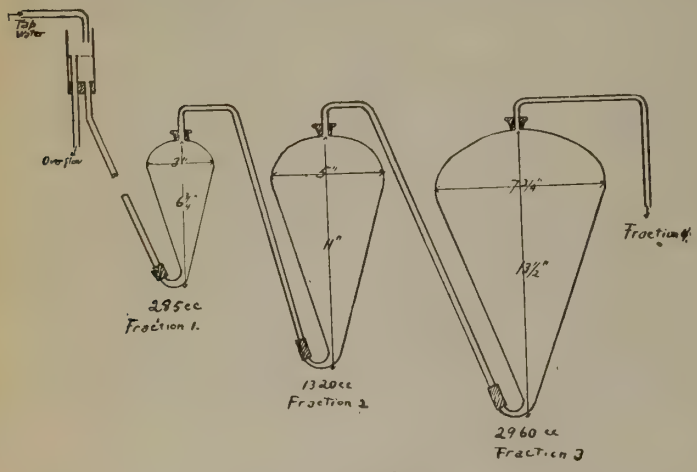


Fig. 4. Elutriator.

certain extent, even the coarse particles, we can readily explain the curves in Fig. 5.

Clay colloid is negatively charged. Pulp is also a negative colloid. Two negative colloids act upon each other to produce greater dispersion. We cannot expect clay and pulp alone therefore, to aid retention by any sort of adsorption phenomenon. The retention in this case must be purely a mechanical filtration, so that the finer the particles, the lower should be the retention. This is seen to be the case. That the whole clay showed a greater retention than any of its fractions was doubtless due to the fine particles being carried along by mechanical association with the large particles which were readily held by the pulp. This view is further supported by the low retention of the English as compared with the domestic clay. The English clay contained a much smaller percentage of coarse particles in fraction I and therefore was less easily filtered out by the pulp. The first fraction was, in fact, so small that no tests could be made upon it. The second, third and fourth fractions showed nearly identical retention values with those of the similar domestic clay fractions. The similar fractions of the two clays having been obtained under similar elutriating conditions should have had the same size particles. It is evident, therefore, that retention in this case is primarily a function of the size of the particle.

If we apply our assumption of a colloidal coating on the particles to the tests where alum was added we see that course particles, such as we had in fraction I, contain relatively a large weight of clay as compared to the amount of colloid coating on the particles. The coagulating action of the alum, therefore, would tend to produce large aggregates with a large ultimate retention. This is the case. The two finest fractions, fraction 3 and 4, contain a large amount of colloid relative to the total weight. Here the coagulating action of the alum is most efficient and again we get a large coagulum of a flocculent nature which lends itself to ready removal by mechanical filtration. Fraction 2 is composed of particles of an intermediate size. The hard crystalline centers exert an abrasive action upon each other during the subsequent shaking and disintegrate, the aggregates formed by coagulation so that the final particles are smaller than those of a flocculent nature. They are also smaller than those of fraction I because the abrasive action here is less, inasmuch as there are not so many particles per unit weight and the chance of collision is less.

A consideration of the conditions which prevailed when size as well as alum was used reveals the following. The dispersing action of the alkali in the size tends to remove some of the fine colloidal coating of the particles. This leaves the coarser particles with less coating upon which the alum can later act to cause coagulation. The result, therefore, is a much lower retention of all the fractions than in the case where alum is used alone. The remainder of the clay-alum-size curve can be explained in a manner similar to that used for the clay-alum curve.

The clay-alum-size curve for the English clay is very nearly coincident with that for the domestic clay.

The English clay-alum curve shows some points of difference, namely, that while the retention for the third and fourth fractions were practically the same as was true for the domestic clay, they were both lower than the whole clay or for fraction 3; and also lower than the similar points on the clay-alum-size curve. To explain this apparent irregularity we may assume that the particles of the English clay in fractions 3 and 4, while of the same size in relation to rate of settling in water, are composed of a relatively large amount of colloid. The weight of the particle is, therefore, made up of a larger proportion of associated water which would give a lower retention of clay with the same number of retained particles. That these fractions of the English clay are more highly colloidal than the similar fractions of the domestic clay is evidenced, as has been pointed out, by the very long time required for the water suspension of the former to settle clear. The individual particles, containing less crystalline matter, are less affected by the alkali of the size and consequently the retention, whether with size and alum, or with alum alone, should be somewhat similar. This is seen to be the case.

Let us return now to a further consideration of the clay curves in Fig. 3 in the light of the elutriation analyses. The English clay, having the larger amount of the fine fractions shows a much lower retention than the domestic clay when no alum or size is used. The larger amounts of the last two fractions indicate a larger amount of pure colloid. The freer this colloid is from crystalline material the lower the retention. Hence the lower value for English clay with alum alone.

The case which is of the greatest practical importance to the papermaker is the one where size and alum both are used for this is the prevailing mill condition. The English clay shows a slightly lighter retention than the domestic clay. This is not peculiar to the whole clay but it is true of each of the fractions as well. The

TABLE V.

RETENTION OF ELUTRIATION FRACTIONS.

Two grams pulp
0.4 gram Clay (20 percent of weight of pulp)
Retention expressed as % of clay added

DOMESTIC CLAY

Test No.	Alum % of pulp	Size % of pulp	whole Clay %	Average	Fraction 1 %	Average	Fraction 2 %	Average	Fraction 3 %	Average	Fraction 4 %	Average.
1	None	None	36.2		27.5		14.8		18.8		12.7	
2	"	"	33.4		27.5		17.4		20.8		12.1	
3	"	"			28.9		37.9		21.4			
4	"	"			43.4		34.4		15.6			
5	"	"			40.2		21.3					
6	"	"			24.6		21.7					
			——	34.8	——	32.0	——	24.6	——	19.1	——	12.4
7	3	"	43.9		65.1		48.7		65.6		63.1	
8	3	"	45.6		59.1		45.2		51.8		66.7	
9	3	"							66.2			
10	3	"							75.2			
			——	44.7	——	62.1	——	47.0	——	64.7	——	64.9
11	3	2½	50.0		43.0		41.2		40.5		34.8	
12	3	2½	47.9		44.1		32.5		41.5		43.2	
			——	48.9	——	43.5	——	36.8	——	41.0	——	39.0

ENGLISH CLAY

13	None	None	23.4				27.1		20.4		18.2	
14	"	"	23.8				25.3		21.5		16.6	
			——	23.6			——	26.2	——	20.9	——	17.4
15	3	None	43.8				45.0		40.0		41.9	
16	3	"	39.2				43.2		39.2		38.2	
			——	41.5			——	44.1	——	39.6	——	40 0
17	3	2½	48.9				35.1		42.8		45.4	
18	3	2½	49.6				39.5		46.1		41.6	
			——	49.3			——	37.3	——	44 5	——	43.5

increase may be ascribed to the more colloidal nature of the individual fraction. The degree of increase is greater as the fractions become finer. The increase of the English over the domestic clay fractions is as follows:

Fraction 2—0.5%
Fraction 3—3.5%
Fraction 4—4.5%

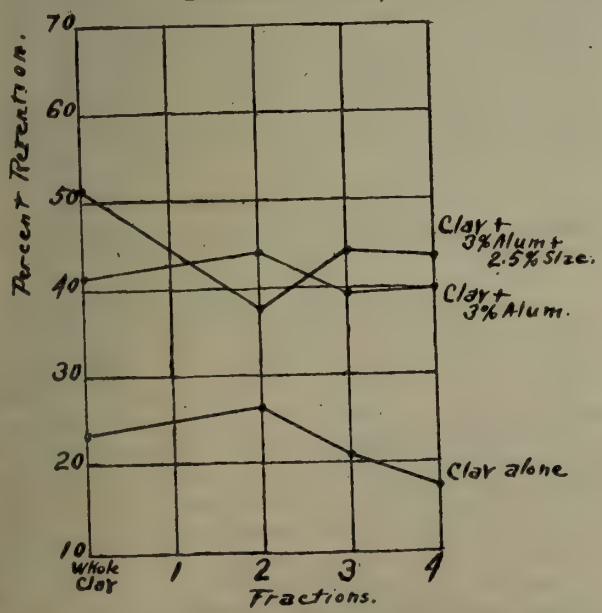


Fig. 5. Domestic Clay, 2 Gm. Pulp, 0.4 Gm. Clay (20%.)

The larger, therefore, the fractions 3 and 4, the greater should be the retention of the whole clay. The experimental evidence is too incomplete so far, however, to state this as a definite rule.

In order for the mineral filler to give a smooth, soft finish to the paper, without grit, a finely divided product is necessary. That the elutriation test gives this information is well known. Whether this test can be used to advantage to indicate retention power remains to be proven. The above results point at least in that direction.

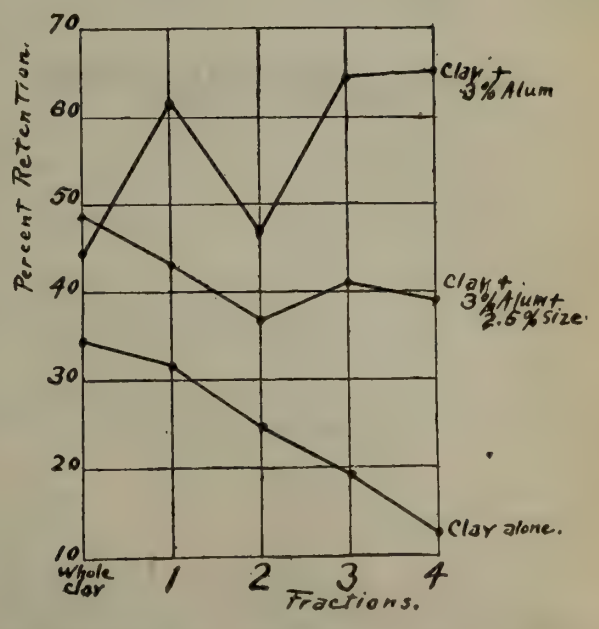


Fig. 6. English Clay. 2 Gm. Pulp, 0.4 Gm. Pulp (20%.)

Since the retention values for fractions 3 and 4 are practically the same in all cases except where the clay and fibre are used alone and since this is a condition rarely met with in practice there seems little use in

making more than three fractions in elutriation analysis. The large flask could be dispensed with and the overflow from the second flask taken as the third fraction.

Summary.

The conclusion drawn from the tests made on a single sample each of a domesite clay, an English clay and a talc may be summarized as follows:

1—The domestic clay, in proportions varying from 1 to 20 parts per 100 parts of fibre gave a minimum retention of 20 percent when 11.5 parts per 100 parts of fibre were used.

2—With 10 parts of mineral per 100 parts of fibre alum showed practically no effect on the retention of the domestic clay in concentrations varying from 0.1 percent to 3 percent. Under the same conditions the retention of talc was increased practically the same amount by all concentrations of alum used.

3—With 20 parts of mineral per 100 parts of fibre the addition of 3 percent alum produced a marked increase in all three fillers, especially the talc.

4—When no alum or size were used the English clay gave a much lower retention than either the domestic clay or the talc, the retention of the two latter being practically the same.

5—With a 3 percent addition of alum the domestic clay gave a higher retention than the English clay, while the talc was higher than the domestic clay.

6—With a 3 percent addition of alum together with 2.5 percent size the two clays gave nearly the same retention while the talc showed a value lower than the clays.

7—The addition of 2.5 percent size in connection with 3 percent alum produced a decided increase in retention of the clays, but a decrease of the talc over that obtained when alum was used without size.

8—The elutriator gave satisfactory analyses of the clays, which could be used to indicate, to a limited extent, the relative retention value of the clays.

THOROLD'S VOCATIONAL TRAINING, EVENING CLASSES.

On Tuesday afternoon last, a meeting of the special committee connected with the above classes was held in the public library, and as a result of their efforts during the few weeks they have been appointed, the following business resulted:

It was resolved that the word "Industrial" be dropped from the name usually given these classes, and that they should be known as "Vocational Training Evening Classes."

Also that the following resolution be submitted to the town council at the next meeting for their consideration:

To the Mayor and Council,

Town of Thorold.

Gentlemen:—

We, as a special committee, have been appointed by the High School Board to meet you regarding the establishing of a Vocational School for the Town of Thorold.

High Schools were organized in the beginning to prepare students for entrance to the university and professional schools, but long ago it became manifest that the student not intending to enter the university was poorly prepared to take his place in the industrial world and find his vocation there.

The Provincial Department of Education has, from statistics gathered from the High Schools in the Province, found that a very small percentage of students complete university matriculation, specially so in small towns situated in industrial centres, 2 per cent. in some instances.

The selecting of a vocation is becoming more perplexing to young people and their parents, and the need of some practical form of assistance is urgent, situated as we are in Thorold, in the greatest industrial centre of the province. Intelligent choice can only be made in the knowledge of practice. The youth, therefore, must learn something of trades and professions, their character and value, their opportunities and restrictions.

An institution of vocational guidance is the logical solution of the problem and we come to-night to lay before you a remedy which we feel is practical and very necessary to the building up of a community of trained young men which will not make it necessary for industries to import their skilled help.

There has been an agitation to have the town build a Town Hall, or more properly, a Public Auditorium, this would entail a considerable expenditure. Would it not be practicable to add to this amount and build a public institution which would contain a public auditorium and class rooms for High School and vocational training. The present High School building is inadequate for efficient vocational training, and to add to it to bring it up to the present standard for such work, would necessitate great cost, in fact, would require to be nearly rebuilt.

If this solution of our educational problem meets with your approval we would respectfully suggest further, that a special committee be appointed to obtain from the Provincial School Authorities advices as to the style of school best suited to our requirements and for this committee to personally visit similar schools to obtain latest ideas and benefit by the experience of other towns, and when this committee has decided on the type of building suitable, to have plans drawn up and estimates made of the cost of building and equipment which could be submitted to the ratepayers on January 1st, 1918.

It is felt that there is an immediate need for an institution of this character to keep pace with the growth of our town.

As a result of the resolution which was presented to the town council by the special committee, it was decided by them to call a meeting of the ratepayers and to have posters printed for that purpose. The posters which have been well distributed announced: "A meeting of the ratepayers to be held in the public library at 8 o'clock, October 16, when the dicussion of plans for improving the educational facilities of the town, and looking to the providing of full vocational training for the young people, will be taken up. The meeting will be attended by F. W. Merchant, Director of Industrial and Technical Education for Ontario, who will give full information and answer enquiries as to the working of such plans in other towns corresponding to Thorold. An urgent appeal is made for the ratepayers, parents and especially mothers of the town to be present."

Too much "Ire" in Some "Wires."

A reader of the Pulp and Paper Magazine sent in the llowing tale, which is a sort of sequel to "The Story f a Wire" in our August 16th issue.

The wire is a flimsy net of several thousand copper ires put together by a band of robbers who call themlves "Wire Manufacturers". They employ men who e known as "Wire Weavers." These fellows never ade an error, so when a box containing a wire is pened and defects in the wire are discovered, blame on the railroad. Or when the wire is placed on the achine and one side of it is found to be longer than e other, do not blame the Wire Manufacturer — it ust be the machine's fault.

All Wire Manufacturers are rich. You can buy a ood wire for the same money as you pay for a poor one. ou pay more for an 80 mesh wire than you do for a 0, because as the wire maker says, "there is more illing and the 'woof' and 'wiff' are more spiflicated the former."

Some wires will last as long as four weeks on a paper achine, and some more of the same kind last only ne-quarter as long, therefore it is obvious that a nigr is in the wood pile, and it might interest some aders of this to see how we get him. Let us take an very day example in a paper mill. Superintendent is tting in his office, thinking all to himself, what a ame smart feller he is, when in comes the boss maine tender, looking like the last "Rose of Summer". Wire on No. 6 gone to hell", says he. Superintendent rgets what a blame smart man he is, and says, Wot's matter with it?" Boss machine tender reies, "Damn if I know's only bin on a week and verything was going all right when she jumped in a raight wrinkle".

Superintendent thinks and suddenly asks, "Whose ire is it?" "It's one of those S.P.Q.'s," says the boss achine tender.

"Ha! I thought so", says super. "Blamme if I ever ay another one of those putty bags. They never make decent wire and I'll raise Cain about this one. Hustle n a P.D.Q. wire and I'll get right after the S.P.Q. eople. Take their wire off, so that it will be in shape o show old Potts when he comes here." Out shoots he boss machine tender and the super. works himself nto a proper mood, before taking pen in hand to write o the S.P.Q. Wire Company.

In this letter he tells them everything but what they eally would like to know, which naturally is, what ade the wire wrinkle?

When Old Potts received the letter, he said to his artner, "That damn fool down at S. is 'in bad' on nother one of our wires, and I think I'll take a gun ith me when I go down there."

Seems pretty much wrong to see the super or manger of a mill handle a wire case like this, but it is a act that they do. They are not one bit better than he fellows who make the wires, in many respects.

In this particular instance the wire was not at fault. t was the machine, for if a wire will run one full week r a day, without showing a wrinkle, it will run its atural life in the same way unless something about he machine goes wrong. This time it was the mahine tender. When the wire was placed on the hine, a slight tension was fixed on it by means of the tretch roll and that tension was maintained until the ay the wire wrinkled, when "Dick Bobbs", the machine tender, put the stretch roll down six turns because he was going on to a heavier sheet and he was afraid the paper would "crush" at the "couch". The breast roll on that machine had received no attention for many months, and was larger in diameter in the middle than on ends, so when wire received increased tension, it naturally wrinkled in its tightest part, and the cause was overlooked because the boss machine tender and superintendent were prejudiced on S.P.Q. wires. The P.D.Q. wire, which replaced the wrinkle wire, was not tensioned as was its predecessor, consequently it did not wrinkle, and this was the super's strong point when he and old Potts argued the matter later. But what could Potts do? He could not say to the super, "Your machine is wrong", for he knew it would mean no more business, so he stood for a rebate on price and it was not the first he had suffered from this and other mills.

Such is part of the wire game in paper making, but this does not include the wire man who puts cheap stock in his wires, and who is nervy enough to continue doing so, despite frequent just complaints from the paper maker. But in justice to all, the paper man is usually at fault when wires do not give satisfaction, because he is not often ready to criticize his men and too often ready to say it is defective wires. If he would carefully analyze the cause of a wire going wrong, his complaints to the wire man would fall off surprisingly for there are mighty good reasons for the boss machine tender and the machine tenders to hide from sight the real causes, for which they alone should be held responsible.

Now as to mesh of wire. Some paper makers, in their desire to reduce wire costs have replaced an 80 mesh wire with 70, and by such act succeed in getting probably a year's work with one or two less wires to pay for, but how about the character and appearance of the paper? It is bound to be a different paper when made on a 70 wire than when on an 80. The 80 will produce a more evenly closed and firm bodied paper than will the 70 mesh wire. The retention of filler will be greater with the 80 wire. Sides of paper will be more even in color and appearance, and such a paper will print better than the other, so all considered there is no economy in such a change. The real economy comes from personal supervision on the 80 wires.

Get busy with the roll grinder, get couch and breast rolls perfectly round, use plenty of suction boxes, properly adjusted vacuum. Keep all table and carrying rolls turning, and above all keep Fourdrinier parts in perfect alignment. When a wire goes wrong be the grand jury and district attorney yourself. Keep at it until you are sure you know the cause and effect.

Now about sewing cracks in wires. Big Tim Lynch lay flat on his stomach on an eight inch board one night for three hours, sewing a two inch crack in the wire that had practically run its allotted time. When Tim got through sewing, he was so stiff and sore that he was unable to get off his perch without falling on the wire, and he left a hole too big to sew. But three hours were lost through his dread of putting on a wire, and there are a great many machine tenders like Tim in this respect, for it is a wet, disagreeable job, and there is always a chance of something happening to the new wire, and they all prefer to leave it to the other fellow to be father to such an event.

Joe Fallet was a Frenchman, and he ran one of the big news machines in a Maine mill. He was busy con-

necting pipes on suction boxes on back side of a machine, after getting new wire on. He needed another wrench, Joe Pulaski, his brand new fourth hand, was standing on front side of machine with desired wrench in hand. Fallet saw it and motioned the Polander to bring it to him. The Polander must have liked the looks of the new wire, and before Fallet could prevent him he was walking across it on top of suction box, and he had on his feet a pair of hobnailed boots fresh from a lumber camp. Fallet went crazy. Pulaski went to the hospital and company was out 420 bucks.

Another heart-breaking feature on wires—a nervous machine tender. Charlie Fitz was the "worst ever." One night he was vainly trying to remove a spot of grease in about two feet from front edge of wire. In order to be possibly successful he had to reach in this far at the stretch roll every revolution of the wire, and make a quick stab at the spot with his kerosened wire brush, and every time he did so he had to do a balancing act. On his fifth attempt, a Swede was passing by him with a 50-pound weight in his hand, and unfortunately for Charlie he let it fall, and it jarred Charlie so much he let the wire brush fall into the wire. It meant nervous prostration for Charlie after he had half-killed the Swede, and the loss of a practically new wire.

AN ATTRACTIVE PAPER EXHIBIT.



This is the booth at the Canadian National Exposition at Toronto, where the enterprising firm of W. J. Gage and Co., showed a very attractive assortment of paper products. This exhibit of Canadian papers proved an interesting attraction.

STARCH IN PAPER.

To get the best retention, starch should be put in the beater cooked, either with silicate of soda or by itself. The reason that it should be cooked is that the grains of starch upon being cooked swell to a much greater size than when raw. It is, therefore, reasonable to expect that the retention is greater when using the swelled up granules of cooked starch, than when using the fine particles of the raw material. Some paper makers claim a greater retention when the starch is cooked with silicate of soda. It is claimed that when the starch is combined with the soda it is precipitated on to the fibres by alum, but this means a more liberal use of alum. To test the paper for retention, make up a weak solution of iodine in potassium iodide (weak enough to be only straw colour). Immerse a strip of paper to be tested into this solution and the starch contained therein will be coloured blue, the deeper the shade of blue the more starch. You may, therefore, check up your retention by comparing the depth of the blue colour shown by this test. A paper containing 5 per cent. starch shows up a very dark blue.—Paper Trade Journal.

NEWS PRINT AT $200 IN ENGLAND.

An article in the July issue of the Circulation Manager and Advertiser, London, England, discussing the extreme high cost in England of news print paper, appeals to the British Paper Commission to modify the import licenses by increasing the amount of ground wood and sulphite to be imported, so that a reduction may be accomplished in the present prices of news print paper to English publishers.

In support of publishers' demands the article gives the manufacturing cost at the present time of one of the largest and best paper mills in England, as follows:

"Sulphite at $225 per ton, 35 per cent	$56.25
"Ground wood at $125 per ton, 75 per cent. . .	$93.75
"Cost of conversion	$42.50
"Total cost per manufactured ton	$192.50

"The foregoing figures are for the English ton of 2,240 pounds.

"Add to this one-eighth of a penny per pound for profit and you have a selling cost to the publisher of over 8¾ cents per pound.

"As a matter of fact, paper manufacturers have been charging even a higher price than this, and the only recourse the publishers have had, up to the present time, is to appeal to the Paper Commission to grant relief in individual cases from these excessive profits above cost."

PAPER CLOTHES IN GERMANY.

Germany claims to have solved clothing problem by use of paper, in which by next summer a large part of the people will be dressed. Experiments with paper weaves have proved entirely successful, and man's paper trousers are already experimentally in use, including dark or light striped fancy weaves. They are impregnated with a secret chemical said to make them waterproof. Ready-made paper suits are promised for next spring, also tailored suits, skirts and even wash blouses, although further experimentation is needed to make present stiff paper weaves more supple for women's wear. A fine quality of paper linen is promised by end of the year, suitable for underclothing; and paper overalls, shirts and jumpers are already coming into use. A "white paper sheeting" has been devised for clothing the dead.

Increased Value of Pulpwood Stimulates Fire Protection

The great increase that has taken place lately in the value of pulpwood is responsible for quite a revolution in the general situation of the pulpwood industry and brings to light some interesting considerations. Mr. R. O. Sweezey, who is well known to readers of the Pulp and Paper Magazine on account of his extensive experience in the lumber and pulpwood industries of northern Ontario and Quebec, writing to the Canada Lumberman recently, says:—"I have just returned from a trip in the north country, where I was interested to note that the high prices for pulpwood are acting as the best argument for conservation that has ever been put forth regarding Canadian forests. The settler no longer sets fire recklessly to his standing timber because he now gets a profit, not only upon his labor, but also upon the value of the timber as it stands. I trust that interference with prices of pulp and paper will not lower the price of wood sufficiently to cause the settler to revert to his former practice of burning his standing timber, instead of cutting and selling. This year the settler is receiving from $6.50 to $8 a cord for his rough wood at the railway. In former years he only received $3 a cord."

The situation as outlined by Mr. Sweezey is important, both in regard to its effect upon the pulpwood industry, and because of its bearing upon the settlement problem in the north. In regard to the pulpwood industry, the situation is simply one of an economic nature relating chiefly to the problem of supply and demand. The settlement feature of the matter, however, has a much wider bearing, and while Mr. Sweezey is inclined to look upon it as a possible promoter of conservation, there is danger connected with the situation which, if not handled cautiously and vigorously by provincial governments, may produce bad results. No doubt the settlers already in the country who cut and sell their pulpwood will be a far smaller fire risk than they have been in the past when they burned their timber, and it is possible that during the present summer the north country may escape the great conflagrations that have so frequently swept over it and have in practically all cases been caused by careless settlers.

The dangerous feature of the situation is that which relates to the land hunger of a certain class of individuals who have the reputation of taking out fraudulent homesteading permits so as to strip the country of its timber and then move elsewhere. This subject has been dealt with frequently in the Canada Lumberman, and so far as Ontario is concerned the last reference to it was a report of the remarks made by the Minister of Lands, Forests and Mines in reply to a deputation in November 1916. The Hon. Mr. Ferguson then said that so long as he was head of the Department, political influence would be of no avail in obtaining homesteading permits, or appointments to the Forest ranging staff of the department. Other provincial governments have laid down similar policies from time to time, and while we have no disposition to make statements either pro or con upon this subject at present, it is timely to bring it up because of the situation created by the high price of pulpwood.

That this situation is taken very seriously by those who are most active in the preservation of Canadian forests is shown by an article in a recent issue of the Canadian Forestry Journal, which says: — "Until homesteading and timber licensing are completely removed from the vicious influence of political pull, various administrations will continue to play ducks and drakes with the public resources of land and timber.

"In violence to the legal regulations and every consideration of the public good, hundreds of "homesteading" applications are granted because of political pressure and only the lack of publicity for such transactions can present a general protest.

"None denies the right of a land-hungry citizen applying to his Government for a free grant. But in these days when spruce for pulpwood commands the high price of eight dollars a cord delivered at the railroad, it is significant how many persons are getting 'land-hungry' and cannot be persuaded to take land that is not densely covered with pulp wood. Offer most of the applicants a homestead of cleared land, ready for the plow, and they would turn it down.

"It is understood that the Lands Department of the Government of New Brunswick is overloaded with 'Homestead' applications. Traditional practice in some parts of the Dominion has granted these requests as freely as they arrived. So-called settlers seeking some cheap and accessible timber, when the market is thriving, are allowed to take these generous slices out of a licensed area. Indifferent to the effects of fire, careless as to the fate of the main stand, they form one of the most dangerous menaces with which the protective staffs have to deal. Often the spruce lands are quite unfit for agriculture, nor has the settler in many instances any intention to try a permanent residence. He clean cuts the standing timber, leaves no provision for natural reproduction of trees, creates a fire hazard and finally moves off with some easy money.

"The straightforward policy is to refuse homesteading applications except for land definitely proven as agricultural and where it lies in sufficient volume to maintain a community and its social machinery. No citizen ought to be allowed to locate himself and family in a mere 'pocket' of good soil, isolated from schools, churches, and markets. Where applicants can be shown to be mere timber grafters, their cases should receive short shrift."

REVOLVATOR HAS STRANGE USES.

Bulletin No. 43, entitled "The Steel Giant", is a twenty page booklet just issued by the New York Revolving Portable Elevator Co., and describes the unusual uses to which their Revolvator, sometimes nicknamed "The Steel Giant", has been employed. Among these may be mentioned the erecting of overhead motors and taking them down for repairs; erecting and repairing overhead shafting; overhead drilling, where a man and a portable drilling outfit may be quickly and safely elevated to the place where the drilling is to be done; loading heavy cases, bales, etc., from sidewalks on to trucks; loading freight into cars; piling inside freight cars; storing sheet iron; elevating heavy dies to presses, etc.

Copies of this booklet will be sent free upon request by the N. Y. Revolving Portable Elevator Co., 344-352 Garfield Ave., Jersey City, N. J.

PULP AND PAPER NEWS

James McArthur, sales manager of the British-American Wax Paper Co., Toronto, has returned from a holiday outing to Albany, Springfield, Boston and Montreal. The company is very busy at the present time and will shortly start night work in order to keep up with the business in hand. Another waxing machine was installed last week, making an equipment of ten in all.

E. A. Crippen, of Toronto, sales manager of the Houpt Paper Mills, Camden East, Ont., returned this week from an extended business trip to Montreal, Quebec, St. John and Halifax.

Charters have been granted to Ontario-Quebec Pulpwood Co., Limited, with a capital stock of forty thousand dollars and headquarters in Cochrane, Ont., and to the Bethune Pulp and Lumber Co., with a capital stock of fifty thousand dollars and headquarters in Toronto.

Charles V. Syrett, managing director of the Victoria Paper and Twine Co., Toronto, and wife, have returned from an extended motor holiday trip through Eastern Ontario.

Manitoba is looking forward to the establishment of pulp mills in that province at an early date and, in a recent address, Premier Norris stated that he hoped such places as Grand Rapids and others, would possess plants which would use a large quantity of the valuable pulp woods in the province.

E. J. Zavitz, director of the Forestry Branch of the Province of Ontario, states that the reports reaching him from the fire rangers of New Ontario, who have been on duty all summer and have been called in, show that, under the new regulations of the department, some 2,500 settlers in the north country got permission during the past season to burn slash. There were no serious fires this year as every precaution was taken. Before a settler was allowed to burn slash, he had to secure the consent of the fire ranger in his district, who satisfied himself that there was no danger in granting the permit.

The plant of the Northumberland Paper and Electric Co., which is located at Campbellford, Ont., had a close call from destruction by fire last week. Early in the morning a blaze broke out in the storage building, where waste material is housed and it was only after a stubborn fight, lasting several hours, that the flames were finally brought under control. Help was secured from Peterborough and this, coupled with the fact that the water service of the company was excellent and the buildings are practically fireproof, resulted in confining the devouring element to the structure in which it originated. The operation of the board mill will in no way be interfered with and manufacturing is going on as usual. The loss is fully covered by insurance. Nearly two years ago the mill was completely wiped out by fire, and the new plant has been in operation only a few months. David F. Robertson is general manager of the company.

Allan Browne, of Toronto, sales manager of the Interlake Tissue Mill, is spending a few days in Montreal and other points east, on business.

Stewart Lyon, editor-in-chief of the Toronto Globe, who has been war correspondent at the front for the Canadian Press for the past eight months, has reached England on his way home to Toronto. He is succeeded by W. A. Willison, late of the Food Controller's office, Ottawa, who is now on his new mission.

Mayor Church, of Toronto, who sent a telegram to Sir Robert orden protesting against the granting of the application for a power dam on the St. Lawrence river, has received word that no such application has been received by the federal authorities. There is a serious shortage of power in Ontario at the present time because the surplus in the Niagara River has not been turned over to the Hydro-Electric Commission as bargained for some weeks ago.

The publicity bureau of the Canadian Press Association, in connection with the forthcoming Victory Loan, has been opened in the Dominion Bank Building, Toronto. J. H. Woods, of Calgary, President of the Canadian Press Association, is in personal charge and associated with him are Britton B. Cooke, former editor of MacLean's Magazine, and Augustus Bridle, editor of the Canadian Courier. The bureau will prepare all the reading matter publicity in the newspapers. The services of several writers and artists will be secured as the campaign advances.

The Lazier Paper Mills, of Belleville, are now operating on straw paper which is in fair demand for the making of corrugated paper boxes.

The demand for information on the different phases of work, which the Military Hospitals Commission has inaugurated to meet the problem of the returned soldier, has been so insistent, both from within the Dominion and the Allied countries, that the "Bulletin," a publication covering the many points in question, will be issued by the commission in conjunction with the Board of Pension Commissioners at Ottawa.

The recent visit of the Duke and Duchess of Devonshire, the Ladies Cavendish and Lord Cavendish, to the Abitibi Power & Paper Co. was a great event for Iroquois Falls, Ont., and an honor paid the industry. A guard of honor of ten returned soldiers escorted the distinguished visitors, who thoroughly inspected the mills. An interesting program was well carried out and the Duke expressed both pleasure and surprise in the fine town and mill, where a few years ago was only a forest.

Mr. Henry Brown, machine tender at the Ontario Paper Mills, Thorold, dropped dead while attending to his duties on Tuesday morning. Medical aid was promptly secured, but life was found to be extinct, heart failure being the cause.

The beater and machine hands at the Lybster Paper Mills at Merritton have been granted the eight hour shift.

Mr. T. A. Weldon vice-president of the Provincial Paper Mills Co., Ltd., accompanied by his wife and daughter, spnet the week in a motor tour through St. Thomas, where he visited his father and mother, also touching on London and Norwich and many other scenes of his boyhood days.

Bob Elliot of the Lybster Paper Mills at Merritton, had the misfortune to get his fingers pinched last Wednesday.

Hon. J. L. Sifton, the new Minister of Customs, is known as a big and broadminded man. While the paper manufacturing trade at Ottawa has not had time to fully grasp or digest the trio of important events that followed one on top of the other, there is belief that Hon. A. L. Sifton, when he comes to set the price for newsprint will give the paper trade a "Square Deal." The prediction that three cent newsprint is coming, is just as freely made and believed in by the manufacturers at Ottawa to-day as it was before a Union Government was formed.

The auditors' examination of pulp and paper mills continues, the books of the John R. Booth mill and those of the E. B. Eddy Company having recently been gone over by the auditors of Mr. Geoffrey Clarkson. The examination of the books and records at the Booth plant took several days, and the audit of the books and records of the E. B. Eddy mill had not been completed up to the first part of this week. Some of the books and records in the Eddy mill were gone over by the auditors, but before they were completed the auditors left for Price Bros. mill to start another audit. No word as to the actual cost charges for producing newsprint at the John R. Booth and E. B. Eddy plants is available. Both mills, however, are generally known as high price mills and while there are no actual figures forthcoming as yet, there is the belief that the records of these two mills when presented to Commissioner Robert A. Pringle, K.C., will show nothing that will tend to reduce the average price of $57.26 per ton as shown for five of the six mills previously examined at the fourth session of the Newsprint Probe.

The coal situation with Ottawa paper plants is reported to have shown an improvement during the past ten days. Neither plant has as yet laid away its full reserve of fuel for the winter. The labor situation from the woods end had up to the end of last week showed little or no change.

Hon. J. B. Reid, former Minister of Customs, will not after all set the price for Canadian newsprint, after the Commissioner, Mr. Robert A. Pringle, K.C., has made his recommendations at the conclusion of the Canadian Newsprint Probe. Hon. J. L. Sifton, Premier of Alberta, under the new order of things will be the man to whom the Canadian newsprint manufacturers will have to look for justice when the time comes for the Minister of Customs to fix the price of newsprint and tell the paper trade what it has been eagerly seeking for months and months. Hon. J. B. Reid is not out of the war-time Union Government, and has been given the portfolio of Railways and Canals. Thus he is not altogether removed from his association with the paper trade as from time to time his discretion and judgment will have to do with the transportation of paper shipments.

THE MUD WAS DEEP.

A headline in the Montreal "Star" reads: "British soldiers ploughed through mud to depth of one mile."

BOOK PAPER BUREAU SUSPENDED.

Considerable interest was manifested in local circles in the news that the book paper manufacturers had made an offer to the government expressing a willingness to abolish their Bureau of Statistics. This offer, it is understood, was made in connection with the recent charges against 23 book manufacturers charging them with illegally combining to increase the price of book paper. As the Federal Trade Commission maintained that the Bureau of Statistics had been used as a means for enhancing paper prices, the manufacturers replied to this charge, not confessing any guilt, but offering to remove the objectionable Bureau. The offer is to be considered by the Trade Commission which is expected to make decision on or about Oct. 29. To some in the trade, it is apparent that the Government is going to do everything in its power to limit the activities of trade associations. It was generally considered in the local trade that the book paper men's Bureau of Statistics was a most conservative affair and that it was purposely made so in order to conform to any objections that might be had by the Government officials. Judge Charles F. Moore, head of the Bureau and one of the best known men in the paper trade in the United States and Canada has always been regarded as a man of unsual discretion and extraordinary wisdom with regard to the handling of the most delicate problems and, if under his care, the Government sees fit to find complaint, it is generally conceded that objection is to be taken to anything that smacks of progressiveness in the industry.

ON THE U. S. EXPORT LICENSE LIST.

In the list of some 150 articles for which licenses are necessary for export from the United States the following are the ones of interest to the pulp and paper industry: Coal, electrical equipment, engines, motors and steam boilers; flax, sisal, jute, hemp and manufactures thereof; leather belting, machinery, newspaper and print paper; sulphur; woodpulp and cellulose.

It should be observed that, with the exception of iron and steel products, licenses to export to Canada will be issued freely on application to the Department of Commerce, Division of Export Licenses, 1435 K. Street, Washington, D.C., from whom the necessary forms may be obtained.

A FINE RECORD.

From water boy on mill construction to foreman of mill operation is the enviable record of John Hunt, who with the exception of a year in school has been continuously in the employ of the Spanish River Mills. He started at eleven years of age, when the Soo mill was built in 1895, and has held about all the positions there are in construction and operation. He has never laid off for sickness and his one slight accident happened 20 years ago. We call this faithful service.

THE DYESTUFF SITUATION.

The National Aniline and Color Co. of New York, has published a book on "The Aniline Color, Dyesstuff and Chemical Conditions from August 1, 1914, to April, 1917." The book is a carefully prepared, comprehensive work, containing 224 pages, compiled by I. F. Stone.

The languages employed in Finland are Swedish and Finnish, not Russian.

The Markets

CANADIAN MARKETS.

Toronto, October 15, 1917. — Interest in news print circles centres on the resumption of the investigation at Ottawa on October 29. This is expected to be the last sitting before a proclamation is issued by Commissioner Pringle regarding the price and much speculation is being indulged in regarding the new figure which it is fully expected will be three cents. In the meantime, the mills are rushed to capacity and report an ever widening demand for news print, principally from across the border, as the news of the war becomes increasingly interesting.

Trade with jobbing houses has picked up materially during the past two weeks and from now on until after Christmas there is expected to be a steadily gaining volume of business. All kinds of wrappings and kraft are going very well. Book mills report business about the same and prices still hold their own. There is considerable talk of probable reductions but there is nothing substantial on which to base the hope. The various printing establishments are not busy as a number of catalogue houses, which usually got out fall publications, have withdrawn these owing to the uncertainty of supplies and prices. No fixed quotations can be given and whether the printing business will pick up later is a matter of conjecture. In higher priced bonds and ledgers business is not as good as a year ago and efforts are being made by, at least, one Canadian plant to develop a connection in England. The great difficulty is in securing ships. However, this is expected to be a forerunner of good business after the war a very wise precautionary move. There have been recently some cuts in the price of envelopes on standard lines, the reduction being from ten to twenty-five per cent. Business with envelope firms is only fair, and the labor problem is one of the greatest difficulties.

Much interest gathers around the future of the pulp prices and there is some evidence of awakened activity but development is slow and paper mills are hanging back expecting that sulphite will take a further drop. The extensions to the Abitibi Power and Paper Co's. plant have been completed and the ground wood capacity is now three hundred tons daily and the sulphite production has reached one hundred and thirty tons.

The Swedish situation, whereby exports to Great Britain have been cut off and the mills are confronted with a great scarcity of coal and sulphur, will all result in increased business for Canadian plants . The arrivals at American ports are very small and Canadian firms are looking to greater trade than ever with mills across the line and a development of sales in Great Britain. The chief question is whether the deveolpment of production of sulphite in Canada, which will be doubled within the next few months, will tend to hold prices down. The mill owners all affirm that quotations are bound to be cut while sulphite men contend that the increased tonnage will only be enough to replace the foreign article, that all the extra supply will, therefore, be readily absorbed, and that the available quantities will not be more than enough to meet the demand, with the resumption of fall activities on the other side of the line. Only time will tell but one thing certain is that sulphite prices aer holding up well considering some new plants may be cutting to get a look-in.

Board mills are getting busier and paper box factories are now running to capacity in most cases. Notwithstanding there has been a considerable dropping off in wrapped bread since the spring, wax paper plants have turned their energies into another channel. They are quite uneasy over the announcement of Food Controller Hanna that the scarcity of sugar may result in the federal government banning the manufacture of candy and confectionery during the war. This would be a vital blow to the wax paper trade and result in the elimination of the major portion of their business. The hope is expressed that the Food Controller has been merely sounding a warning note and that the threatened state of affairs may not come to pass.

These are trying times for most all industries and now the newspapers are urging stores and the citizens generally to conserve in the matter of paper. Business houses are economizing in the way of stationery as never before and the result is being felt by the mills. Recently the Senate Printing Committee of the United States urged that the Government should take over all the pulp and paper plants in the United States and operate them during the progress of the war but such a move, in order to be effective, would have to be followed by Canada and no such proposal is heard here. The reason that no radical step of this kind will be undertaken is the government of the Dominion has enough knotty problems on its hands now without entering the industrial arena with its worries and vexations and is disposed to leave well enough alone.

Tissue and toilet paper plants are working nearly to the full although more orders could be filled. Business might be a great deal worse with them. There are no price changes to record and, in many respects, the market is quite featureless, with uncertainty facing it in every direction, but the mills are operating as best they can under distressing labor conditions, the high prices of copper wire, felts, coal, wages and transportation difficulties.

An interesting side light has just come out in connection with an editorial which appeared recently in a Toronto daily, which has been raising the cry of "profiteering" and calling vehemently for all sorts of businesses being investigated and regulated. Another outside paper, referring to the editorials of the Toronto journal, says the latter sheet supplies nearly a hundred thousand people with "pabulum". It is not luxurious food but just the plain, ordinary variety suited to the common people. And yet this Toronto paper has added to the high cost of living, which it laments so vigorously, by doubling its price since the war began. Imagine the poor city workman having to pay two cents to find out the result of the days baseball matches. Nor is that all, for the same Toronto

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LEAD PIPE

Not only does the Hoyt Metal Co. furnish Sheet Lead and Hard Sheet Lead which we believe is superior to any other Lead manufactured, but our Lead Pipe and Waste is made out of the best selected stock of known acid resisting qualities. We believe we can safely state that our Pipe will last from ten to twenty-five per cent longer than any other Pipe on the market. This is a broad statement but a trial order will easily verify the above.

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Howard Smith Paper Mills, Limited
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GRADERS AND PACKERS OF ALL KINDS
—OF—

Paper Making Material---Rags Cuttings and Paper Waste

Rag Warehouse, 35 Common Street.
Waste Paper Warehouse, Grand Trunk Siding Wellington Street.

"The Time Has Come to Conquer or Submit."
---President Wilson.

BUY LIBERTY BONDS
OR
DIE IN BONDAGE

M. GOTTESMAN & SON - 18 E. 41st Street, N.Y.
WOOD PULP

paper's advertising rates are currently reported to have been increased from fifty to one hundred per cent. Surely this paper should be called upon to account to somebody for this addition to the public burden. We would suggest that the Government appoint a Royal Commission for the purpose of inquiring into matters."

Here is one publication getting after another in much the same manner as some of the big dailies have been criticizing the Government for not taking stringent action against the news manufacturers, and it has been shown in the foregoing instance that while increases on the part of the large daily mediums have been one hundred per cent in their advertising and subscription rates, the cost of news print was not advanced by the producers more than twenty-five to thirty-five per cent. It all depends on whose ox is gored.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$38.00 to $40.00
Sulphite, easy bleaching	$80.00 to $85.00
Sulphite, news grade	$65.00 to $70.00
Sulphite (bleached)	$115.00 to $120.00
Sulphate	$85.00 to $90.00

NEW YORK MARKETS.

New York, Oct. 13. — There is no really serious thought with regard to the request made in the report of the Senate Printing Committee that the Government take complete control of the pulp industry. Naturally, it is the subject of much discussion, just as it has been for some time. Some point out that the situation is now even more serious than it ever was, owing to the disposition of the Government to take over the various industries of the Government, and of the apparently determined attitude with regard to newsprint and other papers.

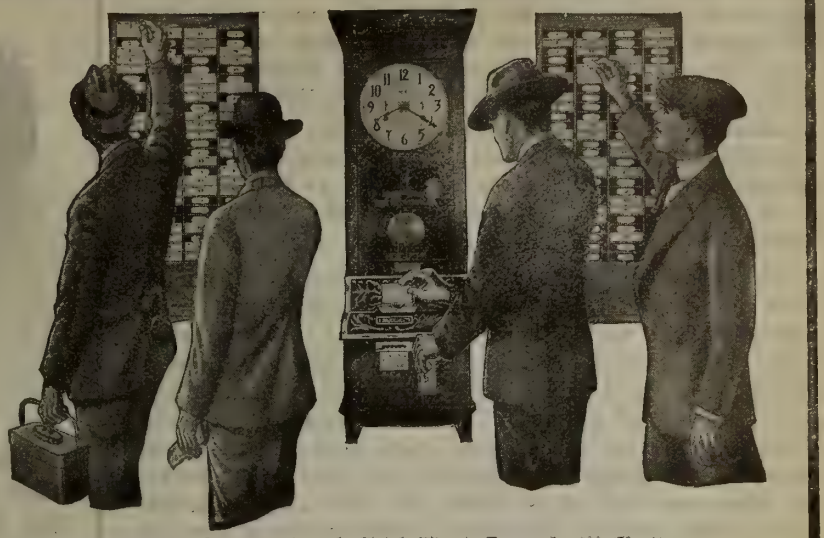
However, everyone is hoping for the best. In the meantime, trading in chemical pulp continues to show fair animation and quotations are steady all through the list. Domestic stock continues to be the centre of the greatest part of the activity. It is understood that several of the paper mills have been offering to buy foreign pulp at slightly reduced prices, but the importers have been holding firmly to their asking figures, maintaining that it is impossible for them to quote lower and also that it is inevitable that the market will go higher before it will be reduced to any extent.

The imported situation is considered very strong despite the fact that about 1,500 tons of pulp, including kraft, sulphite, bleached and unbleached, were estimated imported last week. Importers maintain that this will probably be the last pulp imported for the year as exchange is decidedly against the importers, amounting at present to about $40 per ton.

Despite the renewal of the prospects of government supervision of the groundwood industry, there is no excitement of any real sort in this branch of the trade. As a matter of fact, an unusual quietness is reported to have developed during the week. No real explanation is given out, except that it is thought that efforts are being made to bear the market. That such have been successful to some extent, seems to be the case, inasmuch as it is understood that the market values of some pulps have gone down to $38 per ton at the grinding point. It seems that even the news mills did not show much interest in the market during the past week, to say nothing of the other interests concerned. It has been stated that the prices were lowered because of the quietness and that the slightest increase in demand would have the effect of boosting the figures back again. Production is not up to normal, judging from reports and the chances are that it may continue to fall off in some sections of the country where the labor situation is most acute. This factor alone, it is calculated, will bring the situation to such a point, that it will not require much of a demand to keep the market near the top level. The freight situation must not be lost sight of. There are the new war

TIME

is the essence of the contract. Everything depends on the use you make of the working time your men deliver—yes, but the first essential is to be sure you get the time you are paying for.



Using an International Card Time Recorder. Very speedy and flexible. Just one style of many we make.

International Time Recorders

If you use a human time keeper and a time book you must expect "human" results. If you use an International Time Recorder you employ a cold-blooded, deadly accurate machine that has no brains so it cannot "think" and cannot make mistakes. Every employee makes his own time record so he knows it must be right. Amongst many other successful mills using Internationals are:

Abitibi Power & Pulp Co.
Belgo Pulp & Paper Co.
Laurentide Pulp & Paper Co.
Gulf Pulp & Paper Co.
Brown Corporation.
Chicoutimi Pulp & Paper Co.
Empire Pulp & Paper Co.
St. Maurice Pulp & Paper Co.
Wayagamack Pulp & Paper Co.

These Mills' Labor Costs are Accurately Defined



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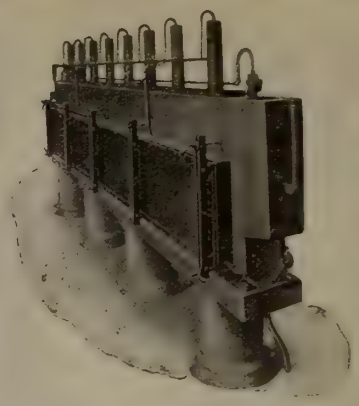
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taxes; also the second Liberty Loan, which is receiving much attention at the present time and which may be regarded as one of the causes for some of the hesitancy in the present situation. It is expected, however, that all of this will be but short lived and that confidence will be restored soon. At the present time, the following can be looked upon as the quotations for groundwood pulp: In the East, $38 to $40 per ton, f.o.b. pulp mill; in the West, $40 to $42 per ton, at the grinding point.

The situation in the rag market is somewhat uncertain. Activities vary. The mills are buying what they need—and no more, the most active of the grades being those used in roofing. Dealers urge that now, if at any time, is the moment to buy paper stock. First, the question of freights. It is inevitable that the freight situation will become more acute than it ever was and the question of priority will be the big factor in shipment, and rags come near the last. Another point being used in argument, is that winter is now approaching, when collections are at their lowest. Some of the prices being quoted to-day are as follows: For new white shirt cuttings, up to 9½c; for silesias, up to 5½c; washables, up to over 5½c; fancy shirt cuttings, up to about 5¾c; old whites up as high as 5½c; street soiled whites, up to nearly 2¾c; thirds and blues, up to about 3c; black stockings, up to 2¾c. Roofing stock is bringing up to over 2c.

There is very little activity in the waste paper stock market, it being affected, most likely, by the same conditions that have put a quietus on things in general. Just now, the demand is largely for the cheaper grades, going mostly to the board and similar mills. Strictly over-issue news is being held at over 1¼c and is going fairly well. Strictly folded news is said to be bringing about one cent, or a little less in some sections. Mixed papers are quoted at about 65 cents per hundred pounds. Old manilas are quoted at up to over one 1¼c; old krafts top at about 3c. There is not very much doing in shavings. Hard whites are quoted up to 4½c; bogus wrappers are reported to be bringing over 1¼c; soft whites, at up to 3¾c; colored stock at over 1½c. Over-issue magazines are up to about 1¾c; ledgers and writings, up to about 2c; solid ledger books at about over 2¼c; and new boxboard chips at about up to 70c per hundred pounds.

There is comparatively little doing in bagging. The mills are not buying heavily and even the roofing grades have eased up somewhat. It is thought that the mills have bought all that they need for some time and



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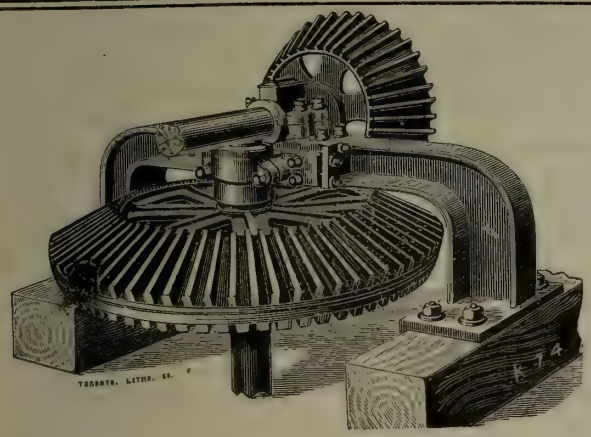


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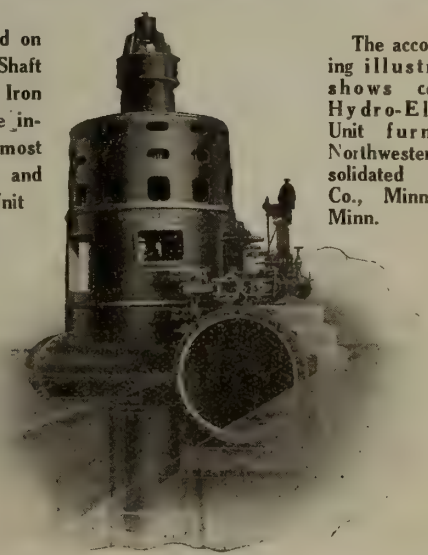
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that the only way sales can now be made is by offering big inducements, which they are not generally willing to do. Gunny is still quoted at up to four cents; bright bagging is held at up to 3¾c; sound bagging at over 2¾c; and mixed bagging at up to 2½c. There is not much activity in the old rope market, quotations being held up to 6¾c.

There seems to have been a tendency for paper prices to strengthen somewhat during the week. The newspapers report heavy fall advertising, which is reflecting directly on the demand. There seems to be no question that the amount of advertising for the next few months will exceed anything for this period and will mean a big consumption of news. Some contracts for the coming year have been made, it is said, at 3 cents and a little over. No concessions can be obtained under these figures at the present time, it is understood. Book prices are regarded as firm, though activities were nothing unusual. In boards, there has been a tendency toward a little weakening, for the demand has not been up to standard. It is thought that, with the Christmas season approaching, there will be a big demand for boards, especially as there will be so much in the way of gifts sent to the soldiers abroad, the greatest part of which will, most likely be protected by boards. Tissues are improving a little, as are bonds and ledgers.

CANADIAN CHEMICAL MARKET.

Montreal, October 16.—Caustic soda, soda ash and sal soda have shown a steady advance during the past month, with prospects of still higher prices next year. Bleaching powder remains weak, producers having large stocks. A shortage of ammonia is reported from all quarters with a corresponding advance in this commodity and its derivitives.

The following are the prices in the Montreal market:

Alum, ammonia lb.	5½c @ 6½c
Blanc, fixe-paste, lb.	4c @ 4½c
Blanc, fixe-powder, lb.	5c @ 5½c
Bleaching powder, lb.	2c @ 2¾c
Brimstone, f.o.b. mines, long ton	$45 @ $50
Casein, lb.	30c @ 40c
Caustic soda, 76 per cent., lb.	8½c @ 9¼c
China clay, imported, ton	$30.00 @ $40.00
China clay, domestic, ton.	nominal
Lime, ton	$7.25 @ $8.00
Sal soda, in bags, 100 lbs.	$1.45 @ $1.50
Sal Soda, in barrels, 100 lbs.	$1.55 @ $1.60
Salt cake, 100 lbs.	$1.35 @ $1.50
Soda ash, lb.	3¼c @ 4c
Starch, pearl, in bags, lb.	8¼c @ 8¾c
Sulphate alumina, technical, lb.	3½c @ 4c
Sulphate alumina, iron free, lb.	4¼c @ 5½c
Talc, American, ton	$18 @ $21

McARTHUR, IRWIN, LTD., MAKING LUCAS COLORS.

McArthur, Irwin, Ltd., Montreal, have secured the rights to manufacture Lucas dry and pulp colors in Canada, and are now making Lucas colors at Montreal under the Lucas formulae and under the same conditions as obtain in the Lucas color plants at Gibbsboro and Chicago.

McArthur, Irwin, Ltd., Dry Colour Works, formerly the Allan Munro Company, has been entirely remodelled according to the Lucas plan, and the latest and most improved equipment has been added, making a most modern plant. An important feature is the completely fitted laboratory devoted to the chemical control of the raw materials entering into the production of the colors, and to the analytical work in connection with the matching and duplication of shades.

Chester A. Holkesvig, formerly assistant superintendent and color chemist of the Lucas dry color plants at Gibbsboro, has joined the McArthur, Irwin organization and is in charge of production.

CANADA WELL COVERED BY NEWSPAPERS.

Canada continues to be unusually well served by the press. This is brought out in the current issue of the Canadian Newspaper Directory compiled by A. McKim, Limited, Advertising Agency, of Montreal, Toronto, Winnipeg and London, Eng.

There are 1,381 publications of all kinds now being issued in Canada, including 138 dailies, 4 tri-weeklies, 40 semi-weeklies, 921 weeklies, 222 monthlies, 1 bi-monthly, and 16 quarterlies. Reflecting the general prosperity which has obtained in Canada since war began, the publishing business is in a healthy condition.

Since A. McKim, Limited, issued its first Canadian Newspaper Directory twenty-six years ago, the firm has seen the birth of many of the publications listed in its Directory, and is in a position to have accurate knowledge of the field. The present day condition of the Canadian press enables the Dominion to continue to boast the largest reading public in the world in proportion to population.

SAFETY WILL HELP WIN THE WAR.

"We are in this war to win, but the man behind the gun depends upon the man behind the machine," says W. H. Cameron, general manager of the National Safety Council, whose headquarters are in Chicago.

"To the war-toll by land and sea, there must not be added the shameful toll of needless accidents in the industries. Our country's efforts cannot be prejudiced by the indifferences or negligence of employers to whom the doctrine of safety has made but a negative or weak appeal. It is the bounden duty of every employer to put his shop upon a safe and healthful basis, and by precept and action, to continually stimulate his employees to be ever mindful of their own safety and that of their fellows.

"The man-power of the nation will be more and more depleted as each fresh contingent leaves for Europe. New burdens will be put upon the men at home—the 'green hand' must be broken in—and an industrial army of workmen will develop. All these things, and many others, are systematic of the 'safety revival' which must needs come about."

ANOTHER TICONDEROGA DIVIDEND.

Ticonderoga Pulp & Paper Co. has declared a dividend of 10 per cent., payable December 1st, to shareholders of record November 30th. An initial dividend of the same amount was paid in June. Riordon Pulp & Paper Co., as the holder of 70 per cent. of the Ticonderoga's $360,000 common stock capital, will be the chief beneficiary from the distribution.

The representatives of employers and workingmen in the paper and pulp industry in Norway, have reached an agreement in the conflict; this agreement will be made the subject of a vote within the two organizations, but it is confidently hoped that it will be accepted by both.

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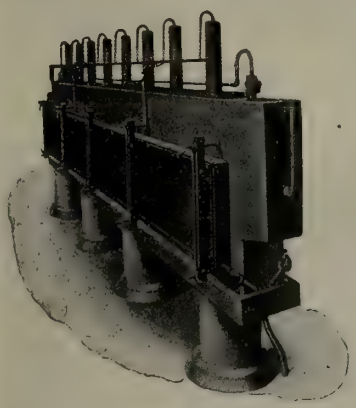
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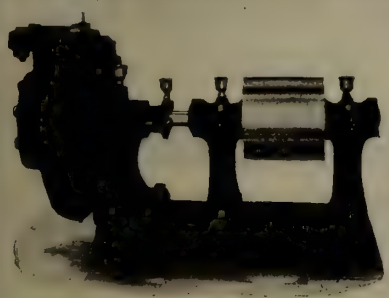
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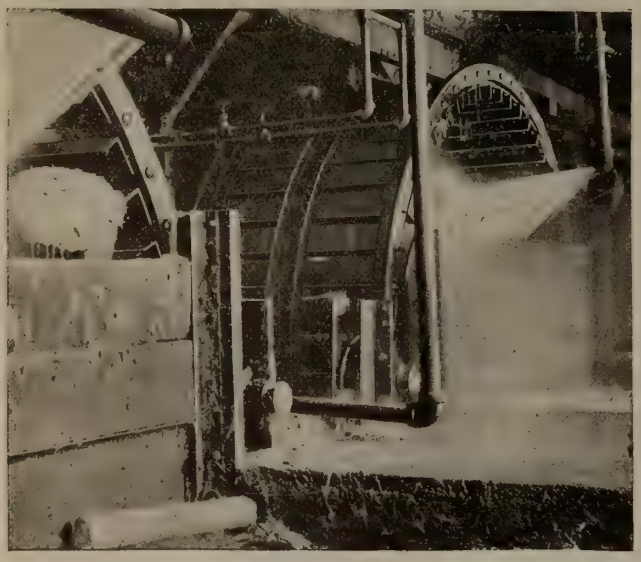
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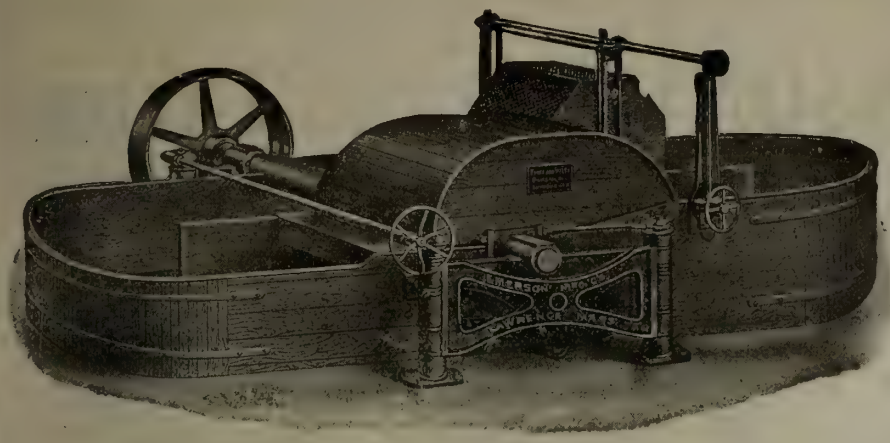
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OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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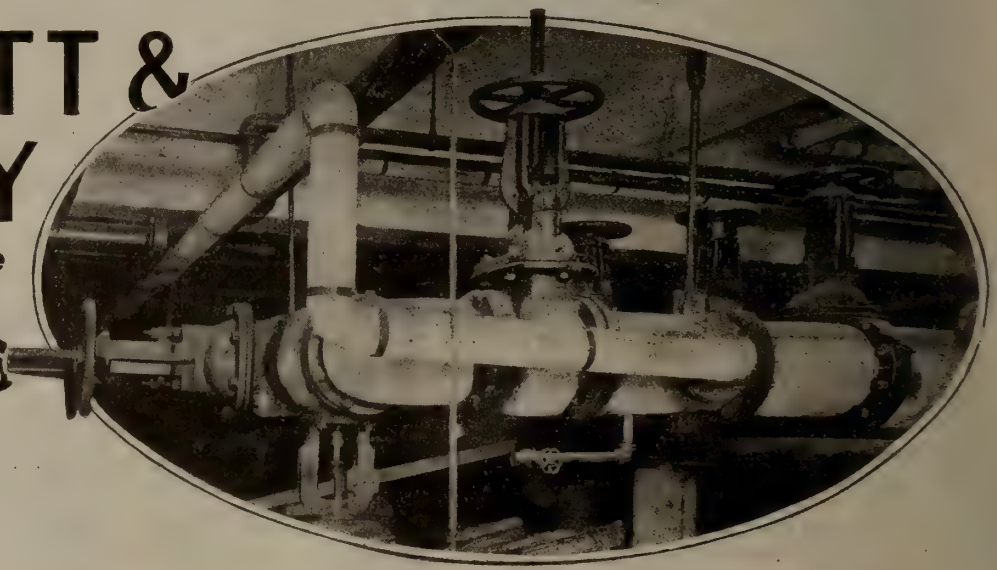
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EDITORIAL

PRICE FIXING vs. COST FINDING.

Government control of industry is a question that probably will never be answered. It is a problem, rather a collection of problems, the conditions of which differ from the town to the nation and from the selling of sugar or the disposal of garbage to the operation of a railroad or the mining of coal. Leaving out the consideration of monopolies, such as sulphur in Italy or railroads in Germany, or any postal system, government control of industries is likely to be effective only when applied to the vital needs of the community and when the regulation affects the whole chain of events, from the procuring of raw material to providing the ultimate consumer. Government control in the sense now concerning the American and Canadian people is not the operation of industries for the purpose of making money, but for the purpose of providing the people with the necessaries of life and the nation with the sinews of war. The obviously necessary things are food, fuel, munitions and transportation. To these may be added clothing and, according to some, the newspaper.

It is a great compliment to the pulp and paper industry that the newspaper should be deemed a public necessity and a vital factor in the life of the people and the prosecution of the war, for without the paper mill the newspaper could not be. However that may be, the newspaper publishers' union has so impressed the government with the idea of the vital character of newspapers and of their need of protection from the paper maker that some legislators would require the Federal Trade Commission to control the operation of paper mills and the sale of paper—for printing. There is no mention made of controlling or regulating in any degree whatever, the use or waste of paper by the publishers, except as they may report stocks on hand, etc., to the F. T. C.

The paper situation in various countries is quite different. In England, France and Italy, paper is extremely scarce, since paper or its ingredients must, to a great extent, be imported. That the newspaper may continue to perform its important function, there must be a curb, both on the appetite of the publisher who would consume more than his share and on the manufacturer or dealer who would be extortionate in his prices. One is accomplished by a regulation of pages and the other by a regulation of prices. In England a recent decree of the paper commissioner set a fixed price for four months. A movement is under way, however, to have this method replaced by the more fair and logical scheme of a proper basis and method of cost accounting and a price fixed each month according to current costs.

The auditor appointed by Commissioner Pringle seems to have adopted this sensible method, and as a result his figures should represent present facts. Mr. Clarkson's cost figures are therefore considerably different from those of the Federal Trade Commission which are based on ancient history. The problem in Canada is almost entirely a matter of price. There is plenty of paper for all. If there were a lack, the diversion of a small portion of exports would quickly fill the gap.

In the United States the problem is complicated by a very close margin between the demand and the available supply, together with the eternal question of price. The report of the Federal Trade Commission shows that when a pinch in paper seemed imminent and a curtailment of consumption necessary, the larger publishers in many cases made such a wild scramble to assure themselves of a full meal, so to say, that they made the small publisher play the runt pig. The result was that some of the runts did not have the financial strength to reach the supply at the height to which their big brothers had pushed it, so they starved. Others are said to be in a very unhealthy condition.

If a section, or even four pages of hot air were cut out of the Sunday papers of the United States (we don't have any in Canada, thank goodness) there would be little or no howl about getting the paper—if it were properly distributed. The price at which it should be sold is another phase of the matter. A supply of paper is no good to a publisher if he can't pay the price. There are two remedies for the trouble, increase the purchasing power or lower the price. Some publications have done the former, and usually with notable success, by increasing circulation and advertising rates or by amalgamating with a competitor. This has generally resulted in a better and stronger paper in every way and has further conserved the supply.

The price to the consumer may properly be reduced, and in some cases materially, by more sensible buying. Co-operation among small papers is one way and if purchases are made through a commission house or

a jobber who isn't a hog, should do much to smooth the path. A fundamental principle must not be overlooked, however. Each factor in the newspaper, from cutting the tree to yelling "Extra. Revolution in Germany!" must make a profit or we have built a house of cards that is sure to collapse. President Wilson realized this when he said:

> "By a just price I mean a price which will sustain the industries concerned in a high state of efficiency, provide a living for those who conduct them, enable them to pay good wages, and make possible the expansions of their enterprises which will from time to time become necessary as the stupendous undertakings of this great war develop. We could not wisely or reasonably do less than pay such prices. They are necessary for the maintenance and development of industry, and the maintenance and development of industry are necessary for the great task we have on hand."

Contrary to acting on such a principle, the Canadian government arbitrarily set a price of 2½ cents a pound on newsprint sold in Canada. A post-mortem examination is showing that such a price is less than the cost of production in many cases and leaves a fair profit in none. There is no doubt whatever about this. It is based on the figures of the paper commissioner's auditor, and even these figures are not strictly up-to-date, although practically current for most items.

As stated by the committee of English paper makers, if a price must be fixed (remember, England's case is far different from ours) it should be on a standard basis of accounting, and a current basis of ever-changing costs. No proposition made to either Congress or Parliament contains such a provision. Price fixing cannot be accomplished fairly and justly on any other basis. But price fixing in the paper industry is entirely unnecessary if all the parties will come back to a basis of fair, honest and open, commonsense business dealing. The last thing in the world for a paper maker to do, if he had an atom of commonsense, would be to ruin a customer with excessive prices, or even to cause the slightest embarrassment if it could be avoided.

The sooner the publishers come to earth and understand that the paper makers are not trying to rob them, and realize that the present situation is partly of their own making and aggravated by their previous foolish hysteria, the better it will be for all concerned. This also applies to any paper makers who "went up in the air," about a year ago.

THE QUEBEC BRIDGE.

No one can tell how long ago some one wished for a bridge across the St. Lawrence River at Quebec. If the wisher were here now he could see the fulfillment of a desire that has long been felt by many.

The Province of Quebec is no longer split from Montreal to the Atlantic, for the new bridge at Quebec, 180 miles nearer the sea, now ties the province together. To appreciate what it means to have such a dream come true, one should look at a map of Eastern Canada. To the north of the provincial capital lie the timberlands of the Lake St. John country and the upper St. Maurice and the farming country further west. Into this vast region run the iron feelers of the Canadian Northern and the Transcontinental Railways. To the south we find railways extending through the southern counties to New York and all New England. To the east there lies more Quebec, besides New Brunswick, Nova Scotia, Prince Edward Island, Cape Breton, and, just across the way, Newfoundland. Thus the regions producing timber, grain and pulpwood are bound with continuous bands of steel to the mills, markets and ports of the country south and east.

No one industry is likely to be better served by this connecting link than the pulp and paper industry of Canada and the eastern States, including especially the pulpwood operators and farmers who are clearing their land.

Quebec's dream was not realized in a moment by the wave of a magic wand. For thirty years, almost a generation, the idea has been growing. The first bridge collapsed in 1907 and the crumpled mass of steel carried 100 men to eternity. Last year saw a second disaster, when the centre span, while being hoisted into position, broke away and disappeared in the river. Nearly a dozen men went with it. The ripples had hardly reached the shore when a third attempt was resolved upon. A new span was built and on September twentieth, at four o'clock, every whistle and bell for miles around, proclaimed success at last, and that no job is too big for Canadian and American engineers—shall be call them Cameri-cans or Ameradians?

A NEGLECTED OPPORTUNITY.

The Pulp and Paper Magazine feels like crying over spilled milk. We made no direct appeal to Canadian manufacturers to take advantage of the opportunities offered by the third Exposition of Chemical Industries at New York a month ago. Canada may be justly proud of her accomplishments in chemical, mining and allied machinery fields, yet, with the exception of the three booths of branches of the Dominion Government, there were but two booths representing the Canadian chemical industry. One was taken by the Canadian Chemical Journal and the other by Process Engineers, Ltd.

Let us all see to it that next year Canada is properly represented. Let Americans see what Canada has to offer, both in commodities and opportunities and let Canadians see the variety of needful materials that are produced in the Dominion.

Retention of Fillers by Paper Pulp[1]

By OTTO KRESS,
In charge, Section of Pulp and Paper, and
G. C. McNAUGHTON,
Engineer in Forest Products, Forest Products Laboratory, Forest Service, Madison, Wis.

Mineral fillers are used extensively in paper to impart finish and feel, and to make it opaque, but comparatively little information is available as to the various factors affecting the retention of mineral fillers by paper pulps. This lack of information can readily be understood as the mills actually engaged in the production of paper cannot study these factors without seriously affecting quality and production; and, even if cost did not prohibit such experiment, there would be difficulties due to variations in the quality of the stock used, in the preliminary beater and jordan treatment, and in the control of the paper machine. Considerable work has been done on the study by making hand-samples of paper from pulps in which fillers have been used in varying amounts and under varying conditions, but the results obtained are not entirely satisfactory for comparison with results obtained in the mill. Having available at the Forest Products Laboratory an experimental paper mill equipment with which results more comparable with mill practice can be obtained, it appeared advisable to conduct investigations on the retention of china clay by paper pulp under varying conditions, at the same time observing the effect of the clay on the strength, color and ink resistance of the paper.

Materials.

Only two different grades of paper were made in these experiments—an all sulphite sheet made from unbleached Mitscherlich spruce sulphite and a sheet made on a furnish of 60 percent unbleached hemlock sulphite pulp and 40 percent unbleached aspen pulp. The sulphite pulps were commercial pulps while the soda pulp was made at the laboratory by the pulping of aspen wood. A sufficient quantity of each grade of pulp was prepared separately by giving the pulp a light brush in a beater and passing the pulp over our experimental paper machine, from which it was removed in the form of broke from the first press. The pulp was carefully sampled and stored in air-tight cans, so giving for any series of runs a stock which had received a uniform beater treatment.

The clay studied in these experiments was a china clay which on ignition on the muffle showed a loss of 12.57 percent volatile matter, moisture and combined water. This clay was analyzed for fineness by H. W. Stewart, Department of Soils, University of Wisconsin, Madison, Wis., who reported as follows:

"The results of this analysis are based entirely on water-free material, all determinations being made in duplicate.

"In making the moisture determination, two 10-gram samples were used and kept at a temperature of 110° Cent. for twenty-four hours. The data obtained is as follows:

Sample	A	B
Percent moisture	.55	.54

"The method employed in making the mechanical analysis is the one in use in the Soil Physics Laboratory of the University. It is essentially as follows: Ten grams of the air-dry material are shaken in 8 ounce shaker bottles with distilled water to which a little ammonia is adde. The shaking continued uninterrupted for a period of time necessary to insure that all the particles are individually in suspension. The material is then transferred to wide-necked bottles. The silt and clay are separated from the sands by agitating the material with an inflowing stream of water and allowing the material to sediment so that all the silt and clay are in suspension and the sand has settled to the bottom. This is regulated by microscopic examination. The suspension (silt and clay) is then blown off under a constant air pressure into centrifuge tubes. This material is contrifuged until the silt is thrown down to the bottom of the tube and the clay left in suspension. This is decanted and the whole process repeated until a complete separation is made. After drying, the sands are separated into their respective groups by means of sieves so constructed as to make the correct separations.

The results of the analysis are as follows:

Division	Name	Diameter in millimeters	Percent No. A	Percent No. B
1	Fine gravel . .	2-1	0.00	0.00
2	Coarse sand ..	1-.5	0.00	0.00
3	Medium sand	.5-25	0.12	0.20
4	Fine sand. . . .	.25-1	0.96	0.63
5	Very fine sand	.1-.05	2.37	2.49
6	Silt	.05-.005	50.91	52.42
7	Clay	.005 and less	45.91	44.26"

The size used in these experiments was a commercial prepared size, showing on analysis a total rosin content of 62.3 per cent, which was the basis for calculating the percentage of size used in the various experiments. The alum used in sizing approximated on analysis quite closely the ordinary $Al_2 (SO_4)_3 . 18 H_2O$.

Experimental Methods.

The pulp which had been prepared as already described in order to secure as uniform a stock as possible, 15 lb. of bone-dry stock being used per run. The er, 15 lb of bone-dry stock being used per run. The beater roll was adjusted at the beginning of every series of experiments and maintained at that position throughout the series. Equivalent volumes of water were added to the beater for each run in order that the stock density in the beater should be the same. The order of addition in each case was clay, size and alum, which were added at intervals of five minutes each.

[1]Read before the Technical Association of the Pulp and Paper Industry at the Fall Meeting in Holyoke, Mass., September 27, 1917.

The stock was circulated in the beater for twenty minutes, and then diluted in the machine chest to the same density for each run. The pulp was run over an experimental 15-inch fourdrinier machine and the paper machine conditions were held as constant as possible for each run. Attempts were made to adhere to a standard of a 50-lb sheet 24 x 36/500 basis, except in those experiments where the ream weight was deliberately varied in order to determine the effect on clay retention. The samples for testing represented uncalendered sheets, which were taken from the reel towards the middle of the run.

The finished papers were tested for strength at a constant humidity of 65 percent but the temperature at which these tests were made varied from 81° Fahr. to 93° Fahr. This variation of temperature could not be controlled without some means of refrigeration.

The percentage retention of filler may be expressed in several different ways, and the method finally decided on for these experiments, as shown by the following formula, is different from the ordinary mill practice.

Table I—Effects of Varying Amount of Clay in the Furnish

Run No.	Weight per ream lbs	Thickness inches	Strength Factor lbs per sq. in.	Strength Ratio lbs per .0001" of thickness	Breaking Length meters	Stretch Percent	Folds	Color Parts black	Sizing Test Time in Sec.	Ash Percent	Ash Clay equivalent Percent	Ash Clay Retention Percent	Remarks
	All sulphite sheet												
1	54	.00436	.68	.85	6020	3.57	704	127.4	*	0.64			0% clay, no size, no alum
2	55	.00473	.60	.70	5310	3.56	731	110.3	*	5.02	5.74	63.1	10% " " "
3	53	.00441	.51	.62	4670	2.88	256	105.0	*	9.20	10.50	62.9	20% " " "
4	51	.00435	.45	.52	4430	3.08	159	97.2	*	12.60	14.40	62.4	30% " " "
5	66	.00559	.61	.72	5425	3.22	712	117.5	510	1.33			0% clay, 2½% size, 4½% alum
6	55	.00479	.53	.61	4835	2.64	233	102.0	133	7.04	8.05	88.5	10% " " "
7	53	.00480	.41	.45	3905	3.09	98	89.7	72	11.80	13.50	80.9	20% " " "
8	51	.00472	.35	.38	3660	2.40	62	83.8	10	16.00	18.30	79.3	30% " " "
	60% sulphite—40% soda.												
33	50	.00471	.53	.57	4680	2.69	68	127.0	*	0.56			0% clay, no size, no alum
34	54	.00498	.47	.51	4080	2.46	72	123.0	*	2.36	2.70	56.8	5% " " "
35	54	.00489	.48	.53	3525	2.31	44	121.6	*	4.33	4.95	54.4	10% " " "
36	51	.00489	.38	.39	3375	2.36	26	115.5	*	7.87	9.00	53.9	20% " " "
37	50	.00453	.29	.32	2695	2.03	10	104.6	*	13.66	15.63	54.7	40% " " "
38	50	.00467	.42	.45	4025	2.22	28	118.6	391	1.82			0% clay, 2½% size, 3½% alum
39	50	.00479	.37	.38	3575	2.10	24	114.7	210	3.91	4.47	94.1	5% " " "
40	50	.00450	.33	.37	3630	2.13	15	110.1	132	6.33	7.24	79.6	10% " " "
41	50	.00467	.27	.29	3010	1.83	6	101.9	70	10.67	12.21	73.1	20% " " "
42	47	.00437	.19	.21	2190	1.50	4	92.4	25	18.23	20.86	72.9	40% " " "
	All sulphite sheet.												
21	50	.00429	.74	.86	5465	2.85	531	99.5	1	2.48	2.84	59.7	5% clay, no size, no alum
22	47	.00423	.73	.81	5500	2.70	616	88.5	113	3.39	3.88	81.5	5% clay, 2½% size, 4½% alum

*less than 1 second.

$$\text{Percent retention} = \frac{B}{A}, \text{ in which}$$

$$B\text{—percent clay in paper} = \frac{\text{Percent ash in paper}}{100\text{—percent volatile matter in clay}}$$

$$A\text{—Percent clay in furnish} = \frac{\text{Weight of clay in furnish}}{\text{Weight of stock + clay in furnish.}}$$

The particular china clay used in these experiments contained 87-43 percent nonvolatile matter, the remainder representing volatile matter, moisture and water of combination. The percentage retention was then calculated by dividing the percentage ash of the papers by .8743 to obtain the equivalent percentage of clay in the furnish. No correction was made for the percentage ash present in the pulp, nor for the ash from the size and alum employed. Such correction is only an approximation as the ratio of fibre to ash from the stock and from the sizing will vary with varying retention and ream weight. This will explain the very high retentions shown in the tables. For example, in run No. 45, where the ream weight of the paper was varied from 25 to 90 lb, and other conditions held constant, a retention of 102.4 percent was obtained by the method of calculation employed while the paper showed an ash content of 14.95 percent. In run No. 38, where the same percentage of size and alum was used but no clay, the paper showed an ash content of 1.82 percent, which represents the ash from the unbleached pulps and from the sizing residues left in the paper. Correcting run No. 45 for this percentage of ash shows a clay retention of 90 percent.

This high percentage retention would be decidedly decreased if the retention had been figured by the methods as usually used in the mill. For example: assuming a unit weight of 10 lb of clay to 100 lb of stock in the beater furnish and that 99 lb of finished paper was made which contained 9 lb of clay, the retention of clay according to mill practice would be 90 percent, while the retention according to the method of calculation used in these experiments would be

$$\frac{9}{99} \div \frac{10}{110} = 100 \text{ percent retention.}$$

In the example given there was a loss of 10 percent in both the clay and the fibre during conversion of pulp to paper, but the ratio of clay to fibre in the furnish was not changed in the paper. In other words, in our experiments retention had been considered on a ratio basis while in mill practice retention is calculated from the weight of clay in the finished paper in comparison with the weight of clay in the furnish.

The retention as calculated in the mill involves the actual amount of paper made, and it is possible to have papers made from the same original furnish, with different percentages of ash but showing the same percentage of clay retention. The retention as ordinarily calculated is decidedly affected by the efficiency of

the paper machine, and other factors. It is, of course, evident why in commercial practice this method of calculating filler retention is used, but for a study of the factors influencing filler retention by paper pulp we believe that the method of calculation as used in these tests has certain advantages.

The color tests were made with a tint photometer using a special daylight lamp, and, as would be expected with increasing clay retention, the papers showed a decrease in "parts black" equivalent to an addition of white proportional to the increased clay retention.

It is well known that papers loaded with fillers show slack sizing in comparison with papers made on a furnish with an equivalent percentage of size but is apparently not uniform and the ink does not penetrate to all parts of the upper surface at a uniform rate.

Effect of Varying Amount of Clay in Furnish.

When the percentage of clay furnished to the beater is increased, the percentage retained by the paper is decreased. With an unsized paper less is retained than with a sized paper, and low retentions result with the use of even comparatively small amounts of clay in the furnish. Much greater retentions with larger amounts of clay are secured when the paper is sized. Runs 1 to 4 and 33 to 37 (Table I) show, in tabulated form, the effect of increasing the amount of clay upon retention in unsized paper, while runs 5 to 8 and 38 to 42 in the same table show the effect upon retention in sized papers. It will be observed that the unsized,

Table II—Effects of Varying Ream Weight

Run No.	Weight per ream lbs	STRENGTH VALUES: Thickness inches	Strength Factor lbs per sq. in.	Strength Ratio lbs per .0001" of thickness	Breaking Length meters	Stretch Percent	Folds	Color Parts black	Sizing Test Time in Sec.	ASH: Percent	Clay equivalent Percent	Clay Retention Percent	REMARKS
All sulphite sheet													
9-30	30.	.00290	37	.38	3445	2.30	13	66.8	9	16.70	19.10	82.8	30% clay, 2½% size, 5% alum
35								66.4	15	17.80	20.35	88.1	" " "
40	42.5	.00408	.39	.40	3310	2.72	23	66.1	21	18.30	20.95	90.8	" " "
50	50.	.00453	.34	.38	3280	2.93	36	66.9	29	18.60	21.30	92.4	" " "
60	60.	.00562	.36	.41	3260	3.00	58	65.7	62	18.80	21.70	94.0	" " "
75	70.	.00606	.39	.45	3280	2.70	68	65.3	116	18.80	21.70	94.0	" " "
80	80.	.00700	.37	42	3170	2.82	162	65.5	140	18.50	21.20	92.0	" " "
60% sulphite—40% soda													
45-90	92	.00811	.21	.24	2465	1.89	10	96.5	472	14.95	17.10	102.4	20% clay, 2½% size, 3½% alum
80	80	.00721	.23	.26	2445	1.71	10	97.7	360	14.96	17.11	102.4	" " "
70	68	.00616	.24	.27	2535	1.79	7	97.8	222	13.86	15.86	95.0	" " "
60	61	.00573	.24	.26	2492	1.66	5	99.2	154	13.35	15.28	91.5	" " "
50	50	.00508	.27	.28	2740	1.77	4	99.2	116	13.05	14.94	89.4	" " "
40	40	.00387	.25	.26	2520	1.49	5	102.1	21	10.93	12.50	74.8	" " "
30	30	.00320	.21	.20	2175	1.12	2	102.3	6	10.27	11.75	70.4	" " "
25	25	.00273	.21	.19	2160	.95	1	104.3	1.4	8.19	9.37	56.1	" " "

without the addition of the filler. A number of methods were tried for measuring the degree of ink resistance of the papers without obtaining completely satisfactory results. Squares of paper, cut 2½ inches square, were floated, wire side of the paper down, in a bath of ink and the time required for the ink to strike through the upper surface of the paper, as caught with a stop watch, used as a numerical expression of the resistance to ink penetration. This method of numerically recording the ink resistance of paper is unsatisfactory as paper without size shows the ink penetration to the upper surface almost instantly, while with sized papers the sizing and formation of the paper

100 percent sulphite papers, gave retentions of approximately 63 percent and the unsized papers, 60 percent sulphite and 40 percent soda, retentions varying between 54 percent and 57 percent. When sized, the sulphite papers gave a maximum retention with less than 10 percent of clay, and decreased to 79 percent when 30 percent of clay was used, while the sulphite soda papers gave, with 5 percent clay, a retention of 94.1 percent which decreased to 73 percent with 40 percent of clay.

Two additional runs, indicated in Table I as runs 21 and 22, were made to observe the retention on sulphite paper with 5 percent of clay in the furnish. The

Table III—Effects of Varying Amount of Size

Run No.	Weight per ream lbs	STRENGTH VALUES: Thickness inches	Strength Factor lbs per sq. in.	Strength Ratio lbs per .0001" of thickness	Breaking Length meters	Stretch Percent	Folds	Color Parts black	Sizing Test Time in Sec.	ASH: Percent	Clay equivalent Percent	Clay Retention Percent	REMARKS
All sulphite sheet													
10	50	.00415	.56	.68	4290	3.21	356	94.8	¼	8.20	9.39	56.4	20% clay, no size, no alum
11	51	.00433	.52	.62	4200	3.07	356	86.7	½	9.60	11.00	66.0	" " ½% " 1% "
12	53	.00430	.47	.58	4045	3.04	307	83.1	5	11.15	12.80	76.8	" " 1½% " 3% "
13	53	.00410	.41	.53	3750	3.00	65	75.5	21	12.70	14.50	87.0	" " 2½% " 5% "
14	50	.00431	.40	.46	3650	3.10	58	73.1	97	14.00	16.00	96.0	" " 3½% " 7% "
All sulphite sheet—Sized with excess of alum													
30	47	.00408	.32	.36	2965	2.49	35	70.7	9	17.70	20.30	88.0	15% clay, 2½% size, 5% alum
31	48	.00405	.29	.35	3975	2.45	14	67.2	42	17.60	20.20	87.5	" " " 7½% "
32	47	.00411	.33	.38	3160	1.64	18	59.3	60	17.00	19.50	84.5	" " " 10 % "

stock used for these two runs was not prepared at the same time as that for runs 1 to 8, on account of not having received the same beater treatment, the results obtained are not comparable with series 1 to 8. They are of interest, however, in showing the effect of slight variations in the quality of the stock on the clay retention.

As would be expected, the strength of the paper decreases as the amount of clay in the paper increases. The enormous extent to which this occurred is evidenced by any of the strength values in Table I.

With increased amount of clay, the color of the papers was materially brightened as shown by the values for "parts black" computed from the tint photometer readings.

creases in the ream weight gave increased clay retention, attaining a maximum value with the 80 lb paper. The apparently erroneous retention values for the 80th and 90 lb papers has been explained in detail earlier in this article as being due to the particular method used for expressing retention. In making the two series of papers, the beater in both cases was filled almost to capacity (about 60 lb) and variations in weight of paper made while running on this supply. In the sulphite series the variation was made from light to heavy weight paper, while in the sulphite soda series the reverse order was selected. The difference in the weight at which maximum retention was reached is considered to be due to the different natures of the stock used. Sulphite soda stock is

TABLE IV—EFFECT OF ORDER OF ADDITION OF CLAY, SIZE, AND ALUM TO THE BEATER FURNISH

Run No.	STRENGTH VALUES: Weight per ream lbs	Thickness inches	Strength Factor lbs per sq. in.	Strength Ratio lbs per .0001" of thickness	Breaking Length meters	Stretch Percent	Folds	Color Parts black	Sizing Test Time in Sec.	ASH: Percent	Clay equivalent Percent	Clay Retention Percent	REMARKS
	All sulphite sheet												
15	50	.00426	.39	.46	3715	2.38	98	76.0	32	11.50	13.2	79.6	19.9% clay 2.48% size, 4.97% alum
17	51	.00431	.41	.49	3615	2.47	100	74.2	26	11.92	13.6	82.0	2.48% size, 4.97% alum, 19.9% clay
	All sulphite sheet												
27	50	.00437	.27	.31	2370	3.03	17	62.0	12	19.05	21.8	76.3	40% clay, 2½% size, 5% alum
28	50	00430	.25	.29	2410	2.62	17	58.7	7	18.90	21.6	75.6	2½% size, 5% alum, 40% clay
	60% sulphite—40% soda												
43	51	.00495	.25	.26	2350	1.86	6	99.3	64	15.25	17.45	75.5	30% clay, 2½% size, 4% alum
44	50	.00447	.23	.25	2425	1.88	4	98.0	29	16.26	18.60	80.5	2½% size, 4% alum, 30% clay

The increase in amount of clay decreases the sizing effect of given proportions of size and alum. While in all the unsized papers the ink struck through the paper almost instantly, there was a difference in the sized sulphite papers of from 510 seconds to 10 seconds in the time required for penetration of papers made on furnishes containing 0 to 30 per cent of clay respectively. A similar tendency is shown by the sulphite-soda papers.

Effect of Varying Ream Weight.

In runs 9 and 45 the ream weight of the paper was varied over wide ranges to observe the effect produced upon the retention. With papers of light weight a lower retention of clay is secured than when heavier papers are run (Table II). In the sulphite series there was but slight difference in the retention after a weight of 50 lb (24×36/500 basis) had been reached. In the sulphite soda series, however, successive increases in the ream weight gave increased clay retention, attaining a maximum value with the 80 lb paper. The apparently erroneous retention values for the 80th and 90 lb papers has been explained in detail earlier in this article as being due to the particular method used for expressing retention. In making the two series of papers, the beater in both cases was filled almost to capacity (about 60 lb) and variations in weight of paper made while running on this supply. In the sulphite series the variation was made from light to heavy weight paper, while in the sulphite soda series the reverse order was selected. The difference in the weight at which maximum retention was reached is considered to be due to the different natures of the stock used. Sulphite soda stock is slower than a sulphite stock that has not been hydrated, thereby tending to increase the retention.

The brightening effect upon color of the paper with increased clay content is also shown in Table II.

Both retention and thickness of paper have an influence upon the degree of sizing. The clay retention increases with the thickness of the paper and tends to slack sizing, but the increasing thickness of the paper requires a greater time for the ink to pass through the sheet, thereby giving the impression of harder sizing according to the method used in these experiments. In these tests the latter effect is shown to more than balance the former tendency.

Effect of Varying Amount of Size.

The manner in which increased amounts of size increase the clay retention is brought out in Table III. In these tests the alum to size ratio was maintained constant and the size varied from 0 to 3½ percent.

TABLE V—EFFECT OF HYDRATION OF STOCK

Run No.	STRENGTH VALUES: Weight per ream lbs	Thickness inches	Strength Factor lbs per sq. in.	Strength Ratio lbs per .0001" of thickness	Breaking Length meters	Stretch Percent	Folds	Color Parts black	Sizing Test Time in Sec.	ASH: Percent	Clay equivalent Percent	Clay Retention Percent	REMARKS
	All sulphite sheet—30% clay, 2½% size, 5% alum												
23	49	.00433	.35	.39	3250	2.05	26	70.2	17	16.9	19.3	83.6	Sedimentation test, 54 seconds
24	48	.00419	.45	.51	3865	3.70	75	71.0	13	17.4	19.9	86.2	" " 103 "
25	50	.00404	.45	.55	3490	3.96	112	75.6	15	17.4	19.9	86.2	" " 254 "
26	48	.00406	.45	.53	3395	4.08	67	76.7	8	18.5	21.2	91.9	" " 574 "
	All sulphite sheet—30% clay, 2½% size, 3½% alum												
46	51	.00470	.30	.32	2770	1.85	13	93.7	9.4	14.27	16.33	70.7	" " 53 "
47	50	.00422	.32	.37	2620	2.02	4	107.5	15.	17.05	19.51	84.5	" " 418 "
48	52	.00415	.31	.38	2830	2.59	4	122.4	26.	18.38	21.03	91.1	" " 1195 "
*49	54	.00453	.31	.37	2470	1.66	8	99.4	12.	17.18	19.65	85.1	" " 425 "

*This run received approximately the same beater treatment as run 47 as may be seen in sedimentatation value.

The retention varied between limits of 5.4 percent and 96% corresponding to these values. Accompanying the increased amount of clay in it, the strength and ink-resisting properties of the paper showed a marked deterioration, while the color was decidedly whitened as the retentioh increased.

In runs 30 to 32, inclusive, the percent of alum was varied from 5 percent to 10 percent, the "parts black" decreased, the ink resistance of the papers, increased while the retention decreased slightly. This decrease in the retention may have been caused by the flocculating effect on the clay of the large excess of alum. It is well known that alkalies have a tendency to make clays colloidal while acids tend to flocculate the suspended clay.

Effect of Order of Addition.

Several tests were made to determine the effect of the order in which the clay, size and alum were added to the beater. While it might be anticipated that greater retention would result if clay and size were added before precipitation with alum, just the reverse occurred. In all the trials in which the clay was furnished to the beater after the stock was sized, a higher retention with a decrease in ink resistance and in the "parts black" was observed.

Effect of Hydrated Stock.

The degree of beating to which a stock has been subjected, or its condition of hydration, has a very marked influence upon the amount of clay retained by the sheet. This is shown in runs 23 to 26 and 46 to 49 (Table V). In the sulphite series the stock was left rather long, while in the sulphite-soda series the stock was subjected to increasing degrees of cutting so that the stock was very much more tender. The sedimentation figures which are given for the stocks from which the paper was made indicate a given run. The number given represents the time in seconds required for a certain volume of water to drain from two grams of pulp suspended in 1050 Cc. of water, using the ordinary apparatus for sedimentation tests. It will be noted that increase in the "slowness" of the pulp is accompanied by increased retention.

The brushing or beating of the pulp, however, produced a darkening effect upon the pulp which more than balanced the brightening effect due to the increased amount of clay in the sheet. It was interesting to observe that the ash from the papers produced from hydrated pulps were of various tints of pink, so colored by oxidation of the minute particles of iron which had been worn off the beater roll and bed-plate.

The results obtained, as given in this paper, on the study of retention of china clay by paper pulp, and the effect of the china clay on the quality of the paper, represent only a few trials using one filler and two kinds of pulp. The mechanical treatment of the stock aside from the inherent characteristics of the different paper stocks, as well as the specific gravity, fineness, solubility and the other mechanical and chemical qualities of the filler, will all have a decided effect on the retention of the particular filler employed. In the process of conversion of pulp to paper on the paper machine, factors such as the speed of the paper machine, degree of suction, size of mesh of the machine wire and fineness of felts, and percentage of fresh water used on the machine will all have a decided effect on the percentage retention of the filler. With so many variable factors to consider, the results obtained by us and other investigators must be supplemented by a great deal of further work before conclusions may be drawn regarding all of the factors influencing the retention of various fillers by paper pulp.

Note: See also "Factors Affecting the Retention of Clay," in this magazine, page 977.

ANOTHER CAMPBELL KILLED IN ACTION.

The Campbell Lumber Co., of Weymouth, N.S., received the following cable from the Secretary of the War Office, London:

"We grieve to announce the killing, October 10th, 1917 (after being wounded by shell in 1915 and bullet and shrapnel in 1916) at the front in France of another son slain in battle: Lieut. Colin G. P. Campbell, M.C.; R. F. A., 94th Brigade."



Lieut. Colin G. P. Campbell (at right.)

This leaves only three Campbell's now at the fighting line of the front, all members of the firm. Colin had just won his promotion and transfer after passing to the Aviation Service and was on his last tour with the guns up to the lines, after which he was in a few days to be transferred to the Aerial Service. Like the rest of his family, Lieut. Colin Campbell's career has been a credit to his name and the Canadian force.

EDITOR S. CHARLES PHILLIPS IS DEAD.

The paper industry has lost another champion and friend in the death on October 9th of S. Charles Phillips, editor of the PAPER MAKER AND BRITISH PAPER TRADE JOURNAL. The end came after several months illness. Mr. Phillips was well known among paper makers the world over, both by personal contact and through his magazine, where he expressed himself in the section entitled "My Note Book". He made several trips across the Atlantic and wrote entertainingly of his visits. His magazine is his monument.

Effect of Draft Puzzles Paper Makers

(Special Correspondence from Ottawa.)

The disruption or disturbance caused in the paper mills by the first draft call was but a fraction of what it had previously been anticipated it would be. This was largely due to the several grounds having been recognized on which a recruit could claim exemption, and the wide variety of grades or medical standards employed by the Medical examining boards. These grounds for exemption and the different medical ratings were set forth in the Pulp and Paper Magazine some time ago.

According to an official explanation of the exemption clauses furnished the representative of the Pulp and Paper Magazine by the Military Service Council at Ottawa there are only actually six counts on which an applicant seeking exemption may apply. No class trade or profession as a whole is exempt.

Already over ten thousand men have proceeded overseas from Canada in Forestry battalions. Scores of others have been formed into forestry companies in England and today are busy in wood operations in England and France. Even these ten thousand bushmen who have gone before under the voluntary enlistment system have played considerable havoc with the Canadian pulpwood trade. If ten thousand more bushmen qualify to go under the first draft — it is only one tenth of the total amount of men to be called —where will the pulpwood cutting operations be at? Even including the mill labor ten thousand men removed from the pulp and paper industry in its present state is going to hit the paper business a particularity hard blow.

If the war stopped tomorrow the effect on the conditions in the woods as they have existed since March 1915 would continue to be felt by some paper making mills for the next eighteen months or two years . Not only has Canada's woods labor been drained by some ten thousand men, but Canadian paper mills have to carry a daily increasing burden of turning out more product with fewer men and less material that it was called upon to do in peace times. This situation has been increasing and bringing more pressure for the last year and a half. Now with the first draft call issued the pressure is going to be increased and woods operations with many mills will of necessity on account of a shortage of labor have to be curtailed.

Each paper mill it appears is going to face a different set of circumstances and will have to work out its program and existence and patch along as best it can as time goes on.

Mr. George H. Millen, president of the E. B. Eddy Company and one of the oldest paper making men in Canada, with Jackson C. Booth and H. I. Thomas of the John R. Booth plant are known and regarded as particularly far sighted business men in the paper making industry. Even they do not know where their mills are at under the first call draft. Neither mill to date has filed exemption claims on behalf of their eligible employees under the first draft that they wish to retain as being workmen "essential to the industry in which they are engaged." Both mills are giving the matter a good deal of deep thought and consideration. Whether or not these mills will file exemption claims for some of their men is still uncertain. How many men will be affected by the first draft call in these mills is still problematical as the time since the proclamation was issued has been too short for all of them to appear before the Medical Boards or the Exemption Tribunals.

The situation as it works out through time under the first draft call is not only an interesting study but one that is well worth watching from both a financial and other points of view.

PROCESS ENGINEERS AT CHEMICAL SHOW.

The photograph showing the Exhibit of Messrs. Process Engineers of Montreal at the Chemical Exposition in New York, is an evidence of the development that can take place along process lines when constant research is practically applied. We are informed that Process Engineers Ltd. purchased several years ago, some basic German patents covering a process which had been used extensively in the paper industry in the manufacture of sizing solutions and since that time they have not only developed many improvements in the use and application of these processes in the pa-



per trade, but are also extending the principle to the manufacture of all kinds of solutions or emulsions. It is only recently, since the nature of solutions and emulsions have been more carefully studied by chemists and physicists, that the uses of these materials have been more thoroughly understood and the possibilities of more intelligent applications in the arts are constantly increasing. We understand from Process Engineers, Limited, that they are installing their systems in all parts of America and their processes are also being sought by manufacturers in other countries. It is a notable fact that this firm was the only commercial Canadian exhibitor at the Exposition.

CROWN LAND OFFICER HONORED.

Col. Thomas G. Loggie, of Fredericton, N.B., has had the Distinguished Service Order conferred upon him. He is Deputy Minister of Lands and Mines for New Brunswick and has been connected with the Crown Lands office since 1871. He was at one time prominent in the militia and three times represented Canada as a rifleman at Wimbledon, England.

The New Drive of the American Barking Drum

This first picture, Fig. 1, shows the drive of an American Barking Drum in the plant of the International Paper Co., Berlin, N. H. It shows an improvement in design which is worthy of a moment's notice by paper mill engineers and others who may soon decide to bark logs, slabs, etc., by the drum process. The main improvement is the addition of a positive drive chain.

There have been several changes in the design of the drums manufactured by this company since they were first put on the market two years ago, and the

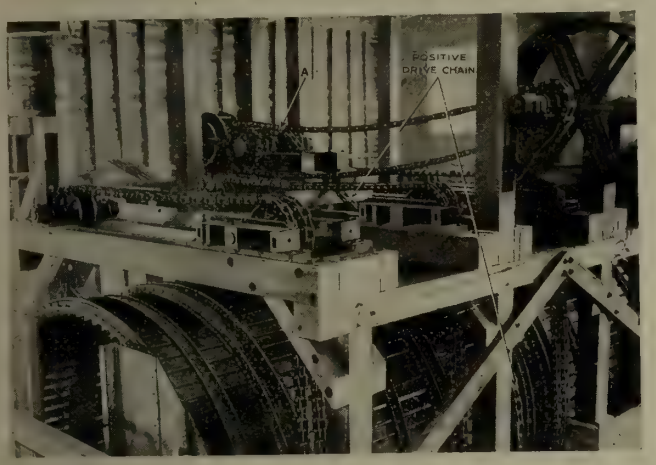


Fig. 1. Installation at International Mill, Berlin, N.H.

changes have always been for the better. In former drums the carrying chains also served as driving chains which necessarily had to run over sprockets. When sprockets become worn, though, they are hard on chains and so it was decided by the engineers to adopt a special positive drive chain (See Fig. 1.) In this new design the carrying chains run over smooth-faced traction wheels only, as clearly shown in Fig. 1. And as these traction wheels are placed on separate idler shafts each strand of chain can run with its own individual speed, which greatly reduces the strain. Altogether it is computed that the reduction of strain on the carrying chains is more than 20 per cent. with this arrangement.

This new design makes the drive smooth-running and with the additional use of special materials the life of the drive has been greatly increased.

This new drive will also operate the drum with the water so high that the sticks or logs will hit the water before hitting the angles in the drum. Bruising of the ends of the wood is therefore reduced to the minimum. It will also be understood how the buoyant effect of this high water level further decreases the load on the chain.

An important feature with this drum is that all bearings are placed "high and dry" on top of the frame. They do not come in contact with the wet drum in any way and are all close together where they are easily attended to while the drum is running. It is a simple matter and a great advantage for the oiler to be able to walk along on the top of the structure and examine and oil every bearing at any time.

The working drawing, Fig. 2, shows practically all of the parts, the arrangement of the drive and drum, and the position assumed by the logs in the barking operation.

If detailed information is desired the manufacturers will be glad to accomodate any reader who is interested. These drums are made in various sizes, all depending upon the requirements of the mill. It is seldom that any two installations are ever alike and for that reason it is well to consult direct with engineers who have had broad experience with barking drum problems.

The barking drum is now recognized by all paper and pulp authorities as the latest word in efficiency and economy. Wherever the barking drum has been installed it has proved itself a great success.

In the March 15th issue of Pulp and Paper Magazine, on page 265, a view was shown of five American Barking Drums being installed in the plant of the Lake Superior Paper Co., Sault Ste. Marie, Ontario. This installation is shown complete in Fig. 3. These drums are 8 ft. in diameter and 20 ft. long.

Saving Effected.

It is very seldom that ordinary machinery can be said to actually save more than 100 per cent of its first cost especially if the first cost of machine is

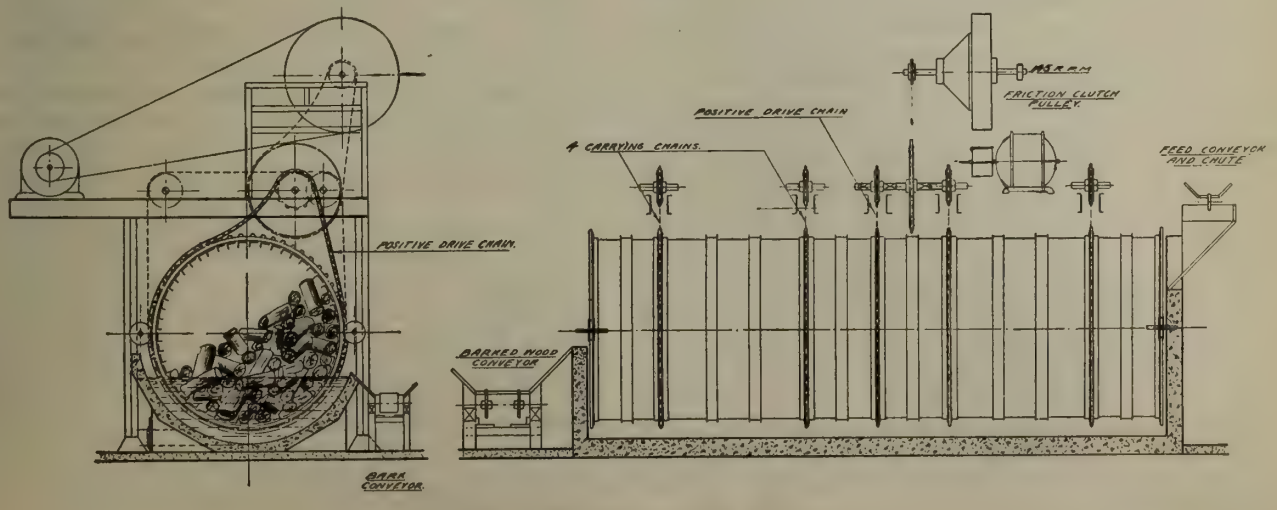


Fig. 2. Details of New Drive.

high, in a year's time. Yet, here are machines that have saved over 200 per cent. during a single year, and again they have saved over 300 per cent. in spite of the rather high first cost — ranging from $6,000 and up.

It therefore seems logical that the barking drum will become the principal method of barking in a very short time. In fact, it is already barking nearly 3,000,000 cords annually, or about 40 per cent. of the entire consumption of pulpwood in the United States and Canada.

One reason why the barking drum is becoming so popular is the great saving in labor. Much depends upon local conditions at the mill, of course, but in one instance the installation of these drums reduced the labor force at the mill from 27 men (who were required in the barking operation with knife barkers) to three men handling the operation after the drum was installed. And now that labor is becoming so scarce, and with war developments tending to make labor still harder to get, the barking drum is bound to become all the more valuable.

Another reason why the barking drum is becoming so popular is — it saves wood. Every day it is becoming more and more difficult to secure wood. All mill men know that. Wood must therefore be conserved because of its increasing scarcity and value. The use of barking drums almost invariably shows a saving of from 15 to 20 per cent in the wood over that barked by means of knives. For instance, if a mill is using 50 cords of wood per day, which may cost on an average of $10 per cord, the barking drum will show a saving of at least $75 per day or 7½ cords.

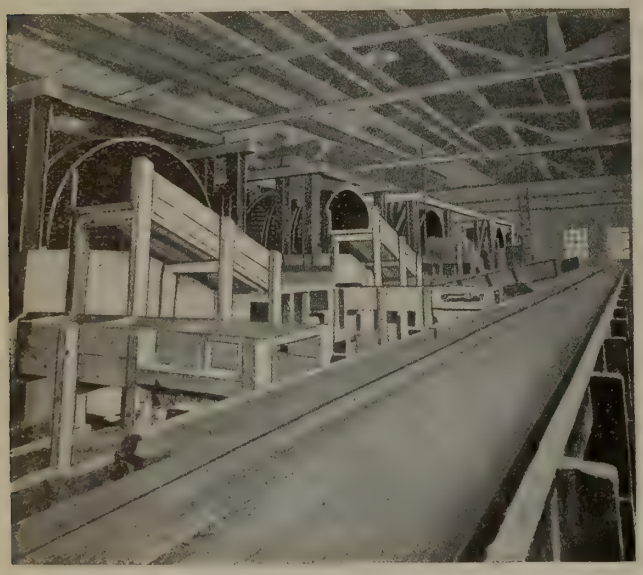


Fig. 3. Five Drums at Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont.

In order to bring conditions right home to the reader so that he can apply the possibilities of yearly savings to his own conditions a calculation chart — Fig. 4 — has been prepared. This chart will readily compute any ordinary barking problem confronting the mill so far as money saving on wood is concerned. It is based on a modest saving of 15 per cent of the wood and on 300 days' operation per year. It does not exaggerate conditions.

Simply lay a straightedge across the chart connecting the number of cords you now bark per day (column A) with the price you are paying per cord (column C) and the intersection with column B immediately gives the answer.

For example take the problem that was cited above — 50 cords per day and $10 per cord. The dotted line drawn across the chart shows how the chart is used

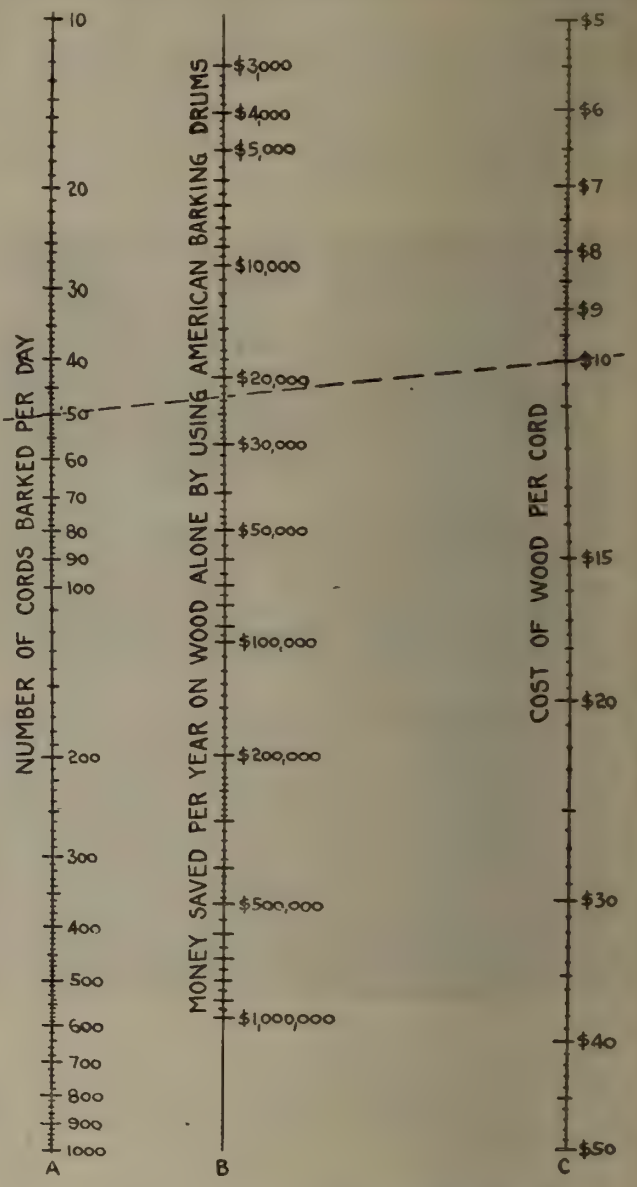


Fig. 4. Chart for Figuring Savings.

and it also shows that $22,500 would be saved per year by using this barking drum. A single drum 10 ft. in diameter and 30 ft. long, operated by one man, can effect this enormous saving on wood alone in one year.

HOTEL IS MADE OF WOOD-PULP.

An object of considerable interest at the American Hotel Exposition, in Philadelphia, was the $5,000 model of the $12,000,000 Commodore Hotel, which will be built at Forty-second street and Lexington avenue, in New York. This miniature hotel, which contains 2,000 windows, all of which are illuminated, is made of wood pulp and required more than six months to complete as it is an exact reproduction of what the hotel will actually look like when completed, being made directly from the architect's plans.

Pulp Wood Resources of Northern Manitoba

By J. A. CAMPBELL, Commissioner of Northern Manitoba.

Many years ago the northern part of Manitoba as far north as what is known as the "Barren Lands," was thickly covered with a forest growth of spruce, tamarac, jack pine and other northern trees. Great areas of this was timber of merchantable size and besides there were immense stretches of valuable pulp wood, but during the last 25 or 50 years millions of dollars worth of this, one of our most valuable natural resources, have been destroyed by fire. In many parts of the burned area a new growth has sprung up which is now well developed and in the course of from 15 to 25 years, if properly protected, will be an exceedingly valuable asset. However, outside of the burned areas there are still great stretches of valuable timber and pulp wood which, taken in conjunction with means of transportation now available, and the prevalence of water power near them in almost every instance, form an exceedingly valuable resource and one which should be protected, conserved and developed with the greatest care.

As yet no systematic investigation of the actual amount of timber and pulp wood available in Northern Manitoba appears to have been made. Information obtained in this respect is simply of an incidental nature, being found in reports of missionaries and explorers and latterly from those engaged in the work of the Geological Survey Department, and in connection with surveys for the route of the Hudson Bay Railway.

Fire Destroys Valuable Timber.

Mr. J. B. Tyrrell has made frequent trips into the north country and perhaps to him more than any other man is due our knowledge of this resource, as well as much other information regarding the country. From Mr. Tyrrell's report it is learned a great deal of timber in the territory in question has been destroyed by fire On Grass and Minago rivers there is still some forest of excellent white spruce but on the northern part of Burnt River this is rather scarce. Black spruce and canoe birch grow on the more level and imperfectly drained areas. The aspen is the commonest deciduous tree as it grows on the drier uplands everywhere, occasionally forming beautiful forests. "The forests surrounding Reed Lake are mostly of poplar, but there are some good growths of fine large spruce about 25 inches in diameter." On the southwestern shore of Lake Athapapuskow, "considerable areas are covered with large white spruce." At Wintering Lake, "the surrounding areas rise gently from the water and are densely wooded with close forests of white spruce, growing on the rich clay soil." An old fur station near Setting Lake was found by Mr. Tyrrell "considerably overgrown with large spruce trees quite indistinguishable from those of the surrounding forest."

In an exploration trip in connection with the Hudson Bay Railway, Mr. J. W. McLaggan covered the territory immediate north of The Pas and the following information is obtained from his report. The first portion is covered with small mixed timber. North of Cormorant Lake there are at least 5 million feet of good milling spruce and a very considerable area of the same south of Reed Lake. North of Herb Lake are spruce and poplar fit for railway ties and pulpwood. If fire had been kept out there would have been a big timber area in this district. Reafforestation is now being effected. Between Reed Lake and Elbow Lake he saw about two million feet of good spruce and poplar, averaging 12 to 14 inches in diameter.

In the report of W. Thibideau on an exploratory survey of the ground between Fort Churchill and The Pas in connection with the Hudson Bay route is found the following:

"All the timber between the head of the Little Churchill river and Churchill is reserved for fuel purposes. The pulp wood belt as estimated below begins at Split Lake and extends to The Pas, ten miles in width on each side of the way proposed for route of Hudson Bay Railway. On this area, assuming one-sixth t obe covered by pulpwood the balance being river, lakes, ponds, swamps, etc., and assuming 10 cords per acre of an average of 6 inches in diameter, there would be 5,756,660 cords. This is a very low but safe estimate."

In 1910 Mr. J. R. Dickson, B.S.A., made an inspection of timber along the line of the proposed Hudson Bay Railway from The Pas to Split Lake for the Forestry Department. He covered a distance of some 235 miles along the line of railway. Mr. Dickson deplores the ravages made by fires in the past, but points out that a great deal of new growth will soon be suitable for pulpwood. He intimates that if general drainage conditions could in some way be improved so as to partially replace the black spruce with the white spruce, the wealth producing power of the region would be immeasurably greater.

Mr. J. A. J. McKenna concludes each section of his report on the Hudson Bay route with a recapitulation or summary from which are taken the following:

"It would seem that after the Saskatchewan is spanned at The Pas, construction of a line of railway to Churchill would not be unusually difficult or expensive, and from reports it would appear there are in the intervening country stretches of fair timber. The country about the Bay has only been glanced at by explorers. Merchantable timber has been seen and vast stretches of pulpwood."

Settlers' Fires the Greatest Danger.

It is therefore in order that some definite scheme would be evolved for systematically conserving and protecting this valuable resource, at the same time providing for its use in such a manner as to realize the utmost therefrom in the interests of the people. In the years to come there will doubtless be considerable settlement in the north in, and adjacent to, the aforesaid areas. There will then be the additional menace of settlers' fires. It has been the experience of other Provinces that these have been responsible for the greatest devastation in forest areas, including the recent holocaust in Northern Ontario's clay belt. To control these immense fire possibilities, the Provinces of Nova Scotia, Quebec, and British Columbia have passed settlers' permit laws providing that no fires may be set out by settlers during a "close season",

except under permit from a Provincial authority.

By the Fires Prevention Act passed at the last session of the local Legislature, Manitoba has joined the ranks in this respect, and it is to be hoped that the authorities of the Department for the Prevention of fires will co-operate with the Dominion Forestry Department in the taking of measures necessary and advisable for the protection of existing forests and the reafforestation of the burned areas.—Toronto Saturday Night.

"There seems no just reason why Northern Manitoba should not repeat to a degree the wonderful development in wood-using industries now taking place in Quebec. Manitoba holds splendid promise of industrial growth in the northern forested areas with their fine water powers. The trouble has been that the attention and assistance of governments have been given to agriculture, and forestry has lagged behind like a poor relation.

This was a statement made by Mr. Robson Black, secretary of the Canadian Forestry association, Ottawa.

"None of the provinces of Canada is exclusively agricultural. Seventy-five per cent. of northern Manitoba above the open prairie line will never give crops other than timber. There is little use bemoaning these facts. We ought to turn them to immediate commercial advantage.

"Manitoba's timber supplies have been going down hill for 100 years. Unrestricted fires have periodically cleaned out the storehouse of wealth which would to-day have created a vast industrial development parallel to those of Ontario and Quebec. Eighty-seven per cent. of the forest area is now composed of timber under eight inches diameter, such as is fit for small saw timber.

"The wrecked and ruined condition of such vast areas of the provincial forests prevents that immediate industrial development that otherwise would have come. But forests in most cases will recuperate, if fire is rigidly kept out, and that is the reason the western legislatures have been asked to take measures against careless conduct in settlers' fires.

CANADIAN MANUFACTURERS AND BRITISH TRADE.

The World's Paper Trade Review has something of interest for Canadian exporters.

Canadian and American wood pulp manufacturers cultivating an export trade with the British market have been urged to give particular attention to the requirements of consumers in the matter of quality, moisture and packing. At the present juncture manufacturing conditions are not normal, but making full allowance for the many difficulties that have to be faced, it is imperative, to build up and retain a permanent business, that methods of competitors are equalled if not surpassed. We read with pleasure the bulletin sent out by the secretary of the Canadian Pulp and Paper Association to Canadian mills and members of the Technical Section. It is as follows:—"If we wish our product, be it paper or pulp, to compete in the world markets, we must make something better than the other fellow, we must think, talk and produce quality. We have the wood and the machinery to make the finest paper and pulp in the world; we also have the men to direct these operations; and if we link them with the efficiency and co-operation, success will come to our efforts."

PAPER AND PULP INDUSTRY IN JAPAN.

H.M. Commercial Attaché at Yokohama writes that within the past year or two the situation in Japan in regard to the paper and pulp industry has become extremely interesting. The great advance in the price of foreign pulp and the difficulty of obtaining supplies, owing to the war, have stimulated a desire, which is always present amongst the Japanese people as regards their industries, to render this particular industry independent of imported raw material. Extensions of paper and pulp mills have been the result, although it is mainly in the latter branch that extensions have been made. Both in the Hokkaido and Japanese Saghalien, where supplies of timber are abundant, several new mills have been erected and others are projpected. A large Japanese paper company has decided to erect a pulp mill at New Wiju (Shingishu), on the Yalu River in North Korea, drawing timber from the extensive forest area in that vicinity, and, in addition, is erecting two mills, one in Saghalien and one at Ashigawa in the Hokkaido.

In this connection the following particulars, taken from the Report for 1916 of the Yokohama and Tokyo Foreign Board of Trade (i.e., Chamber of Commerce), may be of interest: Imports of paper into Japan in 1916 amounted to 36,777,000 lb., as compared with 28,209,000 lb. in the previous year, while the domestic production of paper rose from 367,578,871 lb. in 1915 to 405,468,71 lb. last year. Imports of pulp in 1916 amounted to 57,263 tons, as compared with 53,261 tons in 1915 and 44,983 tons in 1914. The report states that the three plants which are being installed in Saghalien, and which are expected to be in operation by the end of the present year, will produce at the rate of 80,000 tons of pulp per annum. Eventually, it is thought, if these plants, and the projected plant in the Hokkaido, are successful, Japan will become independent of foreign supplies.

SCANDINAVIAN ANNUAL FRENCH CONTRACTS.

A Reuter telegram from Paris states that the Norwegian paper manufacturers have just annulled their paper contracts with the French Press on the ground of "force majeure" owing to the submarine blockade. The Swedish Government prohibits the export of manufactured paper, and Swedish manufacturers have taken advantage of this to annul their contracts. The French Press receives from Scandinavia 50 per cent. of its daily consumption of paper, and it is apprehended that the newspapers will shortly again be obliged to reduce the number of their pages unless the situation improves as a result of imports from America.

THE DANGER OF SLEEVES AND TIES.

Although time and again workmen have been warned regarding the danger of loose clothing when working around machinery, it appears that many of them persist in ignoring the danger, reports the Scientific American. As a result 986 workmen were killed in the United States last year by being drawn into the wheels of machinery or thrown to death when parts of their clothing became caught in rotating members. Loose sleeves and neckties are prolific sources of danger, and should not be tolerated for a single moment by the careful worker.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Making Paper Tapes. Anon. Sci. Am. August 18, 1917, page 113. This is descriptive of a device for converting the wide rolls of paper into the narrow rolls used for adding machines etc. In order to avoid the trouble caused by uneven thickness the paper after being cut is rewound on a shaft which is driven by the pressure against the surface of the paper of the roller about which the paper passes on its way to the shaft. The cutting is done by a score cutter which is a disc of high speed steel with a V edge revolving under spring pressure in contact with the material as the latter passes about the polished surface of a steel cylinder. Shear slitting, it is stated, will not work with surface rewind. The article is illustrated.—A. D. C.

Color Method for Analysing Wood Paper Pulp. Sci. Am. Supp. August 18, 1917, page 102. A method proposed by the French Chemist, M. Pontio. Boil one gram of pulp with 100 c.c. 2 per cent NaOH for 5 minutes. Filter upon wire gauze and wash until neutral, dry at 100°C. Saturate 0.02 gms. of the dry pulp with a solution containing three grams KI per 100 c.c. distilled water and iodine in saturation. Remove excess iodine so that it will show no trace of color when pressed between filter paper. Place 20 milligrams of this prepared substance in a standard bore glass test tube (say 15-18 mm. diameter), add 20 drops of a soln. containing 22 c.c. of 66 degree H_2SO_4, 16 c.c. water, and 16 c.c. glycerine. Using a glass rod rub until smooth, then add 10 c.c. of a solution of equal parts glycerine (30°) and water. Shake tube well and observe the color. This color corresponds to a standard per cent of mechanical wood cellulose. A standard color scale must be prepared for comparison, either by use of the tubes themselves or by matching the colors with water colors or lithographed plates. Unbleached pulp does not exert any marked influence upon the color produced. Such vegetable fibers as are colored yellow by iodine would introduce an error.—A. D. C.

Forests of Siberia. L. D. Wilgress, Trade Commissioner, Trade and Commerce Weekly Bull., No. 711. Sept. 10, 1917, pp. 541-5. The Forest area of Asiatic Russia is estimated at 853,000,000 acres. The State owns 642,000,000 acres, of which 39 per cent is classed as strictly forested. The chief timber trees are Siberian "cedar" or cembran pine, Siberian "fir" or spruce, silver fir and larch and hard woods. Some aspen goes to Japan for matches. Some pine and spruce logs have been shipped to Australia for mine props. A correct system of management and a selling organization is necessary. Transportation in the West is difficult. Eastern Siberia has the Amur river system. In the development of Russia's forests, Canadians should investigate opportunities in connection with equipment for lumbering saw-mills, pulp and paper mills, etc.—(Cf. Trade inquiry 1251 and Weekly Bull., No. 684.)

(Courtesy of Chemical Abstracts.)

Finely porous filter paper. Anon. Pharm. Zentralh. 1916, 603; Schweiz. Apoth. Ztg. **55**, 419 (1917). — Kieselguhr is used to fill the pores of regular filter paper. The new paper permits filtering of fruit juices, fats, oils, wines, serums and coloring matters. — S. Waldbott.

The pulp and paper industry in Canada. O. F. Bryant. Pulp Paper Mag. Canada; J. Roy. Soc. Arts **65**, 619-27, 631-9 (1917). — E. J. C.

Chemical engineering aspect of renovating a sulfide (sulfate) mill. Hugh K. Moore. Met. Chem. Eng. 17, 117-25 (1917). — A full description is given of the chemical engineering difficulties encountered in changing certain important details of the recovery system of a sulfate mill. Several successful modifications were worked out, including an elimination of the incinerator. The latter was accomplished by a practical application of Stefan's law of radiation. The article does not admit of a full abstract. — R. B. Roe.

Recovery of free sulfur dioxide from the blow-off gases and liquors in the digestion of sulfite-cellulose. A. D. J. Kuhn. Wochenbl. Papierfabr. 2139, 2179, 2233, 2270 (1916); through J. Soc. Chem. Ind. **36**, 639-40 (1917). — A description of the different methods of recovering SO_2 from sulfite digesters. Three types are considered, viz.: (1) those in which the blow-off gases and liquor are taken off together, cooled, and conducted to the absorption plant app. which is full of liquor, (2) the blow-off liquors are discharged from the digesters separately from the gases, (3) the separation of the gas and liquor is effected in a vessel outside the digester. — R. B. Roe.

Determination of resin in rosin size. E. Heuser. Papier-Z. **41**, 1503-4; through J. Soc. Chem. Ind. **36**, 603. — A volumetric method may be used instead of the more tedious gravimetric method; 25 cc. of the size solution is treated with dilute H_2SO_4 and extracted with ether in a separate funnel. The extract is washed with H_2O until neutral, evaporated slightly, and made up to 100 cc. with alcohol. Titrate an aliquot part with 0.1 N NaOH; the results calculated from the figure obtained, check within 0.5% with those obtained gravimetrically. With sizes made from rosin of unknown origin, an average acid value of about 12 should be used in the calculation. — R. B. Roe.

Oil of turpentine recovered in the digestion of sulfate wood pulp. O. M. Halse and H. Dedichen. Ber. **50**, 623-30 (1917); through J. Soc. Chem. Ind. **36**, 658-9. — In making spruce or pine sulfate pulp, a volatile oil is obtained having a bad odor due to mercaptans. The oil can be purified by fractional distillation or carefully regulated oxidation, after which it closely resembles and may be substituted for common turpentine. The yield of oil per ton of pulp is 1-1.5 kg. for spruce and up to 10 kg. for pine. — R. B. R.

Experiments with paper tubes. M. Rudeloff. Mitt. K. Materialpruf. **34**, 61-77 (1916); through J. Soc. Chem. Ind. **36**, 592. — A detailed description of tests on different kinds of paper tubes for use as gas or water conduits. The results indicate that paper tubes may be satisfactorily used for gas and possibly for water, but more work must be done to establish their suitability for the latter. For construction purposes, the tensile strength is satisfactory, but the low compression strength and the extremely low modulus of elasticity make paper tubes unfit for such service. — R. B. Roe.

Apparatus for boiling fibrous materials in the manufacture of cellulose. H. E. Ellis. U. S., 1,236,370, Aug. 7.

UNITED STATES NOTES

One manufacturer of pulp building board in the United States sold last year an amount equal to 300,000,000 feet of lumber, and this same company expects to sell over 400,000,000 feet board measure in the year 1917. Remember, this was only one concern. Probably the total coverage by pulp substitutes will reach between 600,000,000 and 700,000,000 feet.

The report that wall board may be purchased in the United States for use in France will be welcome news to board mills in the States and pulp mills in Canada. It is reasonable to expect that large quantities of boards, building paper and roofing felt will be required to house the new army and its supplies.

BERMINGHAM & SEAMAN CO. CHANGE NAME.

The Bermingham & Seaman Company has changed its corporate name to the Seaman Paper Company, by which name this great establishment will be known in future. This is a change in name only.

The head office of the Seaman Paper Company is located at Chicago in the Continental and Commercial Bank Building. It is the largest office of any paper firm in Chicago.

The Seaman Paper Company is probably the largest distributing house in the paper industry. It operates on a scale which in points of tonnage handled and territory covered is not surpassed by any concern in the trade. Its mill connections are in many cases so close than one would be justified in terming them as paper manufacturers rather than as manufacturers' agents. In its territory the company has the exclusive representation of mills producing a total of some 890 tons daily. Consider that enormous tonnage and also the fact that probably as much business again is placed with a great many mills with which they do not have exclusive representation, and one gains a fairly good idea of the ramifications of the Seaman Paper Company's great business. The mills in the exclusive representation list are:

Bryant Paper Company, Kalamazoo, 200 tons Book and Catalogue, 50 tons Coated.

Monarch Paper Company, Kalamazoo (Coated output only), 30 tons.

Tomahawk Pulp & Paper Company, Tomahawk, Wis., 25 tons Catalogue.

Combined Locks Paper Company, Combined Locks, Wis., 150 tons Catalogue.

Munising Paper Company, Munising, Mich., 25 tons Sulphite Bond, 25 tons Sulphite Wrappings.

Maine Coated Paper Company, Rumford, Me., 35 tons Coated.

Diana Paper Company, Harrisville, N. Y., 34 tons Catalogue.

Remington Paper & Power Company, Watertown, N. Y., 160 tons News and Catalogue.

Champion Paper Company, Carthage, N. Y., 40 tons News and Catalogue.

French Paper Company, Niles, Mich., 40 tons Book.

W. B. Oglesby Paper Company, Middletown, Ohio, 40 tons Offset and Bond.

Carthage Sulphite Pulp & Paper Company, Carthage, N. Y., 40 tons Specialties.

U. S. NATIONAL FORESTS SELF-SUSTAINING.

The report of the United States Forest Service for the fiscal year ending June 30 last, will show that the national forests are now almost self-sustaining. Receipts during the last fiscal year aggregated about $3,450,000, mostly from timber sales and permits for grazing, water power development and other purposes, compared with a total cost of operating the national forests of about $4,000,000. Those in touch with the situation predict that during the current fiscal year the national forests will probably pay all expenses from the proceeds of their operation.

CREOSOTED WOOD BLOCKS WILL BE LAID ON BROOKLYN BRIDGE.

The roadways on Brooklyn bridge have heretofore been laid crosswise with 2½-inch spruce lengths which have averaged four months of wear on the upgrade side and six months on the downgrade, lasting about eight months on the central level parts of the bridge. It has now been decided to lay creosoted yellow pine blocks 2¼-inches in depth on an untreated yellow pine underdeck. This will add about 100 feet in weight for each lineal foot of roadway, but engineers estimate that this increase in the dead load will be more than compensated by the decrease in jarring impact because of the much smoother surface of the wood block pavement. Manhattan bridge is paved with 4-inch creosoted blocks, but Edward A. Burns, acting chief engineer of the Department of Plans and Structure of New York City, contends that blocks not over 3 inches deep and properly laid are amply sufficient for bridge flooring.—American Lumbermen.

AN APPEAL TO EAT POTATOES.

P—O—Rah, Rah!
T—A—Rah, Rah!
T—O—Rah, Rah!
POTATO!

Such used to be the college yell of the University of Maine. It is the slogan of the U. S. Department of Agricutlure this week, as they are making October 22-27 a national spud week.

And now Lord Rhondda asks Canadians to eat potatoes instead of cereals. Lord Rhondda says that as all available resources will be required to maintain the supply of the essential foodstuffs such as wheat, bacon and cheese, he is unable to arrange facilities for the importation of Canadian potatoes. It is estimated that there will be in the United Kingdom this season a surplus of about a million tons of potatoes over the normal consumption. Lord Rhondda suggests that the best use for the surplus of Canadian potatoes would be direct consumption in Canada in such a way as to economize the consumption of cereals and set free a larger quantity of such cereals for export to the United Kingdom.

PULP AND PAPER NEWS

Ald. M. M. MacBride of the MacBride Press, Brantford, Ont., has accepted the nomination of the Labor party in that city and will contest Brantford in the coming federal election.

Carl Riordon, T. J. Stevenson and George E. Challes of the Riordon Pulp and Paper Co. have returned from New York where they attended the recent annual meeting of the Ticonderoga Pulp and Paper Co.

Plans of the Power Development Co. to dam the St. Lawrence river at Coteau Rapids have been referred to the district engineers of the Public Works Department at Montreal for a report upon the engineering features of the proposition. It is said that the approval of the plan is exceedingly improbable owing to the opposition which has been aroused and, in any event, power schemes on international waters have to secure the sanction of the International Joint Commission.

The first city in Canada to pass a bylaw compelling the bakers to wrap all loaves of bread was Calgary where the regulation has been in effect for some years. At a recent meeting of the city council, owing to the objection raised by the bakers that they had to charge a cent more a loaf due to the high cost of waxed paper, the advance in wages, etc., the bylaw was repealed for one year and now unwrapped bread is sold in the western city. In other large centres owing to the materials entering into the staff of life being so high, the proportion of output wrapped has dropped off from sixty or seventy per cent. to ten and fifteen per cent. The people would rather have the unsealed loaf than pay an extra cent for the sealing.

It is expected that the first cook in the Mattagami Pulp and Paper Co., at Smooth Rock Falls, Ont., will take place before the end of the month. All the work is now practically completed and the turbines have been tested and found satisfactory.

A provincial charter has been granted to the Leader Printing Co., Limited, of Toronto, with a share capital of twenty-five thousand dollars. The new concern at the head of which is Wm. L. Leader, is empowered to do a general printing and publishing business as well as manufacturing and dealing in paper boxes and stationary and will take over as a going organization the business of the Leader Printing Co., 209 Church St., Toronto.

At a meeting of the Ontario Municipal Electric Association held in Toronto last week, reports were presented which showed that 380,000 horse power is being exported to the United States having only 75,000 horse power available for use in Ontario. In the face of this, the United States is talking of putting an embargo on shipments of coal to Canada. This is not considered fair in view of the fact that the other side of the line is getting more of the power at Niagara Falls, than the people of the province. It is charged that the Dominion parliament has failed to keep a promise that it would stop to a certain extent the export of power that is now needed to run the wheels of munition factories and other industries in Ontario.

A federal charter has been granted to the Hoyle Industrial Co., Limited, with headquarters in Montreal and a capital stock of $250,000. The company is empowered to carry on the business of lumbering in all its branches and to manufacture and deal in pulp, pulp wood, sulphite, paper, etc.

The business enterprises in Ontario heretofore carried on by M. J. O'Brien, of Renfrew, are being taken over as going concerns by M. J. O'Brien, Limited, and a federal charter has just been granted the new company which will have a capital stock of twenty million dollars and headquarters in Ottawa. Among the incorporators of the gigantic organization are M. J. O'Brien, Jos. L. Murray, and Herbert A. Jordan, all of Renfrew, John A. O'Brien, of Ottawa, and George A. Campbell, K.C., of Montreal. Among the wide powers of the new concern beyond contracting, mining, lumbering dairying, farming, stockbreeding, etc., are to manufacture and deal in wood, pulp and paper and the products thereof.

A provincial charter has been granted to the Spruce Falls Pulp and Paper Co., Limited, with headquarters at Spruce Falls, Ont., and a capital stock of three million, five hundred thousand dollars, divided into thirty-five thousand shares of one hundred dollars each, of which five thousand shares shall be preference shares. The company is empowered to carry on the business of manufacturing, selling and dealing in pulp wood, wood pulp, whether mechanically or chemically prepared, and all kinds of paper and also to do business as lumbermen, timbermen, saw millers, etc. Among the provisional directors are Thomas H. Barton of the legal firm of Barton and Henderson, Toronto, and Charles M. Garvey of the legal firm of Price, Garvey and Co., Toronto.

The new sulphite plant of the Lincoln Paper Mills Co. at Merritton, Ont., is now in operation and the first cook took place last week. The capacity of the mill is about forty tons a day and the bulk of the output will be unbleached sulphite.

S. F. Duncan, secy.-treas. of the Provincial Paper Mills Co., Toronto, has returned from a successful duck shooting expedition down the St. Lawrence. He was successful in bagging thirty-seven feathered beauties.

Harry L. Willson, of the Willson Stationery Co. and the Winnipeg Envelope Co., Winnipeg, called upon a number of friends in the trade in Toronto and Montreal this week.

F. Smith of Smith, Davidson and Wright, wholesale paper dealers, Vancouver, was in Toronto and Monteral this week on his way to New York and other eastern centres on business.

L. P. Bouvier, of the firm of Bouvier and Hutchinson, envelope manufacturers, Toronto, has returned from an extended business trip through the New England states visiting all the impotrant paper centres. His partner, Mr. Hutchison, is in the Toronto General Hospital where he is undergoing treatment and making fair progress toward recovery.

The new North save-all, which has been installed in the Interlake Tissue Mills, Merritton, is completed and is working satisfactorily. The company have recently put in a new coal conveyor for hoisting coal from the cars to the boiler room. Several other time and labor saving appliances have also been installed lately .

The eight hour tour system has been inaugurated in both the Lybster and Lincoln Mills at Merritton, by the Lincoln Paper Co. and is working satisfactorily.

A. M. Barkwell of the Barkwell-Phillips Co., Winnipeg, wholesale paper dealers was calling upon the trade in Toronto this week and reports the prospects bright for good business this fall.

John Martin of the John Martin Paper Co., Winnipeg and Calgary, has been spending a well earned holiday on a ranch near the latter city.

A charter has been granted to the British-American Publishing Co., Limited, Montreal, with a capital stock of twenty-five thousand dollars to carry on a general printing, publishing and engraving business.

Capt. J. H. A. Acer, who went overseas with Kitchener's Own and was engaged in transportation work in France, has returned to Canada. He underwent an operation on the field some weeks ago for appendicitis and does not appear as strong as his many friends in the paper trade would like to see him. It is hoped that, with a much needed rest, he will regain his former vigor. Capt. Acer is a former President of the Canadian Pulp and Paper Association.

The question of introducing Safety Education into the public schools was brought before the Thorold Board of Education recently by H. F. M. Cushing, of the Provincial Paper Mills Co. who is safety engineer at the Montrose plant. Some of the points which Mr. Cushing will have instilled in the minds of the young are: to turn down boards having nails pointing upward; teach them not to play with fire, matches, gasolene, coal-oil, etc.; that roadways are not safe playgrounds, especially the main streets, because of automobiles, street-cars, wagons, etc.; that they must help to prevent accidents of all kinds. Bulletins are to be distributed to each class-room every Monday morning; they are posted up, and a few minutes will be devoted by the teacher to enlarging on the lesson taught by the bulletin. Later on it is hoped to occasionally have free lantern talks on safety and safe practices for the children. The board were unanimous in the opinion that this branch of education should be taken up at once, and a motion was passed to that effect.

Peder P. Westbye has been awarded a Canadian patent (No. 179681) for a new drive and bark removing attachment for a barking drum. Application has also been made for American patent rights.

A. G. McIntyre, formerly editor of the Pulp and Paper Magazine, who is now the live wire of the Publishers Paper Co., has returned to New York after a combined business and pleasure trip to the Harmsworth paper mills at Grand Falls, Nfld.

The report circulated last week that a fire occurred at the paper mill of J. R. Walker & Co., at Sault aux Recollet was incorrect, as there was no fire at the plant.

More than two-thirds of the technical foresters in Canada in 1914 have seen military service at the front. The enlistment of forest rangers has likewise been heavy.

Mr. and Mrs. Albert Harris and young son Charles, have returned to their home in Grand'Mere, P.Q., after a visit with relatives in Hudson Falls, N.Y. Mr. Harris holds the responsible position of purchasing agent for the Laurentide Co.

Dominion Envelope & Carton Co., Ltd., 90-98 Ontario Street, and 142-150 Duchess Street, Toronto, have been awarded contract for an enormous quantity of envelopes for the New Zealand Government. The envelopes to be supplied are special side seam envelopes manufactured by this company.

Hon. J. J. Carrick, who has for some years represented Thunder Bay and Rainy River, Ont., in the House of Commons, relinquished his claim of nomination in favor of Col. Don Hogarth, D.S.O.

The shortage of available labor for woods operations for lumber companies and pulp and paper manufacturing mills in the Ottawa district is already beginning to make itself felt. The labor shortage to the lumber companies also applies to the pulp and paper manufacturers from their woods end of operations. Two of the big lumber plants are up against it for labor and state that only about fifty per cent. of the necessary labor is available. Their woods operations are consequently delayed.

CIVIL SERVICE FOR FORESTERS A BOON.

The recent announcement of the Union Government through a manifeste that appointments to the outside Civil Service would be made on merit instead of by the patronage system, as applicable to the Forestry department, is considered by Mr. Robson Black secretary of the Canadian Forestry Association as a "God-send". Mr. Black believes that when the change over is brought into force will tend toward greater efficiency in guarding the pulpwood and other forests of the three western provinces Manitoba, Alberta, and Saskatchewan.

Just what steps will be taken or what program of examination will be introduced is not at present known. So far as the forestry work goes it would not be surprising if some of the forestry regulations of the Government of British Columbia were incorporated. Under the old order of things Mr. Black states some appointments to the Forestry Service has been made through political pull even though the person appointed might have had no experience or knowledge of forestry work. Under the British Columbia system an applicant for the forestry service has to pass an examination. About sixty per cent of the marks are allowed for experience, twenty for oral examination and the remaining twenty for written exercises. Thus he gets through on merit and his knowledge of woods conditions as compared with the politically appointed man who may or may not know anything about forestry conditions. The work of the experienced man in the guarding of the forests, would, it is taken, be of unquestionably more value and offer greater protection to the tracts.

Ontario and Quebec have their own provincial forestry systems which will not likely be effected by the new order of things.

In West Australia a forest product research laboratory is suggested, experiments to include paper pulp. The Minister of Mines states that such a laboratory must certainly be established, adding that there is a waste of 70 per cent. of timber in some directions.

DIRECTOR OF EDUCATION VISITS OTTAWA SCHOOLS.

The forecast recently announced in the Pulp and aper Magazine that paper mill employees in the Ot-awa district were passing up a good thing by not in-eresting themselves in the special classes conducted t the Ottawa Technical School (formerly Higher nglish and Applied Arts) has been more or less borne ut by the recent visit of Dr. F. W. Merchant, director f technical Education under the Ontario Government ho was in Ottawa last week and expressed his gra-ification on the remarkable progress that is being ade in technical development.

Discussing the work throughout the Province Dr. erchant said that Ontario in the attention to prac-ical training of young men already employed in in-ustries was ahead of all other provinces of the Dom-ion. The importance of this spare time training had een realized in various Provinces but in its develop-ent Ontario had taken the lead.

Ontario, the director stated, had an elaborate sys-m of night classes located in industrial cities by hich young men were enabled to gain the expert nowledge of their work they had been unable to se-re while at school. Dr. Merchant planly stated that e number of enrolled pupils for the night classes as one thousand three hundred, all of which were ught subjects that would be of benefit to them in eir occupations, with the girls otherwise employed uring the day being given a training in home making.

The day school method Dr. Merchant stated had een provided for the purpose of preparatory courses industrial work and directing more young men into e industries adequately trained to "HOLD THEIR WN". "The course is divided equally into academic ork and practical industrial study", said the director. A period during each day is devoted to drawing hich is fundamental to practically all industries". he Ottawa day school has now an attendance of 210 upils, one hundred and fifty of whom are 'special' nd receive training peculiar to their needs. The other xty take the regular courses. In Ontario two other ay technical schools have been opened at Windsor nd Chatham.

Throughout the provinces, Dr. Merchant said, the anufacturers and large employers of labor are be-oming more interested in the possibilities of technical ducation and are co-operating more with the move-ent. In some cities as the result of conferences with e manufacturers the courses of the schools have been eveloped with a view of training the young men to e experts peculiar to their own districts. There is ke co-operation with the Ontario Soldiers' Aid Com-ission in the vocational education of returned sol-iers. Both the Department and the Commission so r. Merchant states is working in perfect harmony nd in many of the cities the Commission utilize the hools and the equipment.

Ottawa's Technical school is situated about from ven to ten minutes on the car line from the John R. ooth and E. B. Eddy mills at the Chaudiere. Steps e being taken for the formation of classes which ill be educational and furnish instruction for pulp nd paper workers. Fifteen persons only are needed form a class. Dr. Merchant believes that the work re-educating soldiers is going to be of the greatest lue in showing the value of technical schools. The me applies to paper mill employees.

A recent decision of the committee in charge of the technical school has it that in the event of a pupil being subject to the provisions of the Military Service Act, and is called out under these provisions that his entrance fee of two dollars will automatically be returned to him and his attendance at further meetings of his class will be waived.

The calling out of the first draft will cause some disturbance in the paper mill situation at Ottawa but there are going to be scores of paper workers left who can enhance their knowledge of the industry by showing co-operation and having a special class for the pulp and paper industry started.

THOROLD'S VOCATIONAL TRAINING EVENING CLASSES.

A well attended meeting was held in the library building on Tuesday evening last. Among those present being members of the high school board, advisory committee, town councillors, public and separate school trustees, a large number of ladies and many gentlemen from surrounding towns.

Mayor Battle opened the meeting and said in part: "If the proposed new school became a fact the people of Thorold would have cause to thank a few men who had started the movement. The prime mover was Mr. G. Carruthers, who when he went first into our high school, alone, a year ago, was taken for an insurance agent. He had been on a trip east, when he had seen such schools as is desired in towns like this and was very much in favor of the enterprise."

Mr. Carruthers was called upon. He acknowledged the nice things the mayor had said about him, and was proud to be identified with what he had done. As manufacturers they had come to a time when affairs must be conducted differently. They must now be prepared to set apart a portion of the product that the customer in, say, South Africa will be sure of his order being filled, and, if he orders a year later, of getting the same goods. This brought the speaker to the connection between this phase of manufacturing and the school which is being proposed, as it would turn out technical men who could be relied upon to do next year just what they are doing this year in the way of formulating the composition of the output. The school would also provide branches in which women are interested.

The chief speaker of the evening, Dr. F. W. Merchant, director of technical education for Ontario, was then introduced, and said he was pleased to learn that so many already appreciated the necessity for such an education as is proposed. Our ideas on these things are changing. It formerly was considered that an education was something bestowed upon our young. Now we begin to see that our young constitute an asset of value, when used and developed. The value they will return to the community will depend upon what is spent in their development. To what per cent are we efficient? Just to the extent to which we were developed in the past, and so it will be with our children. They will be efficient in the future just as we develop them now.

Our opportunities in Canada have fallen far short of our ability in this respect. In no country is there a better quality of young people, yet we have not profited as we should. Every industry depends upon the knowledge and skill of those who are developing it, and where are we to get such help? We must produce it. A fundamental training could be had in the pub-

lic and high schools, but our training stops at an early age, as from eighty to ninety per cent. of the children stop at fourteen years of age. The age from fourteen to eighteen in a youth's life constitutes a critical period for him. Can we safely leave him free from educational influences during that critical period?

The speaker pleaded for a system that would take care of that eighty or ninety per cent., while they are drifting into the trades or industries. To be practical, what could be done right at Thorold in this direction? Those who enter the industries, do so in a haphazard way. A school should be organized which would lead a larger proportion into industries, and at the same time give them a proper training for such work, a school which would give at least fifty per cent. of its time and strength to this practical work. While visiting one of the largest industries in Canada, the manufacturer pointed out one of his most skilled mechanics who could not be made a foreman for the simple reason that he had not provided himself with the fundamental education which would qualify him to write out his orders to his men. Some of the practical lines are mathematics, drawing and the essentials of mechanics, which every boy should know who will come into contact with machinery in any way. our schools do not teach in any of its phases this woman's chief purpose in life is home-making, and our schools do not teach in any of its phases this this subject. He proposed a school where half the time is given to home making subjects, cooking, sewing, nursing, etc. A food conservation propaganda is in vain if the skill is not there to effect it, just as the man picked off the street could not go into a paper mill and at once turn out the highest grades of paper.

Dr. Merchant believes every town like this should have a school to teach all these practical, everyday, home and industrial subjects. Let those who wish to teach or go to the university follow the lines to those goals, but why shape the entire system to fit only the requirements of these few? The industrial education act provides for getting away from this, and to organize a school to meet the exact needs of the exact place. This is the tendency of education throughout the whole world. He would retain the high school as there was always a number who wished to follow purely scholastic lines. The new building should be a real community centre, with departments to train the young for any position in life. It is being done all over the country, and in the United States. In it should be a room for manual work, mechanical drawing, one for machinery, one for chemistry, one for electricity, one for sewing, one for domestic science. One function of such a school would be to lead boys and girls to find their proper vocations in life. In the establishing of such a school Thorold would have the hearty co-operation of the department of education, even to the length of paying for all the equipment (in instalments) one-third of the salaries, liberal grants for the equipment provided, and they meant all they said. They were in earnest in the desire to help bring on the little ones as described—to use the money of the country to carry on the education. Yet it rested with the people of Thorold, as there was no disposition to force anything onto any community. But he felt it was the duty of the people to take action.

Mayor Battle said this was an important matter for Thorold, and he invited questions to be put to Dr. Merchant.

David Battle said it meant either an addition to the high school, or, as had been proposed, a new building embracing an auditorium and a vocational school under one roof. He then again reviewed the movement so far at Thorold, and showed that something more than we now have is needed to reach efficiency. So a by-law is proposed, to be voted on by the people. We need an assembly room, as was witnessed by the cramped and unsuitable place where the meeting was held. So he had concluded a new building would be the most suitable, and it was brought to this; that the people must ask themselves if they can go into the enterprise, at a cost of, say, forty or sixty thousand dollars. The speaker asked about the status of the combination building, and Dr. Merchant said an auditorium could be provided in a high school building, the building remaining under the strict control of the high school board, the auditorium being used for public purposes, but if it were presumed to use any part of the building for municipal purposes, offices, etc., it would have to be taken up with the department—he had no authority to speak on that.

Dr. Merchant thought the board would have power to rent the auditorium. In reply to a question by Mr. E. P. Foley, he said, "Not many teachers would be needed at the start. Much of the work could be done by the high school teachers. Some of the instruction could be given on the part-time principle, by men from the industries. This is done elsewhere. One good man in charge, and one good woman over the women's department should do."

Mr. Cushing asked, "Does the grant apply to the complete building or only to the vocational portion?" Mr. Merchant replied, "Only the vocational portion."

"What do you think of electricity," asked Mr. Cushing of Dr. Merchant, who said, "I overlooked that. A boy should be trained in the elements of electricity. The science teacher could handle that, but a practical electrician would be better for this work."

Mr. E. P. Foley felt that the time had come for Thorold to take action. As Councillor Munro said, "We cannot measure such an enterprise by the money value only."

Addresses generally in favor of the scheme were made by Mr. Boris, high school principal; Mr. Lorriman, public school principal; Mr. Carpenter, of Merritton; Rev. W. H. Smith, Rev. Father Sullivan, Councillors Brockbank, Munro, McGill, Lauchlin, Smith, H. F. Keeper, K.C., Dr. Herod, Jas. Battle, and Mrs. Annie Macdonald. It was moved by E. P. Foley, seconded by Mr. Brockbank, that this meeting of supporters and ratepayers of the town of Thorold assembled, testify their willingness and desire that a vocational school be established as outlined here tonight. The motion was carried.

On a motion of Mr. Carruthers, seconded by T. D. McBride, a vote of thanks was tendered to Dr. Merchant for his attendance, for his assistance at the meeting, and for his assurances of the assistance and sympathy of his department in whatever advance step might be taken.

Dr. Merchant in acknowledging the vote, reminded the people that all would not be done when the building is up and the staff on hand, or even with the pupils graduated. It is then up to the industrial community who are calling for this institution to provide technical ability, to stand by it, to assist it in every way, and to give the preference to its output in the end.

The Markets

CANADIAN MARKETS.

TORONTO, October 22.

Canadian mills are making preparations to extend their trade and enlarge their sphere of activities just as soon as the war is over and will put Canadian paper of all kinds in every country under the sun. Ambitious plans are well under way, samples of paper are being sent abroad and propositions formulated which would be made effective at once, were transportation assured. Efforts are being made to market abroad book and bond papers, made in the Dominion, and never sold outside of it, and the prospects look good. If the Canadian Export Paper Co., which was designed at first only to look after wider markets for newsprint, can carry out the plans which it now has in hand in regard to book, bond, writing, ledger and wrapping papers, Canada will loom larger than ever as a paper making country. Much has been heard in the past about the Dominion as being destined to be a splendid newsprint country, but now other lines will be carried along as well and what the future holds in store no one can prophecy. With German competition eliminated there is no limit to the possibilities and the only serious rival will be Sweden, and that will be in the coarse grades of papers, such as krafts and fibres.

The Canadian press generally is in a very happy frame of mind just now owing to the wide advertising of the Victory Loan. Display advertisements will be used in upwards of thirteen hundred publications. There will be ten distinct series of advertisements representing approximately one hundred and fifty separate pieces of copy and the total expenditure for the display advertising will be about two hundred thousand dollars. Every paper has promised to do everything within its power during the next six or seven weeks to assist in securing a wide distribution and oversubscription of the Victory Loan.

The Canadian Food Bulletin is the latest publication and is issued under the authority of the Dominion Food Controller for the information of official organizations co-operating in the work of food control and of other bodies and individuals interested. It will provide full reports of the progress of the various provincial committees.

Warehouse business is improving steadily although there is no great increase is the verdict of the majority of the jobbers who are looking forward to a fair trade for fall and winter. What buying is going on is being done cautiously and the mills could all take aboard from fifteen to twenty-five per cent. more business. However, they are doing not too badly, and are somewhat anxious over the labor problem, for it cannot yet be said how hard conscription will hit the industry and to what extent the exemption boards will grant releases.

In the sulphite market and the ground wood arena there is not much change. Business in the latter is very quiet and stocks are large. In chemical pulp there is a tendency toward reduced prices and, since May last easy bleaching sulphite has dropped forty dollars per ton and news grade has come down in like proportion. Only a few months since bleached sulphite was bringing as high as eight cents a pound, and to-day it can be bought on contract for 5½ and 5¾ cents. Easy bleaching is being disposed of at $70 at mill and several large contracts were placed by one leading Canadian firm last week. The sulphite men know that they have the situation pretty well in hand since the embargo against Sweden by England and the absence of bottoms to bring in cellulose in any quantity. They are not disposed to take any undue advantage of this or push matters too hard, as otherwise they might be killing the goose that laid the golden egg. They recognize that there is a letting up in trade and that mills are up against many obstacles while there is a disposition to slightly lower prices on many lines of paper. Then the market of late months has not been any too active for sulphite and the new output coming on the scene has caused the older firms to be more moderate and proceed cautiously, for they are all anxious to retain their present connections and do business on a reasonable basis.

Board mills are pretty busy and orders have been coming in very nicely during the past month. Paper box factories are also becoming rushed and from now until the end of the year there is likely to be much activity. Other lines of the industry are only fair and there is very little doing in the rag and paper stock market. It is rumored that the mills have formed a buying syndicate, but this cannot be confirmed. As one dealer remarked: "I do not know why there is any talk of a syndicate as there is very little purchasing."

There was not much business done by some of the paper men in Toronto during the past week as a number of them took part in the three days' canvas for funds for the British Red Cross. All connected with the industry gave handsomely, over $380,000 being raised, which is the largest sum yet. When it comes to donations to patriotic and other funds there is no organization which is more liberal than the paper and printing trades.

Book mills are about the same and report no change although business appears to be improving some. There is not much disposition as yet to ease prices. The trade and class section of the Canadian Press Association is getting busy and wants Commissioner Pringle, now that he is about through with the newsprint investigation, to go ahead at once with his inquiry into book and writing papers. A meeting of the Trade and Class section will be held in Toronto this week to enter into the whole question and consider what steps should be taken in the matter of prosecuting the case before Commissioner Pringle. In the meantime, the book and writing men are not worrying about any inquiry and are willing and anxious to meet the Commissioner and give full data. They say that they have nothing to hide and only desire an opportunity to tell particulars of the increasing costs which they are up against. Last week a delegation of publishers representing the farm periodicals of the Dominion was in Ottawa and saw the Minister of Finance and several other members of the cabinet in

regard to cheaper half tone news and book papers. They requested that the price of half tone news should be fixed in some way, and even went so far as to suggest that the duty on book paper should be removed. There is not much likelihood of such a radical step as the latter being taken, although Commissioner Pringle will hear details of the case early next month. He is anxious first to get the newsprint problem off his hands, and it seems to be generally accepted in the trade that the figure will be fixed at three cents.

Just what effect the recent cabinet changes will have in giving force to any recommendation of Mr. Pringle cannot be foretold. Hon. A. L. Sifton is the new Minister of Customs and, when his record is considered there is every hope expressed that his decision will not long be delayed. When Mr. Sifton was a member of the Supreme Court Bench in Alberta, before he was chosen Premier of the province, he was noted as the quick and penetrating Chief Justice. He is a man who prefers to have things done at once rather than hanging around him and disturbing his mental composure. If he carries out the same course in cabinet afafirs as he did on the bench he will not be tardy in ending the probe. There is no denying the fact that the newsprint producers have been growing restive at the snail-like pace with which things have proceeded and hope before two weeks are over there will be an end to the uncertainty and suspense.

One leading Canadian, who makes several kinds of paper, was asked the past week if the report was true that his mill would turn out newsprint. "Not I," he replied. "It is altogether too much in the limelight and too much subject to governmental restriction and control. To be in any other branch of the business is bad enough but as for newsprint, excuse me. You could not drag me into the making of this commodity at any price." It will be remembered in this connection that the head of one of the oldest houses in Canada remarked to Commissioner Pringle several months ago that if he could get the other directors to consent, his firm would go out of the newsprint game entirely.

Paper boxes for cereals got a kick when the Food Controller issued a decree for packages of not less than 20 pounds. The order is opposed by the cereal men on the ground that many of these products would be damaged by moisture as large packages would be exposed longer. Such an order would tie up a lot of machinery for making what are now standard size boxes and indirectly affect box board production. It is doubtful if many house wives could take care of 20 pound packages of some cereal foods.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$38.00 to $40.00
Sulphite, easy bleaching	$70.00 to $75.00
Sulphite, news grade	$55.00 to $60.00
Sulphite (bleached)	$100.00 to $115.00
Sulphate	$80.00 to $85.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.75
No. 1 soft white shavings	$2.75
Mixed shavings	70c
White blanks	$1.70
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.25
No. 1 printed manila	$1.25
Folded news	70c
Over issues	80c
Kraft	$3.00
No. 1 clean mixed papers	55c
No. 1 white shirt cuttings	$7.40
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.25 to $8.50

MATTAGAMI PULP & PAPER CO., LIMITED

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Will Specialize in

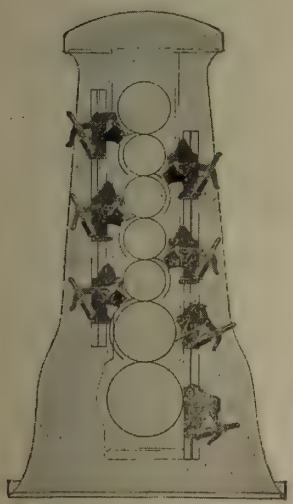
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Manufactured from Clean Sound Spruce

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Dillon Calender Doctors and Feeds are hung up to the Rolls by means of steel levers and links. They are self-adjusting, and follow the rolls in any position. **They are the only doctors that have this feature.**

Descriptive circular furnished upon request.

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Look for it on every Link

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Light colored hosiery cuttings	$7.25 to $7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
Thirds and blues, repacked	$2.85
Flocks and satinettes	$2.10
Tailor rags	$2.10

NEW YORK MARKETS.

With our correspondent in the hospital, comment on this market is necessarily brief.

The market as a whole for the pulp and paper industry is still inclined to dullness. Ground wood is moving in proportion to the demand for paper. Sales are reported at $36 per ton, f.o.b. pulp mill, but the indications are toward higher prices. Foreign pulp seems likely to remain on the other side, almost no paper making material is reaching these shores.

Labor and transportation are the big problems facing the industry. Wages are continually going up. The railroads want higher rates and shippers find it difficult to secure cars.

The only important matter of price is the announcement of an official of the International Paper Co. that "it will endeavor to avoid any increase in its price of $3.10 for its high class roll news in quantity at the mills." From results to date of the Canadian price probe and the officially admitted higher cost of production in the States, even this price leaves but a small margin of profit, considering increased cost of labor and material. It appears that 3 cents will be the basic contract price for newsprint. In other lines there is not much doing.

Raw materials, as pulp, rags, old papers and bagging reflect the general dullness, with rags having a little the best of it.

A. G. McIntyre, of the Publishers Paper Co., has returned from Newfoundland with a glowing account of the paper mills in the Colony. Six cargoes of Harmsworth paper has reached the United States and has been used by 300 or 400 publishers.

SLIGHT DECLINES IN LAURENTIDE AND BROMPTON.

Montreal, Oct. 24, 1917. — A market deadlock of some standing was broken in Laurentide yesterday by a sudden offering down of the stock during the afternoon session. At noon it was offered at 160, the price in the last sale and the price around which stock has recently been available without attracting buyers. It took a four-point recession yesterday to bring out any buying, but, although the decline continued from 156 to 154¾, the absorption of 600 shares of a high-priced stock, with a narrow money market such as now prevails, may be termed substantial.

Obviously a market situation of the sort offers possibilities of rapid adjustment when money conditions right themselves, and quite plainly, whatever speculators may have to do through the force of circumstances, investors have no reason to be disturbed.

* * *

Brompton also had a break of several points recently but recovered to within a fraction of a point of previous figures. It is said that no change in the dividend is contemplated, as earnings are well over dividend requirements.

CANADIAN CHEMICAL MARKET.

Montreal, Oct. 23, 1917. — The Caustic Soda market is very erratic and continues to attract much attention. Towards the end of last week it was easier with a drop of ½c to 1c in the New York market. The demand for Bleaching Powder is better and is accompanied by a strengthening in the market. A large and urgent demand for Brimstone is reported with a serious lack of transport facilities. The U. S. Government has commandeered the sulphur carrying ships and the shortage of cars is serious in all parts of the continent. The car shortage is being keenly felt in Montreal.

The following are the prices in the Montreal market.

Blanc Fixe, paste, lb.	4	@	4½c
Do., powder, lb.	5	@	5½c
Bleaching powder, lb.	2	@	2¾c
Brimstone, f.o.b. mines, long ton			$45.00
Casein, lb.	30	@	40c
Caustic soda, 76%, lb.	8¼	@	9c
China clay, imported, ton.	$25.00	@	$30.00
Do., domestic, ton			nominal.
Lime, ton.	$ 7.25	@	$ 8.00
Sal soda, bags, 100 lbs.	$ 1.45	@	$ 1.50
Do., barrels, 100 lbs.	$ 1.60	@	$ 1.65
Salt cake, 100 lbs.	$ 1.45	@	$ 1.60
Soda ash, lb.	3¼	@	4c
Starch, pearl in bags, lb.	8¼	@	8¾c
Sulphate alumina, technical, lb.	3½	@	4c
Do., iron free, lb.	4¼	@	5½c
Talc, American, ton.	$18.00	@	$21.00

HAULING GRAIN TIES UP FREIGHT CARS.

The empty car situation is as bad in Quebec Province at the present time as it was at the worst period during last winter. While all classes of business are suffering from a shortage of cars, the pulp and paper men and hay growers are being inconvenienced the most, as these people find it imperative to get out their pulpwood and hay before the country roads freeze over. The big pulp and paper mills are so seriously affected that a number of them must either curtail production or close down unless cars are forthcoming. The Pulp and Paper Association is sending a representative to Washington to interview the Inter-State Commerce Commission in an endeavour to have that body send empty cars to Canada to carry out paper products. As three quarters of our paper is exported the United States has a very real interest in relieving the present car shortage.

The acute shortage this year is attributed by railroad men to the desire on the part of the Government and railroads to remove as much as possible of the grain crop before the close of navigation. It is probable that when the St. Lawrence River freezes over and navigation closes a certain measure of relief will come through the release of cars which have been carrying grain, but if grain hauling must continue, the longer haul in winter may tie up more cars. At the best the situation is causing real anxiety to railroad men who try to cater to the requirements of their customers, and to the customers themselves who are unable to get an outlet for their products.

REGULAR HOWARD SMITH DIVIDEND.

Howard Smith Paper Mills, Ltd. announce the regular quarterly dividend of 2 per cent. payable November 1st to holders of record October 26.

The Pickle Automatic Steam Regulator



Saves steam

It also retains the proper amount of moisture in the paper thus eliminating the breaks at the calenders.

This regulator gives you a higher and more uniform finished paper with less calendering.

W. F. PICKLES
BUCKLAND CONN.

STEEL RAILS

SESSENWEIN BROS.
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MONTREAL

Dominion Belting Co.

LIMITED

HAMILTON - CANADA

Sole manufacturers of the celebrated

"Maple Leaf"

Brand Stitched Cotton Duck Belting

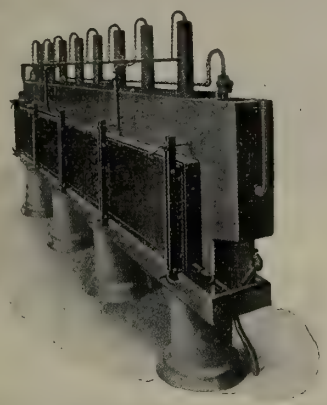


Which is strong, durable, economical and true running.

Being thoroughly waterproof it is equally good for running in wet or dry places, and specially adapted for use in Pulp and Paper Mills.

Write for Prices

Montreal Branch - 51 Duluth Building



Bleach
Caustic
Soda
Chlorine

The ALLEN-MOORE CELL is now used in seven large pulp and paper mills in the United States, and in the Merritton mill of the Riordon Pulp and Paper Company in Canada.

We can furnish not only the cell—We can design and operate the complete bleach plant and bleachery.

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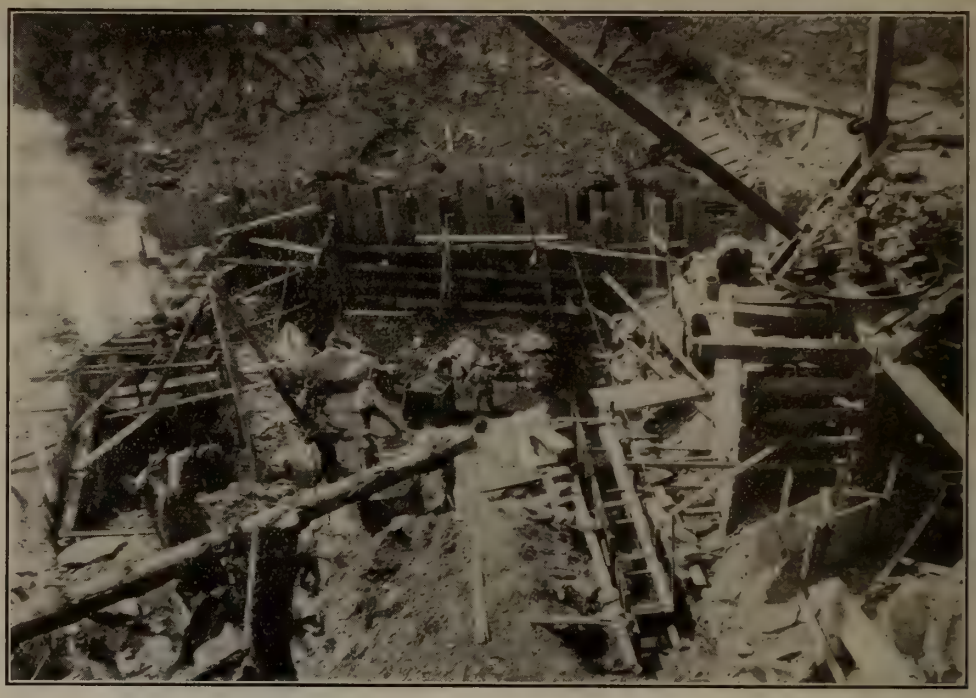
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Cutting Machines

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OSWEGO MACHINE WORKS
OSWEGO, N. Y.

Write



This shows the early stages of the excavation for the Dam of Penman's Limited, Coaticook, P.Q.

THE FOUNDATION COMPANY

ENGINEERS---CONTRACTORS LIMITED *MONTREAL---WINNIPEG*

Tenders for Pulpwood Limit

Tenders will be received by the undersigned up to and including the seventeenth day of December next for the right to cut pulpwood and pine timber on a certain area situate in the vicinity of the Kapuskasing River in the Districts of Timiskaming and Algoma.

Tenderers are to offer a flat rate per cord for all classes of pulpwood, whether spruce or other woods. The successful tenderer shall be required to pay for the Red and White Pine on the limit a flat rate of $10 per thousand feet board measure.

The successful tenderer shall also be required to erect a mill or mills on or near the territory, and to manuracture the wood into pulp and paper in the Province of Ontario, in accordance with the terms and conditions of sale which can be had on application to the Department.

Parties making tender will be required to deposit with their tender a marked cheque payable to the Honourable the Treasurer of the Province of Ontario, for Twenty-five Thousand Dollars ($25,000.00), which amount will be forfeited in the event of their not entering into agreement to carry out conditions, etc. The said Twenty-five Thousand Dollars ($25,000.-00) will be held by the Department until such time as the terms and conditions of the agreement to be entered into have been complied with and the said mills erected, equipped and in operation. The said sum may then be applied in such amounts and at such times as the Minister of Lands, Forests and Mines may direct in payment of accounts for dues or of any other obligation due the Crown until the whole sum has been applied.

The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital to be invested, etc., apply to the undersigned.

G. H. FERGUSON,
Minister of Lands, Forests and Mines.

Toronto, September 19th, 1917.

N.B.—No unauthorized publication of this notice will be paid for.

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Price 12/6 net, or post free 14/-; Demy 8vo., cloth bound, 800 pp.

The Paper Maker's Directory of All Nations.

Annuaire de la Papeterie de Toutes les Nations.

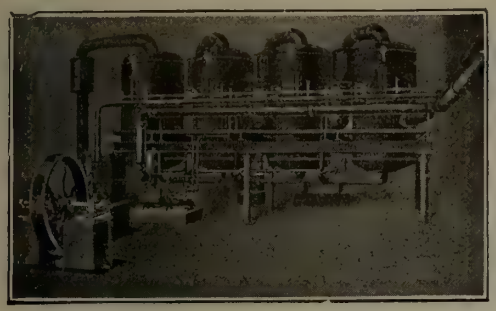
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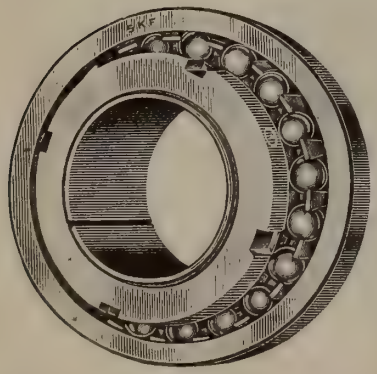
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EDITORIAL

THE VICTORY LOAN.

For the next few weeks all loyal Canadians will be putting forth their best efforts to make a success of the Victory Loan. The purposes of this loan should be so well known and well appreciated that nothing that can be suggested or done will over-estimate its importance.

Canada is at war! For three years we have been pouring out our men, our money, and our material resources, in a steady stream in order to beat down Prussian militarism.

In this laudable and praiseworthy effort we have been ably supported by the Mother Country and other parts of the Empire. Up to the present much of the money that has been spent in Canada came in the form of loans from Great Britain, but now the Mother Country is unable to continue these advances as she has to provide for her own huge requirements as well as finance other Allies. The result is, that Canada must provide her own sinews of war.

Unless the Canadian Government can borrow from the Canadian people it will be unable to spend money for munitions, clothing, foodstuffs, and the hundred and one other commodities needed to prosecute the war. The 150,000,000 dollars asked for by the Canadian Government is to be spent in the Dominion. A man does not need to be much of an economist to realize what the expenditures of this large sum will mean to the prosperity of the Dominion, nor does he have to be a millionaire to invest $8.60, this being the smallest war saving certificate issued by the Government. With the high wages now prevailing very few men or women are so poor that they could not subscribe for a ten, twenty-five or one hundred dollar War Certificate or Bond.

It should also be pointed out that these loans to the Government have the whole security of the country back of them, while the interest on the money loaned is almost double that secured from the banks.

Canada has sent her soldiers overseas by the hundreds of thousands, but the millions of us at home who cannot go overseas can at least make our dollars fight. Lloyd George has said that the silver bullet would end the war. Will it now be said that Canada, which played such an important part in the struggle, to-day will come short of her ideal by failing to provide the sinews of war? Many large employers of labor are making personal appeals to their employees to set aside a certain percentage of their wages. If that were done by all pulp and paper manufacturers and an earnest effort made to get the men to do their bit we are satisfied that the Victory Loan would be a success in so far as pulp and paper interests are concerned.

VOCATIONAL EDUCATION.

The development of vocational education in Canada and the United States seems to be progressing along two different, though fortunately, converging lines. One plan concentrates attention on one particular industry, the other might be said to cover general preparation for the common trades. One is promoted and fostered principally by the particular industry, the other is organized and supported by the community and state or province. Provincial support in Canada at once suggests the advisability of the second general plan. The need of further educational opportunities and inducements is emphasized by the recent statement of the director of technical education for Ontario that between 80 and 90 per cent. of public school students stop at 14 years of age. The reason in many cases may be due to the unfortunate fact that there is no school to go to when the common school is finished.

There is need of better educated workmen, certainly in the pulp and paper industry and probably in every other, both for the future progress of the industry and the safety and success of the workmen themselves. The industry cannot progress unless it is intelligently and scientifically guided and directions are useless if they are not understood and appreciated. A warning sign fails to help if it is in an unknown language. A beaterman's success as foreman of his room would be seriously handicapped if he didn't know the difference between soda-ash and alum. A millwright might be a very handy man with tools, but would find it difficult to set up a machine if he couldn't read a blue print or figure the size and speed of his pulleys or calculate the length of the belt. No workman, except, perhaps, in a few Quebec mills, can hope to attain positions of authority unless he can understand the English language beyond the common swear words. This point should not be passed without congratulating many of our foreign workmen for a really enviable linguistic ability.

The lack of sufficient educational facilities is painfully evident and the result on the future of our industry is even sadder to contemplate. Uneducated men are being drawn into positions of some responsibility because the better men who had filled them have gone higher or died out. This has put an increasing burden on the management, which in some cases has been relieved by the employment of the chemical engineer and the introduction of standardized methods. But as we have already stated, scientific methods avail little if they must be left to unintelligent or untrained workmen.

There was a time when a workman had to know enough about the business to pass a stiff examination before he could call himself a paper maker. He must know thoroughly the whole process. Now, a workman opens a valve till sulphite has run into a certain mark (perhaps he doesn't know it is sulphite), then another valve and groundwood flows in. He knows nothing of the properties of either, or what effect a change in proportions will have on the product. In another mill a man puts in so much of this stock and so much of that stock, a pail from one barrel and two pails from another, without knowing whether he is making writing paper or wrapping. There is no guild to incite a study of the operations in making paper and neither an organization of the manufacturers nor of workmen has encouraged education and training as fundamental to employment and advancement.

How can this preparation for service in the paper industry be best accomplished? In a broad sense, what applies to other industries applies also to ours. The fundamental subjects of arithmetic, language, etc., are already provided for the younger children. As Dr. Merchant says, a training should be furnished the vast majority of children who leave school at the age of 14, that will at least give them a basis on which to make a choice of occupation. This would, of course, be a feature of the school system already organized. It would involve the introduction of drawing, manual training and domestic arts (elementary home-making.) These features need not be at all elaborate, but would give the boy an inkling as to whether he did or did not possess an innate aptitude as a mechanic, and would give the girl an idea of how to make a dress from a pattern, even if she were to be employed as a calender girl or a clerk.

Arriving then, at the age of 14, or at the end of the common school course, the child would know something of trades if further education were desired. If a high school course were possible, then this too should have further work of an industrial nature. There should be a high school within reach of every child in Canada, but that is a vision hardly to be realized just now. Ordinary high school courses are available two weeks in three for men working on three tours, though not for day workers. These latter, and they comprise most of the younger workers, must be provided for by some kind of continuation school; either an evening school, late afternoon classes with shorter mill hours, or combination schools where the student spends a week in the mill and the next in school, while an alternate does the opposite. Any of these will make possible a continuation of study along lines that will lay a foundation for promotion and perhaps for further school work.

Except in the case of large centres, like Holyoke, Mass., the local school arrangements can hardly expect to go beyond instruction in the fundamentals. Further educational opportunity must be co-operative and should be located at a point or points central to the industry. Such central technical schools would furnish opportunities for spreading a much needed knowledge of the principles underlying our industry among those who will logically be expected to assume positions of authority. A start with the fundamentals has been well taken by Thorold and with a little adaptation will follow at Ottawa and other places. The next phase is needed now, where those who have the fundamentals and some experience can follow it up.

"JOHN, BRING HOME SOME CORN FLAKES."

N.B.—Four Cubic Feet!

Ever since Mr. Hanna was appointed food commissioner, many people have expected him to take a slice off the High Cost of Living. No doubt, that is one function of his office, the principal concern being the proper distribution and conservation of food, so that all may have enough to eat.

Mr. Hanna was evidently trying to lower the cost of food by ordering the distribution of cereals in not less than 20 pound packages. Fortunately there is a proviso that permission may be granted in certain cases to sell smaller packages. The order, as it stands, if strictly applied to all cereal foods, is ridiculous. If a person wanted to have on hand a reasonable variety of breakfast foods, say corn flakes, puffed rice, shredded wheat, oatmeal, and one other cooked cereal, the space required would be not less than 12 cubic feet. That alone would nearly fill a city kitchen. Mr. Hanna is evidently unfamiliar with the needs of a small family, or he would know that it is impossible for a family of two, three, or four to handle 20 pounds of many articles. Corn meal, rice, graham flour, white flour, rye flour, oat flour and buckwheat flour; some of these items, if bought in 20 pound lots, would not be used up in a year or more and would certainly spoil before that. Then what would our food conservation plea amount to? Besides that, it would be embarrassing to ask some families to pay for 20 pounds of an article that might spoil before it could be consumed.

Please, Mr. Hanna, we don't want 20 pounds of pancake flour and we haven't room in the cupboard for 7,450 cubic inches of corn flakes.

The Determination of Sulphur in Paper

By E. SUTERMEISTER, WESTBROOK, ME.

The presence of sulphur in paper which is to be used in contact with silverware is dangerous because it may cause tarnishing of the polished surfaces. This defect is sometimes so serious that entire shipments of ware are returned to the manufacturers to be repolished; naturally, therefore, one of the most important specifications for tissue paper for wrapping silver is that it shall be free from sulphur.

Sulphur may be present in paper in a number of different forms and from several different causes. White papers may be toned with ultramarine and this substance almost always contains free sulphur, and in addition tends to break down with evolution of hydrogen sulphide in the presence of acid or alum of an acid nature. Another possible source is from the use of an antichlor, especially "hypo" — sodium thiosulphate — which may leave traces of sulphur due to its tendency to decompose in the presence of acids with evolution of sulphur dioxide and free sulphur. The use of improperly prepared sulphite fibre may also be responsible for the presence of sulphur or its compounds for under certain conditions free sulphur may be deposited on the fibre in the digester and if the liquor or cooking conditions were not right calcium sulphite may also separate upon the pulp. These two reactions may be more or less local in their nature so that a portion of a digester charge may be unsatisfactory while the rest is all right. One large user of silver tissues considers that this possibility renders the use of sulphite fibre so dangerous that he refuses to accept a delivery of paper containing it, even if a chemical test shows it to be free from sulphur.

In spite of the importance which may at times be attached to this test the literature of paper making, so far as the writer is aware, contains absolutely no mention of any method for the determination of sulphur in paper. When the problem did present itself therefore, it was necessary to do more or less research work to prove the value of a procedure whose general outline was obtained from a commercial laboratory and to which therefore no claim for originality is made. The basic idea of this method is the treatment of the paper with zinc and acid whereby the sulphur compounds are reduced with the evolution of hydrogen sulphide which is then allowed to react on lead acetate paper. This causes the formation of a black stain of lead sulphide and the depth of color of the stain produced is an indication of the amount of sulphur present.

After considerable investigation and the trial of many different modifications of the process the following method was adopted as giving the most reliable results.

The Method.

The apparatus consists of a 500 cc round bottom flask with a neck about two inches long and one inch in diameter. The mouth of this neck is ground to a flat surface and on this is placed a glass tube about four inches long and an inch in diameter, the lower end of which is also ground flat to fit tightly upon the upper surface of the neck of the flask. The whole is so arranged that after placing a piece of filter paper between the two ground surfaces, the tube and flask can be securely clamped together so that all gas generated in the flask must pass through the filter paper and then up through the superimposed glass tube.

The procedure for the testing of tissue papers is as follows: A sample of 25 square inches is taken and its weight determined. It is then shaken up in a wide mouth, glass-stoppered bottle with 10 cc of distilled water; when partial disintegration has taken place, another 10 cc of water is added and the shaking continued until the paper has been completely reduced to pulp. The larger part of the pulped mass is now transfered to the flask decsribed above, and the residue which is left in the bottle is rinsed into the flask with a mixture of 10 cc of sulphur-free phosphoric acid and 20 cc of water.

Prepare turnings from the highest grade, pure stick zinc, which must be free from sulphur and arsenic. Treat one gram of these turnings with 10 cc of a dilute solution of copper sulphate containing about 0.002 gram actual copper. After a few minutes all the copper will have deposited and the turnings are then thoroughly washed to remove every trace of zinc sulphate.

The turnings are added to the flask and a wad of cotton inserted in its neck. Between the two ground glass surfaces is then clamped a piece of filter paper about two inches square which has been perforated with small pin holes about one eighth of an inch apart and which just before use is moistened with several drops of lead acetate solution. Finally a loose wad of cotton is placed in the tube above the paper.

The flask is placed on the steam bath and allowed to stay, with occasional shakings, for an hour. The filter paper is then removed from the neck of the flask and air dried. It is best compared with the standard test pieces by placing them side by side on a piece of white paper and covering them with a thin piece of clear, white glass. The standard test pieces are prepared by using sulphur-free cotton in the flask instead of the disintegrated paper and adding to this definite volumes of a very weak solution of sodium thiosulphate whose strength is accurately known. The sulphur-free cotton is prepared by boiling absorbent cotton in weak caustic soda solution and washing thoroughly with distilled water.

Sensitiveness.

The sensitiveness of this test is such that the presence of 0.000001 gram of sulphur in the flask will give a distinct color on the lead acetate paper. From tests of a considerable number of papers which have been formed satisfactory in actual practice it has been proved that tissue paper is safe for wrapping silver ware if it does not contain more than 0.000002 gram of sulphur per 25 square inches of paper (about 0.25 grams).

In developing this method of testing a number of difficulties were encountered and a brief outline of these, together with the precautions to be observed, may be of assistance to any who desire to use the method.

Precautions Necessary.

The sample to be examined must be kept away from all dust and laboratory fumes and in handling

it in preparing the sample the fingers should be scrupulously clean. Any perspiration on the fingers will be sufficient to give an incorrect result and it was found by sad experience that if the fingers were run through the hair while handling the sample for analysis a strong test for sulphur was obtained. It is quite obvious that any sample which is submitted for tests should be taken from a freshly opened package of paper and that it should be handled as little as possible. To make a test of a sample which has been lying around an office for some time and which has been handled repeatedly is merely a waste of time.

The purity of the zinc employed must be ascertained by careful tests. The first zinc used in the experiments was supposed to be pure, but it gave, nevertheless, a distinct stain when used in a blank test. After much trouble a zinc was finally obtained which was guaranteed pure and which indeed proved so pure that it would not react appreciably with acids and hence could not be used without some sort of activator. The first tried was platinum wire in the flask with the zinc. This hastened the reaction only when in direct contact with the zinc and did not prove entirely satisfactory. Depositing platinum on the zinc by adding a few drops of platinum chloride solution was entirely satisfactory so far as hastening the reaction was concerned but tests proved that it prevented the evolution of hydrogen sulphide and so could not be used. The final solution of the problem found to be the treatment with copper sulphate as above described. Even this copperized zinc probably holds back a little of the sulphur but the test is sufficiently accurate for all practical purposes.

The choice of phosphoric acid was made only after careful consideration had been given to sulphuric acid and hydrochloric acid. There appeared to be a slight reduction of sulphuric acid to hydrogen sulphide when the reaction was allowed to take place at elevated temperatures so its use was considered unsafe. Hydrochloric acid proved to be safe if employed at room temperatures but under such conditions the evolution of hydrogen was comparatively slow. If used at high temperature it was considered dangerous because of the possibility that the acid might volatilize sufficiently to get onto the test paper and destroy the stain produced by the hydrogen sulphide. Phosphoric acid which is non-volatile and is readily obtainable free from sulphur satisfies all the conditions of the problem.

The standard test papers which are prepared with known amounts of sulphur must be freshly made each time the test is carried out. It was attempted to prepare permanent standards but they were found to fade enough to be unreliable even where stored in tightly stoppered bottles in the dark.

From the standpoint of the paper manufacturer this test has one weak point — it gives a test for sulphur from some compounds which are apparently not injurious to silver. Sodium sulphite, for instance, will give a test for sulphur by this method, yet it is very doubtful whether it would cause staining of polished ware. It was attempted to prove this by wrapping a piece of polished silverware in a paper which was moistened with a solution of sodium sulphite. At the end of three weeks, during which time the paper was kept moist and at room temperature the silver was found to show absolutely no trace of tarnish. The users' reply to this argument is that while some forms of sulphur compounds may be harmless it is certain that a paper which gives no test for sulphur is safe while others may or may not be harmless. They prefer therefore to be on the safe side and reject all paper which gives more than a minimum amount of stain.

NEWSPRINT PRODUCTION IN SEPTEMBER.

According to a statement last week from the secretary of the Newsprint Manufacturers Association, the actual production in September (78,680 tons in the United States and 47,998 tons in Canada, in 24 days) was lower than the production in August, owing to the smaller number of operating days, but an amount equalling 100.7 per cent. of maximum productive capacity was obtained against 99.5 per cent. in August, 1917, 91.4 per cent. in September, 1916, and 91.2 per cent. in the whole year of 1916. The actual daily production in September, 1917, was 100 tons larger than in the same months last year, although the maximum productive capacity was 400 tons less.

Shipments in September were in excess of maximum, although less than August, 1917, and September, 1916. Stocks on hand in the United States have decreased and are the smallest since May of this year. The increase in Canadian stocks was almost entirely represented by the increase in stock at one of the large exporting mills.

COAL EXPORTS TO CANADA TO BE CONTROLLED THROUGH THE ISSUANCE OF SPECIAL PERMITS.

The U. S. Fuel Administration authorizes the following:

The United States Fuel Administration will announce within a few days its regulation limiting coal exports to Canada. Control of shipments will be exercised through the issuance by the Fuel Administration of special permits to shippers, who will be allowed to forward cargoes up to the amounts prescribed by the Fuel Administration without obtaining special export licences.

The plan is to hold Canada, during the rest of the year, to supplies not exceeding 10 per cent. more coal than was received last year. This arrangement is based on a 10 per cent. increase in production in the United States this year and permits the Dominion to share equally with the States of the Union.

Permits for shipment will be granted only to shippers who sent coal to Canada last year.

CANADIAN PRESS ASSOCIATION.

The annual report of the Canadian Press Association shows a membership on April 30 of 775, a substantial gain over the previous year. The treasury was also in a very satisfactory condition.

Over a score of daily newspapers have made increases in subscription rates during the year. A number have increased their mail rate by $1.00 a year. City delivery rates have also been increased and several newspapers have increased rates per copy from one to two cents. Increases have also taken place in weekly and semi-weekly subscription rates. There are now more than 300 of these rural papers whose subscription rate is $1.50 or higher.

The Probe is Finished--New Prices Likely this Week

(Specially Written for the Pulp and Paper Magazine.)

By EVERETT ANDREW.

The Canadian newsprint probe, which Commissioner R. A. Pringle, K.C., has been conducting for many months is complete. The actual result cannot be predicted till the Government acts on the interim report of Mr. Pringle. This will probably occur very soon, as, instead of extending the present price another month by the Commissioner, the manufacturers agreed to continue present conditions till Saturday night only. Their case is unassailable, as Mr. Pringle stated that **the publishers had been given about $500,000 by the manufacturers in the last eight months.** The Commissioner found the proper cost of newsprint to be $57.50, based on reports of twelve mills. The future price can be quickly and easily named by an Order-in-Council. Paying back what has been filched from the mills is a more difficult problem.

The prospects for three-cent newsprint each hour became brighter as the official auditor's reports from the mills show up the true production costs. During the opening period of the fifth session of the inquiry a vague hint was conveyed that State control of Canadian paper mills might be exercised. Newsprint manufacturers were sternly warned that they must supply the needs of Canadian newsprint publishers. What the recommendation of the Commissioner would be to the new Minister of Customs, Hon. A. L. Sifton, was not known to anyone in Ottawa up to Tuesday morning. A recommendation to increase the price from two and one-half cents per pound to three cents per pound may or may not be made. On the average of 12 reports, $60 per ton seems assured.

The opening day of the fifth session of the probe proved the most interesting and important from the manufacturer's end since the inquiry began. While the examination of five mills was conducted and completed eight mills in all came under review, the extra three being, Abitibi Power and Paper Company, Spanish River (partially left over from the fourth session), and E. B. Eddy. The reason E. B. Eddy was not completed or its production cost averaged with the other mills was on account of the question of the actual capital invested in its newsprint manufacturing department. Thus the E. B. Eddy plant figured in the averages of Tuesday.

Unfortunately, space this week will not permit a complete report of the evidence and happenings of the fifth session of the probe, which will be fully covered and contained in the next issue.

Among those present at the opening of the fifth session of the probe were:—Mr. George Cahoon, Jr., president, and L. W. Campbell, accountant, of the Laurentide Co.; J. A. Bothwell, general manager of the Brompton Pulp and Paper Co.; George F. Steele, general manager of the Canadian Export Paper Co.; Sir William Price, of Price Bros.; Mr. F. J. Campbell, Canada Pulp and Paper Co.; Mr. H. I. Thomas, and Mr. George F. Henderson, K.C., for John R. Booth; Mr. George H. Millen, president, Mr. David Tilley, accountant, and Mr. John F. Orde, K.C., for E. B. Eddy; Mr. George Montgomery, K.C., and Mr. Gordon MacDougall, K.C., representing the Newsprint Section of the Canadian Pulp and Paper Association; Mr. P. B. Wilson, vice-president of Spanish River Mills; Mr. Victor E. Mitchell, K.C., representing Abitibi Power and Paper Co.; Mr. George McKee, president of the Donnaconna Paper Co., Ltd.; Mr. E. S. Sharpe, accountant for Newsprint Section of Canadian Pulp and Paper Association; Mr. George H. Biermans, president and Mr. C. Lebrun, accountant, for the Belgo-Canadian Pulp and Paper Co.; Mr. T. P. Owens, editor of debates in the House of Commons, official stenographer; Mr. Geoffrey Clarkson, official auditor; Mr. H. A. Stewart, K.C., Crown Counsel; Mr. H. I. Smith, treasurer of Abitibi Power and Paper Co.; Mr. Loughwood, St. Maurice Paper Company; Mr. Dawe, secretary Canadian Pulp and Paper Association, and Mr. J. A. McCarthy, of Price Bros., and others.

Fort Francis is to continue as a party to the inquiry. It still occupies the status of any other mill, and its operating costs and charges with those of the Ontario Paper Co., are to be considered.

Spanish River Insures Against Calamity.

The fifth session of the inquiry opened with the calling of Mr. P. B. Wilson, vice-president of the Spanish River mills, who was questioned regarding the capitalization, of the company. Before the question of Capitalization was taken up, Mr. Wilson explained to the Commissioner that he, with Mr. Clarkson, had prepared a supplementary report as to the cost of producing newsprint paper. The actual bone dry cost was $39.17, to which had to be added the following other charges per ton:—Government dues sixty cents, selling costs sixty cents, difference of cost of old and new wood $3.30, water power twenty-five cents, shipping ten cents, sinkage one dollar and five cents, bringing the actual charges up to $45.07. Other incidental charges brought it to $45.83. "That does not include anything for principal or bonded indebtedness?" asked Mr. Pringle. Mr. Wilson assured the Commissioner that it did not.

"Now in reckoning the total cost we have to allow something for these charges. What would the other charges amount to Mr. Wilson?" asked Mr. Pringle. Interest on bonds and loans, Mr. Wilson said, amounted to $5.57 per ton and preferred stock at seven per cent to $2.94 cents per ton. This made the total $54.34 without allowing anything for interest on the Common stock, which Mr. Wilson estimated should be charged in at ten per cent, or adding $5.88; giving a grand total of $60.22 per ton.

"'We have not yet arrived altogether at this item of common stock. What I want to know is whether there was any money put in or not," asked the Commissioner. Mr. Wilson, who has only been connected with Spanish River for the last few years, could not definitely tell. He said that the records of the Superior Company indicated that money had been invested in the common stock, but he could not tell what the situation had been with the other companies.

Capital stock (bonds and preferred), of the Spanish River mills was given as being $16,300,000. "Have you

any idea that sixteen million three hundred thousand dollars has been actually invested in the plant?" asked the Commissioner. "I could not say definitely, but I know of nothing to the contrary," replied the vice-president of Spanish River. The Spanish River Mills, Mr. Wilson said, had a daily output of 450 tons. The Commissioner questioned Mr. Wilson if there was not a recognized principle in newsprint companies or plants that it took so much capital invested to represent a given daily output of tons, and what amount per ton? Mr. Wilson went on to explain that there was a well recognized principle, and thought it worked out about $50,000 per ton per daily tonnage output. In this basis Spanish River would have to have a capitalization of $22,500,000. The Capital of $16,300,000 Mr. Wilson said was apart from the common stock. of which there was $8,000.000, which made a grand total capitalization of $24,300,000. "And what cost per ton would that give you?" asked the Commissioner.

Mr. Wilson did some figuring, and then told the Commissioner that it amounted to $59.12. "This would allow us eight per cent on our common stock," added Mr. Wilson. Mr. H. A. Stewart, K.C., Crown Counsel, wanted to know how much of the common stock had actually been paid for, and how much actual investment it represented. "Some of the figures you have been giving us have been estimates?" he asked. Mr. Wilson said, "Yes."

"It was something Mr. Clarkson could not check up in the books?" pressed the Crown. Mr. Wilson said it was. Mr. Wilson went on to explain that one-half per cent. was allowed for bad debts, which amounted to about twenty-five cents per ton of newsprint. Fire ranging had been entered at fifty-five cents per ton in the cost of newsprint. and Mr. Wilson told the Commissioner that the Ontario Government a few days ago had charged the Spanish River mills that exact proportion per ton. Another practice Mr .Wilson said was to set aside $60,000 as a reserve for uninsurable losses. Spread over the year it amounted to about sixty-four cents per ton of newsprint. Explaining this charge, Mr. Wilson referred to a big dam break that occurred with the Spanish River mills a year or so ago, and mentioned the ever prevailing fire hazard. The actual cost of selling price as shown in the company's books was fifty-seven cents per ton. Another charge was allowance for shortage of inventory. This Mr. Wilson explained was an allowance set aside to guard against a shortage when it came to checking up at the end of the year. In one instance he cited how when the coal came to be checked up. it was found that a shortage valued at $17,000 had been found. This Mr. Wilson said, was due to the value of the coal not having been properly charged into the cost per ton in newsprint produced. In short, The Spanish River mills had not been charging enough for their coal in comparison with the amount consumed in producing newsprint.

Mr. Pringle asked Mr. Clarkson his opinion as to the costs and charges put in by the Spanish River Mills per ton of newsprint. "What do you think of the figure of forty-five dollars and eighty-three cents per ton?" asked Mr. Pringle of the Auditor. "I cannot see anything unfair in that," said Mr. Clarkson. Mr. Clarkson has been unable to definitely ascertain the exact amount of money that went into the Spanish River plant as actual capital invested.

"What do you think of Mr. Wilson's statement? Is $50,000 per ton capacity too much per ton of paper?" asked the Commissioner. "I cannot speak in regard to that," replied Mr. Clarkson. Turning to Mr. Wilson, the Commissioner said: "I think it is unfortunate you cannot tell more closely what amount has gone into your common stock. However, I appreciate your position as you only came there a few years ago." In conclusion Mr. Wilson said that costs were going up every week and he thought it was only fair for the Spanish River Mills to take into account the wood they had on hand June last. The price of the new and the old wood now makes quite a difference in the cost per ton of newsprint.

Donnacona Opens Question of Home Supply.

The report of the Donnacona Paper Company, Ltd., was the first new one to be taken up Monday.

Woods costs at the Pont Rouge mills were given as follows: 1916, $6.44; 1917, $7.16.

On the next item groundwood costs at Donnacona two separate sets of figures were embodied in the report, according to the method in which the make up charges were figured. In one case charges included depreciation and freight charges, and dues on Company's pulpwood and its allowance for exhaustion of limits. The other method eliminated the dues. allowance for exhaustion of limits freight charges, and substituted two dollars per cord for stumpage. The figures were:

Year.	*Cost.	**Cost.
1916	$12.41	$13.27
1917	$14.89-$19.42	$15.70-$19.76

*Including depreciation, etc.

**Substituting $2 stumpage for other charges.

The cost of groundwood at Pont Rouge mill was given as follows: 1916, $16.68; 1917, January-March, $18.00; April, $16.04; May, $18.54; June, $20.10; July, $17.52.

Sulphite in July, 1917, cost $45.72 per ton to produce. Sulphite costs under two headings as outlined above were given as follows:

Year.	*Cost.	**Cost.
1916	$32.66	$31.54
1917	$35.87-$43.17	$34.75-$45.72

Newsprint costs on a basis similar to those shown for sulphite and groundwood with the two dollar stumpage adjustment were given to be as follows:

Year.	*Cost.	**Cost.
1916	$31.59	$32.29
1917 Jan.-Mar.	44.43	44.05
" April	42.06	42.91
" May	37.44	38.30
" June	39.34	40.16
" July	39.71	†40.53

†This figure is on the basis of 1916 wood costs.

Newsprint sales were next questioned up and were given by Mr. Clarkson to have been as follows: 1916 (average), $36.79; 1917, January-March, $58.40; April, $59.10; May, $59.35; June, $59.99; July, $60.01.

Selling expenses were entered at $1.22 per ton for 1916, and $1.20 per ton from January to June, this year.

Sulphite sales were shown to be as follows: 1916 (average), $37.54; 1917,, January to March, $39.72; May, †$80.84; July, *$55.53.

†Only nine tons were manufactured in May.

*Only 38 tons were manufactured in July.

The selling agents of Donnacona are H. G. Craig and Company.

The auditor's report showed that this mill had produced 18,000 tons of newsprint in 1916. The capitaliza-

tion of the company was given to be $4,400,000 which included bonds, and preferred, and common stock. The normal capacity of the mills was given to be 100 tons per day. The above capitalization includes $1,800,000 for woodlands.

Mr. George H. McKee, President of Donnacona was called as a witness. Questioned as to dividends by the Commissioner he said there were twenty-one per cent. deferred dividends on the seven per cent. preferrd stock. This had accumulated since 1914. The collateral consisted partly of trust notes and behind them was one million dollars in bonds. Mr. McKee questioned by the Commissioner regarding the amount of invested capital as necessary in comparison to the daily tonnage of a mill, said about $40,000 represented one ton daily on this basis to Donnacona. This figure was ten thousand dollars per ton below that given by Mr. Wilson, of Spanish River.

The figure given by Spanish River Mr. McKee thought generally was not unjust, and he explained that the figure for Donnacona was a low one as the mill had been built during a period of low construction cost. To-day had he to replace the plant it would cost $50,000 per ton. "It would cost anywhere from seventy-five to one hundred per cent. more," said Mr. McKee. Export sales charges were entered at three dollars per ton.

"In 1916 you sold at a loss," commented the Commissioner. "That was using twenty-five dollar groundwood and fifty dollar sulphite," replied Mr. McKee. "In 1917 you show a profit of eight dollars and sixty cents per ton," again commented the Commissioner. Mr. McKee said this was not allowing for interest on bonds, dividends on stocks, etc. He said that if 1917 costs had been figured on, that the actual cost of producing newsprint would be around $45 per ton to his plant. Donnacona only started on its new wood around October 1st.

"The newspapers are sending me correspondence they have had with the mills (regarding the supply of paper.) In nearly every case the mills are **sidestepping. You may as well know that if you get an order to supply the Canadian trade you may as well comply with it, if you want your export privilege,**" said Mr. Pringle.

Mr. MacDougall said that from what he understood the publisher had sent a request to the paper company requesting a supply of paper, but the request did not seem to be backed up. The Donnacona Company has a contract with the New York Times for the whole of its output. Consequently Donnacona did not want to violate its contract. Mr. Pringle said that some of the newsprint manufacturers did not yet fully appreciate the whole situation brought about by the European war or appreciated the chaotic condition into which the world had been thrown. He referred not only to America, but to Great Britain and France as well. In view of this situation the Canadian Government might if it so wished to decide on some state control. Mr. Pringle said he imagined that the paper manufacturers could appreciate the step that had been taken by the Government in seeing to it that the Canadian publishers' trade was supplied, and drew the parallel that if such a step had not been taken that the Canadian press to-day would be without newsprint. "I am saying this so it will reach the western manufacturers who somehow or other think they are not bound to supply the Canadian press with paper," said the Commissioner.

Further on Mr. Pringle expressed it as being his idea that the eastern publishers were not laying in huge stocks of reserve supplies of newsprint paper. If they were he was of the opinion that the manufacturers should not be made to supply such hoarded or reserve stocks. The policy of hoarding big supplies of newsprint paper by the Canadian publisher was not looked upon by the Commissioner as a wise one, as he remarked, "Conditions may change. Prices may change".

J. R. Booth Did Well on Sulphite.

The report of the John R. Booth plant followed.

Mr. Clarkson gave the following figures for wood costs:—1916, $11.18; 1917, $15.71. Newsprint costs were:—1914, $33.83; 1915, $31.52 (does not include depreciation); 1916, $36.90; 1917, Jan.-Mar., $42.98; April, $44.44; May, $43.26 (all wood at old costs); May, $50.17 (using new wood costs).

Groundwood costs were:—1916, $17.43; 1917 (May), $17.03 (on old wood costs).

Using partly old and new wood in May, 1917, the cost per ton was $22.21.

Sulphite costs, including two dollars for stumpage, were:—1916, $39.42; 1917, Jan.-Mar. $44.11; April, $52.57; May, $49.05 (on old wood costs).

Entering in the cost of new wood, the cost price is $50.37 per ton.

Sales prices for newsprint were given as follows:—1916, $43.00; 1917, Jan.-Mar., $61.42; April, $64.26: May $62.54.

Selling expenses, per ton, were:—1916, 95c; 1917, Jan.-March, $1.20; April $1.13; May $1.09.

The selling expenses fluctuated with the sale price of the newsprint paper.

Sulphite sales showed the John R. Booth plant to have made over one hundred per cent profit during January to March this year over shown manufacturing costs. The figures given for the sulphite sales were as follows:—

Year.	Sale Price.	Cost Price.
1916.	$50.14	$39.42
1917, Jan.-Mar.	92.16	44.11
1917, April	91.04	52.57
1917, May.	66.37	*49.05

*Old wood costs.

During the period from January to March, 1917, the John R. Booth plant sold 1,487 tons of sulphite. In April 136 tons, in May 492 tons.

The total amount for timber limits contained in the report was $60,000, but Mr. H. I. Thomas said that this did not represent anywhere near the value of all the limits of John R. Booth. At this juncture, the Crown Counsel drew the attention of Mr. Clarkson to persons owning valuable limits with wood on them and at the same time going into the open market to purchase wood. Such persons Mr. Stewart maintained were conserving their own limits, and if these limits were capitalized, and a percentage of ten per cent. on capital invested was allowed, that it would not be fair or just, as such persons would be allowed a fair return of profit from both ends. In short, the situation sized up as this: A party owning the limits, say, went into the market and purchased wood at $15 per cord. He could get it more cheaply from his own limits, but he conserved them, and perhaps capitalized them. When the cost of production of newsprint was reckoned, his fifteen dollar wood entered into the cost, and enhanced his cost price. Beyond his cost price he was allowed a fair margin of profit over manufacturing charges. At the same time his limits were enhancing in value, and in the event of their being capitalized

the party received a percentage or margin or allowance of profit or interest on his capitalization. Mr. Clarkson said he had watched this. The official auditor was not in favor of such a course being pursued by the manufacturer, and assured the Crown Counsel that such items had not, and should not be duplicated in making up costs and allowances for return on investment.

"Where do you stand at fifty dollars per ton?" asked the Commissioner of Mr. H. I. Thomas. Mr. Thomas replied that in May, using 1916-17 wood, the actual cost had been $50.30 per ton of newsprint. Actual costs to the end of September, exclusive of any interest on capital invested, were recited by Mr. Thomas to have been as follows: June, $51.94; July, $51.88; August, $50.92; September, $50.89.

"Have you any way of arriving at what would be a fair amount of profit per ton, considering the money invested in this industry?" asked Mr. Pringle. Mr. Thomas said that money actually paid out by John R. Booth in his newsprint and sulphite plant, exclusive of timber lands, amounted to $3,921,817. "Now what would be a fair rate of interest?" queried Mr. Pringle, and continued, "Say ten per on $4,000,000, that would give you $400,000. Your production last year was 37,000 tons, which would mean $10.81 per ton." Figuring along this basis and allowing $10.81 per ton for capital invested, $1.09 per ton selling expense, and the actual May new wood costs, the Commissioner came to the total of $62.07 per ton, **with nothing included for limits.**

"Do you mean to tell me you are losing $10.81 per ton by selling by the order?" asked the Commissioner. **"Yes, that is what we claim,"** replied Mr. Thomas, adding that about ninety per cent. of the newsprint manufactured at the Booth palnt at the Chaudiere was exported, and the other ten per cent. was supplied to Canadian publishers. The John R. Booth plant, Mr. Thomas stated, had **not** refused to supply newsprint to the Canadian publishers.

"Is a return of ten per cent. sufficient to cover all contingencies on investment?" asked Mr. Pringle. Mr. Thomas personally was of the opinion that ten per cent. would not cover everything. As regarding the opportunity for loss that was prevalent in paper mill investment, the expert of the John R. Booth Company said of the money invested, "I would not want to do it myself."

The area of John R. Booth's limits as shown in the report of Mr. Clarkson, are about 5,013 square miles, of which 2,513 are situated in Ontario. On one selling price for newsprint paper in the United States John R. Booth received $64 per ton.

The John R. Booth report showed that sinkage was estimated at fifteen per cent. and that the river drive from the limits to the mill was from 200 to 400 miles. Wages, provisions and teaming on wood brought by water were $90,561.10. Wages and provisions on wood brought to the mills on cars amounted to $112,953.59. Contractors costs had amounted to $68,269.04, making the cost of getting a season's pulpwood to the mills, $271,783.73. This figure is exclusive of the value of the wood itself. John R. Booth paid the Upper Ottawa Improvement Commission for driving and towing, $46,746, in a period of twelve months.

This year, up to May, the report showed that the John R. Booth mill had shipped by rail 15,559 cords, making in all a total of 22,870 cords. Wages and provisions for 1917 were entered up at $206,708.05, and contractors wood amounted to $83,464, a total of $290,172.05, or $12.68 per cord for the wood procured.

Charges of depreciation on plant amounted to five per cent., and three per cent was allowed for buildings. The capacity of groundwood mill No. 1 was given as being 70 tons daily output. No. 2 mill makes 90 tons, a total of 160 tons daily.

In the statement of assets and liabilities timber lands were shown to have had a cost of $300,000, of which $240,000 had been written off. Water power for the pulp mill was valued at $181,630.07. Buildings and plant, groundwood, sulphite and newsprint mill at $1,663,439.64. Pulpwood was valued at $903,840; shanty supplies (half valuation), $421,722.48. The capital stock was put in as being $3,548,762.76.

Fort Frances Excused.

At this juncture of the probe Mr. George F. Henderson, K.C., counsel appearing for John R. Booth and the Fort Frances Pulp & Paper Co., asked the Commissioner that the Fort Frances Company be allowed to withdraw from the newsprint inquiry. The request was made owing to this paper company's connection with other interests or interlocutory concerns, such as the Minnesota & Ontario Power Co. Mr. Pringle said that at present the Fort Frances Pulp & Paper Co. was in a bad shape so far as working operations were concerned. Low water, the Commissioner said he understood, was hindering operations and the company had to buy sulphite and its production costs per ton of newsprint he mentioned at present were running around seventy dollars. Difficulty in securing cars for the shipment of sulphite to the Fort Frances Company was another circumstance mentioned.

Counsel for the Fort Frances said he was going to look into the matter of the connection of the paper company with the other companies. The matter appeared to be pretty much involved, and Mr. Clarkson did not present a report at the inquiry for this mill. The official auditor stated that he could not see that any good purpose would be served. It appears that one of the biggest questions to be considered is the extent to which this paper company is financially interested in or affected by the Minnesota and Ontario, and the Ontario and Minesota Power Companies.

Mr. Henderson said that under the present conditions that Fort Frances might have to go out of business. This mill has been the backbone of supply for the western publishers. It has supplied beyond its proportion of newsprint to the Canadian newspaper publishers. It is obvious that if Fort Frances has to go out of business that the other Canadian newsprint manufacturers will have to carry an extra burden.

Donnacona Report Completed.

The completion of the report of the Donnacona Paper Company, Ltd., was then taken up. This company has Government lands to the extent of 187 square miles. Of freehold lands it has 17,500 acres. Of lease hold lands it has 672 square miles.

Mr. Clarkson said that if the capitalization of the Donnacona Paper Company was $5,000,000, and the securities $3,850,000, that on profit basis of ten per cent. for capital invested, $385,000, would have to be earned to cover the actual amount invested by shareholders. The actual cash invested was stated as $750,000. On the basis figured on of allowing ten per cent. return on capitalization, it would in this case mean,

(Continued on 1038.)

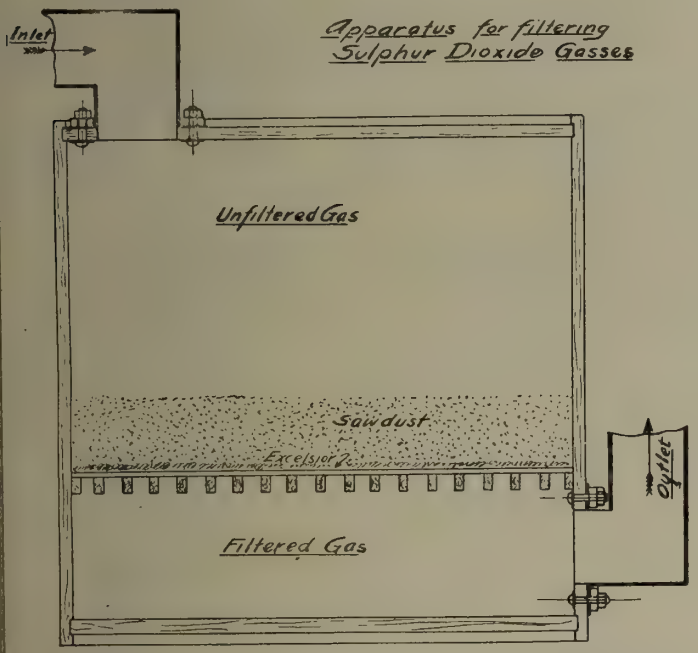
Removing Sulphur Trioxide in Preparing Sulphite Acid[1]

To the President and Members of the Technical Association of the Pulp and Paper Industry:

Owing to the war conditions and the new work taken up by the chairman of your committee since the last annual meeting, we have not been able to get together to work out a definite joint recommendation, but Mr. Paulson has worked up a method for removing sulphur trioxide from the burner gases, which your committee feels should be presented to the association for their consideration. This method, as worked up by Mr. Paulson, will not only remove sulphur trioxide, but also free sulphur and other impurities which are injurious to the cooking acid.

Following is the paper submitted by Mr. Paulson:

"Those of us who have been directly connected with the manufacture of sulphite pulp, know well how mysteriously the quality of the pulp will change. The superintendent of the paper mill will come and tell you that he is unable to make a decent sheet of paper, because the pulp is 'no good.' You look around to find the trouble, but oftentimes the trouble disappears just as mysteriously as it came.



Professor Klason has shown that when free sulphur is present in the acid to the extent of 150 Mg. per liter the following reaction will take place:

$$H_2SO_3 + S = H_2S_2O_3$$

The thiosulphuric acid will then form trithionic acid and hydrogen sulphide:

$$2H_2S_2O_3 = H_2S_3O_6 + H_2S$$

and the trithionic acid will break up into sulphuric acid, sulphur dioxide and sulphur:

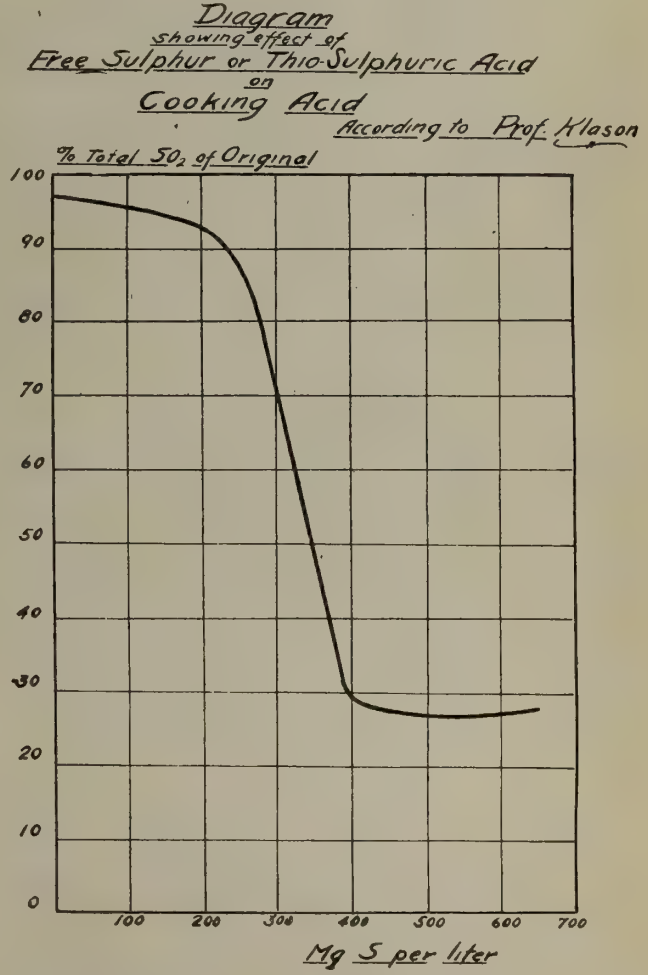
$$H_2S_3O_6 = H_2SO_4 + SO_2 + S$$

This process will continue as long as there is any lime left in the solution.

The diagram shown herewith, which is given by Professor Klason, indicates the reaction which takes place in a sulphite digester, and also shows what influence free sulphur has on the reactions. There will be noticed two sharp turns on the curve corresponding to the three different stages in the decomposition of the cooking acid. The first indicating that point when the polythionic acids reach the maximum concentration at whatever temperature is used; the second, the point when all lime has been precipitated as sulphate.

"It is evident from the foregoing that in order to obtain uniform results in the cooking process the sulphur dioxide gases should be freed from all impurities. The observations which were made by Professor Klason were made in connection with the Mitscherlich cooking process where low pressure and temperature is used. The danger is far greater with high pressure and temperature, such as are used in the quick cooking process.

"The method I believe the committee should recommend is in accordance with that of Ragnar Forsgren and consists of filtering the gases through a bed of sawdust.



"The apparatus is constructed as shown in the accompanying drawing. A wooden tank which is perfectly air-tight will answer the purpose satisfactorily. About 18 inches from the bottom is placed a grating made of wood, on top of this is placed a layer of excelsior to prevent the sawdust from falling through the grating, and on top of the excelsior is placed a layer of sawdust from 18 inches to 2 feet deep according to the fineness of the sawdust. The gases enter the tank at the top and are taken out at the bottom.

[1]Report of the Committee on Sulphite Pulp, Robert B. Wolf, Chairman, presented at Holyoke, Sept. 27, 1917.

"An apparatus of this kind made sufficiently large is also of great aid in acidmaking, especially where vacuum pumps are used, since it eliminates the pulsation of the pumps and makes a steady draft on the burners. This in turn will make it possible to produce a gas containing a higher percentage of sulphur dioxide, and hence increase the output of the acid plant."

We believe that the suggestions made by Mr. Paulson are worthy of consideration and we hope that they will prove of use to the members of the association and that at the meeting following this one we will have the benefit of discussions by members who have tried out the recommendations made.

Respectfully submitted,

Sulphite Pulp Committee,

Robert B. Wolf, Chairman,

P. A. Paulson, H. G. Spear.

POCHIN IMPROVING CLAY WORKS

Which supply many paper mills.

For a little over a century the firm of H. D. Pochin and Co., Ltd., of Worsley-st., Salford, Manchester, has been in the vanguard of progress, and their present position in the commercial world shows pretty clearly that this important business has been ably administered by its successive chiefs. Formerly this company were pioneers of the chemical trade. For many years H. D. Pochin and Co. have been well known throughout the Cornish china clay industry, originally as consumers, and it is now over forty years since they extended their practical operations into this county and became producers of china clay.

It is just over five years ago that the mantle of responsibility was transferred from Mr. William Pochin (through advancing years and after a long and notable service to the firm associated with his name, as well as the trade generally) to Mr. H. Stanley Pochin, the present managing director. Since the beginning of the war the staff has been considerably reduced through enlistments, and in their chemical yards quite a number of women are now employed. This innovation is also a great success, and by their unselfish methods the company have provided for the comfort of the feminine staff in such a way as to ensure their perfect happiness and contentment.

To enumerate all the important developments which Mr. Stanley Pochin has effected and matured would require several pages. The major mine at Gothers is now equipped with five drying kilns, and has a capacity of producing at least 40,000 tons per annum. It was here that women were first introduced into the labour market as china clay washers, which is quite a satisfactory solution of part of the industrial problem. Then, in connection with the firm's works at Halviggan, a new drying kiln has been erected at Burngullow Station with reinforced concrete and equipped with the latest improvements for ensuring cleanliness of colour and also for facilitating despatch of large or small orders. The extension of the company's operations to the Park China Clay Works, near Liskeard, was another interesting event in the history of the firm, and here is laid one of the longest pipelines in the trade. From the works to the kilns is a distance of 9 miles, and the liquid clay is conveyed quite satisfactory to Moorswater, adjacent to the main G.W.R. line at Liskeard. A feature of these works is that all the motive power is produced by a water turbine and a generating electrical plant, and Mr. Pochin is contemplating another new dry here in the near future as well as improved pumping plant.

The scenes of the most interesting developments have been farther west, at Leswidden, near St. Just, where latent deposits of china clay of exceptional quality have been unearthed; and had it not been for the war that westernmost district would be now alive with this industry, which has been so valuable to the neighbourhood of St. Austell. The authorities of the Borough of Penzance, in contemplation of the great development which Mr. Stanley Pochin has in view, have made increased provision in the port. H. D. Pochin and Co., Ltd., have already erected a large storehouse, capable of holding 1,500 tons, in the docks, which will greatly facilitate the loading of boats. Mr. Stanley Pochin is a director of the McLaren China Clay Co., whose works are also situated in the St. Just Neighbourhood, where another fresh deposit of clay was opened up, and where the modern installation of an electrically-driven centrifugal pump for lifting about 750 gals. of liquid clay per minute has quite obviated the necessity of sinking a deep shaft entailing months and even years of costly work. The total output of the firm of H. D. Pochin and Co., Ltd., far exceeds 100,000 tons per annum under normal conditions, and when the war is over and all the improvements consummated there is no doubt but that the business connection of this firm will be yet more widely extended. — B. W. Trethewey.

PREVENTION OF FOREST FIRES.

During 1918, an extra demand will be made on the lumber supply of the country by the Government for about 500,000,000 board feet of lumber for use in connection with the prosecution of the war, and with ordinary requirements large, even though not normal, it behooves each State to do its utmost to prevent, as much as possible, the waste caused by forest fires.

Under direction of the Conservation Commissioner, through the Department of Lands and Forests, the Forest Reserve has established fifty-two observation stations on the high peaks in the sixteen counties in the Adirondack and Catskill Mountain Ranges which comprise the forest reserve of New York State. These aid in the quick detection of fires.

The railroads, to further help in the prevention of fires, are required to have their right of way clear of all weeds, etc., and are compelled to use devices to prevent sparks from falling from the engines, and certain lines have to use only oil-burning engines in the Adirondack regions.

THE SULPHATE PROCESS.

Last year there appeared in PAPER, a serial article by Carl Moe on the "Technology of the Sulphate Process." So many calls came for these numbers that the series was repeated. The whole thing has been revised and issued in a pamphlet of 16 pages, by Paper, Inc., 117 East 24th Street, New York, the price being 25 cents.

WANTS BUREAU OF DYE STANDARDS.

(Special to Pulp & Paper Magazine.)

One of the most important addresses covering the modern phases of the American Dye Stuffs industry was that delivered by H. Gardner McKerrow, sales manager of the Marden, Orth & Hastings Corporation, before a convention in Springfield, Mass., last week, which was attended by your correspondent. Mr. McKerrow brought out many points that will be of a special interest to paper makers in the United States and in Canada. In part, he said:

"Standardization is among the principal requisites to insure the permanence of the dyestuff industry, and is a question in which the color using manufacturers are equally interested with the color makers. It is absolutely essential that steps should be taken at once to standardize American colors so that a manufacturer may know the relative values of offerings and just what he is buying in point of color value.

"At present each manufacturer, if he has any standard at all, has his own, and the strength of one man's product bears no relation to another's, and it is almost impossible to gauge the value of a color by the price. If America is to make a permanent thing of its dyestuff industry, it must establish its own standards; not standards of one or more dominating interests working alone and without relation to the industry as a whole, but working co-ordinately with all reliable dyestuff makers.

"How this can be done is receiving careful consideration at the present time from the various interests concerned. My own idea is that this can be most fairly and effectively managed by the dyestuff manufacturers themselves. I would suggest the calling of a conference of the dyestuff manufacturers, at which the fundamental principles of this question could be discussed and settled, and at which a permanent board of expert color chemists and manufacturers could be appointed that could act as a bureau of standards, and could authoritatively standardize new colors as they were produced.

"I doubt if any permanent satisfaction could be obtained from a government bureau of standards, such as has been proposed. We are tending too much toward a paternalistic government, and are calling for bureaus for this and bureaus for that, the work of which is seldom as thorough and practical as when it is undertaken as a business proposition by the parties interested. I would recommend as a means of establishing a ratio between standards agreed upon and the price at which goods should be sold, that the selling price should be per unit of color value. Then, no matter whether the dyes were sold as concentrated powders or as paste containing 75 per cent of moisture, no matter to what extent the color might be salted or otherwise adulterated, its relative value as against the standard would be fixed. It would be equally fair and effective for one manufacturer as for another.

"A permanent board such as I have outlined, could properly fulfill other functions besides that of standardizing colors. It would be the means of defending the standards so established. It could serve as a board of arbitration in all matters of dispute involving the question of quality or correspondence of deliveries to sample. Prompt and expert decisions on such matters would not only save time and endless expense in litigation, which under the legal rules of evidence, no layman can hope to understand, and which seem designated rather to conceal facts rather than to bring them out—but would relieve the congestion of court dockets, which are in all individual centres chocked with cases of dispute as to qualities of dyes delivered. I have seen it stated that there are over 3,000 cases in the New York Courts alone; all the result of the last two years' feverish conditions in the dyestuffs market, and all waiting their turn on a docket which has swamped clerks and courts alike for decision.

STAFF CHANGES IN SHEPARD ELECTRIC CRANE AND HOIST CO.

William A. Battey, who has been connected with the Shepard Electric Crane & Hoist Co. since its start in this field, as Eastern Sales Manager, and Sales Director, will sever his active connection with the business on December 1st, but will retain his interest in the Company and continue as a Director.

Mr. Battey, who is Vice-President of the Pennsylvania Crusher Co. finds it necessary to devote his entire attention to its rapidly expanding business in the manufacture of Hammer Pulverizers, Bradford Breakers, and special crushing machinery for the by-product coke industry and other industries requiring reduction apparatus.

Mr. W. C. Briggs, who for the past ten years has been associated with Mr. Battey in the Shepard Company's New York Office as Sales Engineer, will become District Manager.

On November 1st, Mr. Robert T. Turner will join the New York organization as Sales Engineer, and as additional salesman and service man will shortly be located in the Company's new offices at 30 Church street.

FOOD CONTROLLER ACTS.

The Food Controller's Order-in-Council, which in part provides that breakfast foods must not be sold in packages of less than twenty pounds (unless a special license or permit is secured) is not so easily gotten over, and if the Order is rigidly enforced the paper trade is going to suffer, as the manufacture of paper containers and cartons formerly used in the marketing of the products will be eliminated and the market for waxed paper which, in many cases, forms the inner lining of the packages, will be materially cut down. The Food Controller's office stated to the correspondent of the Pulp and Paper Magazine, that the action was taken for the purpose of eliminating waste in packaging. Where it is shown to the satisfaction of the Food Controller's department that the food cannot be more economically packaged or marketed a license permitting its sale in original packages may be granted.

Another Order-in-Coucil taken by the Food Controller's department permits the manufacture and use of oleomargarine, thus it is likely that another new field for the use of waxed paper and cardboard cartons will present itself.

TO DISTINGUISH SODA AND SULPHITE PULPS.

Fibres stained for microscopic examination show with malachite green as follows: soda, colorless; or pale green sulphite green. Rosaniline gives deep violet with unbleached sulphite, and a mere light color with soda pulp. These reactions are not very decided.

OTTAWA NOTES.

Outside of the newsprint inquiry last week the biggest happenings that have taken place at Ottawa so far as the paper trade is concerned, was the Order-in-Council put through by Food Controller Hanna banning packaged breakfast foods, and the Order-in-Council of Fuel Commissioner McGrath, which in part provides that coal consumers cannot hoard more than two months supply during the winter months. Generally it is taken by the paper mill men at Ottawa that the Order-in-Council as regards fuel is not going to affect the paper making mills in Canada very much, as they use soft coal. As the Fuel Commissioner speaks chiefly of dealers, wholesalers, etc., it is taken that he means principally the sale and use of hard coal.

Oppositions to the damming of the St. Lawrence River for the purpose of power development has recently been taken by Sir Clifford Sifton, chairman of the Commission of Conservation at Ottawa, in a letter to the Hon. F. B. Carvell, new Minister of Public Works in the Union Government. An application to dam the St. Lawrence at Coteau Rapids has been made by the Power Development Company.

Draft Complicates Cutting Operations.

The solution of the First Draft Problem to the paper manufacturers from the woods end may eventually be accomplished by an application being made to the Canadian Government for temporary exemption. According to reports of paper manufacturers at Ottawa the labor situation is daily getting more serious. Ottawa mills are complying with the provisions of the Military Service Act and the firm of John R. Booth has already sent special agents into their woods camps (many of which are in obscure districts), to ascertain how many men are liable for the First Draft call and just how their wood cutting forces will be reduced by it.

This season's wood cutting operations and the felling of pulpwood to supply paper mills with raw product next summer and next winter is a particularly vital matter to the paper manufacturers. The present day woods labor situation eclipses anything that has gone before or is liable to happen again.

The paper manufacturing plants who cut their own wood stand to lose big stakes in a big game. Their risk with the enforcement of the Military Service Act is heavy. Their chances of gain are not proportionate with their prospects of loss. Here is the situation in skeleton form:

(1) Paper mills who sent their own cutters unto their limits months ago, laid in supplies for a maximum number of men that they had expected to employ in such operations. The cost of camp supplies this year was very heavy. The cost of labor kept soaring. The paper manufacturers gambled and took their chance even though the outlook was unfavorable to them.

(2) Several weeks or months later the provisions of the Military Service Act were announced. The paper manufacturer readily saw he was going to be heavily hit by such provisions. Not only in one but from two different directions. First by chancing a loss of his high priced supplies not being consumed. Secondly, by having his high priced woods labor practically removed, he has to cast about him for other forces to replace it.

George H. Millen, President of the E. B. Eddy Company, takes a gloomy view of the situation. The E. B. Eddy Company may apply for Exemption for its woods labor. No applications for the mill or office end are likely. Mr. Millen points out that heavy and very expensive shipments of supplies have gone into the woods for this season's operations. These supplies started to go in months ago. The loss he says, to employers, would be tremendous, if by reasons of the draft they were compelled to shut down or materially reduce their pulpwood operations. The preparation for woods operations and the cost of sending the men into the woods he mentioned as another big factor. "It will be a serious thing to curtail the cutting of pulpwood to any extent," says Mr. Millen. The effect on the price of newsprint paper for next year, Mr. Millen believes, would be serious. In view of the concern that the Government has considered the newsprint situation during the past summer, the head of the E. B. Eddy Company thinks that the Government should make it easy for the lumbermen and paper manufacturers by allowing such of their woods employees who are subject to the first draft temporary exemption until the close of bush operations.

The John R. Booth plant is not going to claim exemption for any of its employees. Rather, it is conscientiously observing the provisions of the Military Service Act and is rounding up all of its employees from mill, office, to teamsters and log makers in the woods, who are subject to the First Draft Call. The exact number of employees liable to the call will be known at the John R. Booth offices at Ottawa within a short time. When the number of men effected is definitely known the John R. Booth plant will go to the Government, or the authorities that be, and state its case as to hardship liable to be encountered if its serviceable men are pulled out of the woods at this period. In short the John R. Booth plant is willing and ready to co-operate with the military authorities so far as the provisions of the Military Service Act goes. The round-up now going on in the camps shows this. All the special agents are costing John R. Booth money. Mr. Booth has never been accused of spending his money unwisely. Thus, the situation looms up that John R. Booth (other paper manufacturers similarly situated will likely follow his trail), intends to seek and secure temporary exemption for such of his woods forces as may be affected by the First Draft call.

COST ACCOUNTING DISCUSSED.

The question of a proper accounting system for the various mills making newsprint was the subject of some discussion at a meeting held recently by the Committee on Cost Accounting of the Newsprint Manufacturers' Association. This matter, which has already received considerable attention, is being recognized as of vital importance to the welfare of the industry, especially in times like the present, when prices change so often, and when the problem of reckoning costs is rather complex. It will be remembered that a basis for a uniform accounting system for print paper mills was evolved some time ago by the News-Print Manufacturers' Association.

An English bill poster told the Middlesex Appeal Tribunal that though auctioneers' bills were only half the size, so as to comply with the paper order, the quantities were double what they used to be.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Solidity of Paper. Sindall and Bacon. Paper Makers' Mon. J. **55** (1917) No. 8, p. 242. — The "solidity" of papers which require to be very hard and solid, such as vulcanised fibre, imitation leather, pressing boards, insulating boards, etc., is an important consideration. It may be expressed in three ways (1) The weight per unit volume such as the number of lbs. per cu. ft. of solid paper. (2) By calculating the ratio of actual fibre content to the total volume of the sheet. (3) By means of volume composition showing the exact number of cu. ft. occupied by the several constituents of the paper, such as fibre, mineral matter, sizing ingredients if any, and the balance as air space. Weights per cu. ft. is misleading, particularly for a heavily loaded paper. The following shows the weight per unit volume of certain typical papers in grams per cu. cm., or the specific gravity: Handmade, 0.584; Genuine Kraft, 0.635; Imitation Kraft, 0.636; News, 0.702; Foolscap Writing, 0.714; Linen Ledger, 0.927; Esparto Printing, 0.952; Writing, 1.011; Heavy Art, 1.096; Casing, 1.157. — E. K. M.

Sizing Paper by Fermented Sulphite Liquor. Paper **20** (1917) No. 21 p. 23. — Patent of Axel Helmer Haeffner of Skutshar, Sweden, for a method of sizing paper by the use of fermented sulphite liquor combined with rosin soap and a precipitating substance (Pat. 1,231,153 June 26, 1917). For best results the liquor first is neutralized and the saccharine matters fermented. The alcohol formed may be distilled off. From waste liquor so treated a product well adopted for sizing paper and the like may be precipitated by alum, sulphate of alumina, etc. The liquor may be used alone or in addition to rosin size. The fermented liquor is introduced into the beater in the same manner as in the case with rosin size, 20 litres of waste liquor of 10 per cent. dry substance being equivalent to 1 kilo of rosin size. The alum is added in approximately in the same proportion as in sizing by means of common rosin size. The following mixture is adopted for common brown wrapping-paper. The composition being calculated for 100 kg. of paper: Waste liquor (of 10 per cent. dry substance), 25.0 kg. Rosin soap 0.5 kg. Alum 1.0 kg. Should the sulphite liquor after fermentation or distillation present too high acidity, it may first be neutralized with lime or other basic substances. — E. K. M.

New Process of Pulping Cornstalks. Paper. **20** (1917) No. 22 p. 22-23. V. Drewsen of Brooklyn, N.Y. (Pat. No. 1,229,422 issued June 12, 1917). — The raw fibrous material (cornstalks, bagassi, etc.) is for 4 to 8 hours or so under a pressure of 40 to 120 lbs. per sq. in. in an aqueous solution of suitable monosulphite, such as $NaHSO_3$. Sodium monosulphite to the extent of 25 per cent. of the dry weight of the raw fibrous material gives good results with ordinary grades of dried cornstalks. Acidifying the yellowish waste liquor with acetic acid gives a tanning material of special value for light colored leather. The fibre, amounting to about 40-45 per cent. of the dry weight of the cornstalks is of grayish white color and of great strength and of sufficiently uniform consistence and color to be used with little or no preliminary treatment for paper making. The fibre can be used without bleaching for some grades and is readily bleached for higher grades. — E. K. Mansfield.

Wattle Bark. Sindall and Bacon. Paper Maker's Mon. J. **55** (1917) No. 9 p. 273. — Wattle bark possesses better fibrous properties than the wood itself. Fibre produced from the wood could only be utilized as a filler. The wood might be profitably used for dry distillation. The spent bark, after extraction of tanning matters, in common with the barks obtained from such woods as mimosa and oak is much more fibrous, and does not break down on treatment with soda at high temperatures. One disadvantage is the presence of cuticular matter which does not bleach easily, thus causing specks in the paper. But it would find use in a strong brown or box board where a minimum of soda treatment gives a reasonable yield of paper pulp. — E. K. M.

Poles and Cross-ties. Bull. 62 C, Dept. Interior, Can., For. Branch, R. H. Campbell, director. Consumption for 1916, as shown by 5 tables and 2 diagrams was slightly more than in 1915 but approximately 1-3 the amount of each in 1912. — Cedar was practically the only wood used. — Eight pages. — J. N. S.

Lumber, Lath and Shingles. Bull. 62 A, Dept. Interior, For. Branch, R. H. Campbell, director. — The value of the output in 1916 was: lumber, $58,365,349; lath, $1,743,940; shingles, $5,962,933; total, $66,072,222. Numerous tables, in the explanatory paragraphs, show the consumption by species of wood, provinces and uses. It is noted that white spruce, which is the principal pulp wood, is gradually replacing white pine in construction work. The lumber cut decreased 9.2 per cent., lath 16.1, and shingle 6.2 per cent. as compared with 1915. Soft woods made up 95 per cent. of the total lumber cut, spruce leading with 38.4 per cent. — J. N. S.

Canada's Wood Products in South Africa. W. T. Egan, Trade Commissioner, Trade and Com. Weekly Bull. No. 710, pp. 487-491 (Sept. 3, 1917). — Tables and comment on lumber and wood manufactures. Canada makes a poor showing compared with United States and other countries, especially Scandinavia. No wood pulp nor excelsior, for which there is a steady and increasing demand, is listed from Canada for 3 years. — J. N. S.

Canada's Paper Trade with South Africa. W. J. Egan, Trade Commissioner. Trade and Com. Weekly Bull. No. 710, pp. 501-5 (Sept. 3, 1917). — Canada is at the foot of nearly every article of this trade as shown in tables for 1912-1916. Big increases have been made in some lines, in others there are no figures at all for Canada. The opportunities for Canada in the South African Union are described as enormous. The total imports to the Union have increased rapidly. Canada's oportunity lies largely in wall paper, wrapping, news, bags and stationery. — J. N. S.

Paper Yarns in 1916. W. Massot. Z. angew. Chem. **30,** 96-7 (1917); J. Soc. Chem. Ind. **36,** 543 (1917). — M. describes the effects of various solutions such as aluminium acetate, gelatin, tannin and the like, on the physical properties of paper yarns. In recent years the use of paper yarns as a substitute for jute for packing and insulating cables has largely increased.

UNITED STATES NOTES

The first cost convention of the entire paper industry will be held in New York on Nov. 15, according to the plans made by the representatives of the several trade associations at their meeting here on September 25 and 26. It is likely that the cost meeting will be held at the Hotel Astor. Committees from the different branches of the industry have been appointed, and these credit men will discuss the vital questions of cost at the November meeting. Definite details concerning the program will be announced in the near future.

Miss Emily R. Levy, formerly manager of heavy chemicals for Madero Bros., of New-York, has resigned from that position to become manager of the chemical department of M. Gottesman & Son, 18 East 41st street, New York.

With a capital of $100,000, the Economy Paper Products Co., of Milwaukee, Wis., has been incorporated, and will erect a plant at 315 Wright Street to cost about $50,000. The promoters are: Arthur F. Tiegs, John T. Arveson, Robert Vochel and John Martin.

G. H. Rady, vice-president of the E. J. Keller Co., Inc., importers and dealers in paper mill supplies and East Indian merchandise, of 200 Fifth Avenue, this city, sailed this week from Vancouver, B.C., for India. The E. J. Keller Co. maintains an office in Calcutta, where Mr. Rady will make his headquarters during his stay in the Far East, and will visit the various jute and cotton centres in India. He will also call on the company's representatives in Japan and China, and his absence from New York will cover a period of about six months.

A new concern to be known as the Conwie Waste Co., has just been incorporated under the laws of the State of New York by Louis H. Wiese and Constantin Contopoulo to carry on a trade in all grades of cotton waste, paper mill supplies, wiping rags, bagging and burlap. Offices have been established at 150 Nassau Street, this city, and both of the incorporators are now busily engaged in acquainting their friends with this fact. Mr. Wiese has been affiliated with Maurice O'Meara Co. in its paper mill supply department for the past 10 years, and is favorably known throughout the trade.

A. B. Daniels, president of the American Paper and Pulp Association has been made chairman of a committee that has been formed by the trade to assist the Council of National Defence. Mr. Daniels' associates on the committee are: R. B. Harbison, West Carrollton Parchment Co.; T. F. Stevens, Stevens & Thompson Paper Co.; A. W. Esleeck Mfg. Co.; G. F. Merriam, Holyoke Card & Paper Co.; Allison Dodd, E. H. Davey Co.; C. W. Lyman, International Paper Co.; M. E. Marcuse, Bedford Pulp and Paper Co.; L. E. Nash, Nekoosa-Edwards Paper Co.; Phillips Kimball, Liberty Paper Co.; F. S. Harrison, Halltown Paper Co.; W. J. Eisner, Newark Paraffin & Parchment Paper Co.

One of the most interesting bits of news to paper manufacturers in New York, as well as all those acquainted in the paper supply business, is the announcement that Herbert P. Brock has become the president of a new concern that is to engage in the selling of paper stock. The new concern will be styled, Brock &McGarrity, Inc.—the McGarrity being none other than William J. McGarrity, head of the Penn Paper & Stock Co., Philadelphia. The business has been located at 200 Fifth Avenue.

The American Writing Paper Co., has just disposed of one of its idle divisions—the Springdale Paper Co. mill at Westfield, Mass. The division has been idle for a number of years, and has nowbecome the property of the E. F. Russ Co., of Boston, importers of animal sizing.

Announcement has been made by the Hadley Paper Corp., of Hadley, N.Y., that it is now in a position to handle business on light weight chip, news, and manila lined boards and test boards for corrugating. This is the result of a satisfactory run on the company's new apparatus, with the result that the business in boards will be promoted to a considerable extent. The concern also has two machines operating on bogus papers.

During the past week, the Scandinavian American Trading Co., received from Gothenburg, 3,667 pounds of wood pulp—kind not specified.

The Moss Bliss Chemical Co., of Haledon, N.J., has been incorporated to manufacture dyestuffs, with a capital stock of $100,000. The incorporators are: Percival J. Wood, Joseph Whitehead and Samuel Schiffer. Another big chemical incorporation was that of the Natural Chemical Products Corporation, Dover, Del., which was capitalized at $2,500,000. The incorporators of this business are: Samuel B. Howard, L. H. Gunther, and Joseph F. Curtin.

The regular quarterly meeting of the Waste Paper Division of the National Association of Waste Material Dealers was held last week at the Hotel Astor. It was well attended by paper stock dealers, brokers and packers from varied sections of the country. The only topic of moment considered at the meeting was the proposed changes in the specifications for packing of waste paper, and much discussion was engagegd in the subject. Chairman N. J. Lewis finally motioned that the secretary of the association be authorized to appoint a committee of three to five members to confer with the paper manufacturers and to report at the next meeting of the Division. This was adopted.

The Union Bag & Paper Corp. has declared an extra dividend of 2 per cent, payable in Liberty Bonds, on Nov. 15, to stockholders of record Nov. 5.

The new additions to the plant of the Berkshire Hills Paper Co., Adams, Mass., will soon be equipped with new machinery and thus make it possible for the concern to increase its production to quite some extent.

The imports of ground wood pulp from Canada during July of this year, according to figures recently given out by the Department of Commerce, show 22,369 tons, valued at $837,459 compared with 18,749 tons, valued at $331,165 for the same period of last year. For the seven months ending July 31, 1917, Canada exported to the United States 132,043 tons of ground wood, valued at $4,224,544, compared with 107,221 tons, valued at $1,868,329 for the corresponding period of the preceding year.

PULP AND PAPER NEWS

A charter has been granted to Eagle Lake Lumber Co., with headquarters at South River, Ont., and a capital stock of forty thousand dollars. The company is empowered, among other things, to manufacture and deal in pulp and paper.

Joseph H. Slater, who, for a number of years, was with the Spanish River Pulp and Paper Mills at Espanola as superintendent, and has been regaining his health for some months in California, has once more entered the ranks. He has joined the Chesapeake Pulp and Paper Co., at West Point, Pa., manufacturers of kraft pulp and kraft paper. Mr. Slater is the general manager of the company.

Forbes Wood, who for a number of years was superintendent of the Toronto Paper Manufacturing Company at Cornwall, Ont., and resigned some time ago, has removed to Holyoke, Mass., where he has accepted a new position.

C. Beresford Topp, a well known Toronto newspaper man, who went overseas as a correspondent and later joined the forces in France, was promoted to the rank of Major. After being two years at the front he is now in England preparing for a Lieutenant-Colonelcy.

A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers Safety Association, has returned after an extended visit to mills in different parts of Ontario. He reports that the Riordon Pulp and Paper Co., at their mills at Hawkesbury and Merritton, have converted dangerous plants into well protected ones as far as physical hazards are concerned, and are conducting an educational campaign among the employees and stimulating a feelng of co-operation between the management and the hands. Great improvements have also been made and others are contemplated as well, in the sanitary condition of the mills, there being separate toilets in each department, and a central wash room, shower bath, basins and individual lockers are under contemplation. The local committees are most enthusiastic and look at safety work from the right point of view. The Riordon mills have made splendid progress in protective measures during the past year.

Similar improvements in sanitation are under way in connection with the Montrose Division of the Provincial Paper Mills Co., at Thorold, where the principles of safety work and accident prevention are being handled by a particularly aggressive committee. Improvements to the Interlake Tissue Mills, Merritton, are practically completed, sanitation and personal cleanliness having been well looked after. A shower bath has been provided for the men and a well fitted up bath room for the women. A reading room is also established where all kinds of magazines and daily papers are supplied for the use of the employees, all of which goes for to make this mill a healthy and happy one to work in.

Fred L. Ratcliff, of the Ratcliff Paper Co., Toronto, who has been confined to his home for a few days through illness, is able to be around again.

Stewart Lyon, managing editor of the Globe and Canadian Press correspondent at the front during the past year, has returned to Toronto. He brings home a splendid report of the Canadians and thinks it will be, at least, a year before the war is ended.

John W. Sterling, President of the Ideal Coated Paper Co., Brookfield, Mass., spent a few days in Toronto last week, calling upon the trade.

I. H. Weldon, of Toronto, President of the Provincial Paper Mills Co., has gone on a deer shooting expedition up the French river, with a party of friends.

Jobbers report that prices in twines are ascending rapidly and that jute is very difficult to obtain. During the past few days there has been an advance of four cents a pound on cotton twines, two to three cents on jutes, and seven cents on finished hemp twines.

S. R. Armstrong, general manager of the Mattagami Pulp and Paper Co., Smooth Rock Falls, Ont., is spending a few days in Toronto. The first cook of sulphite took place at the mills last week and everything is now running in a satisfactory way, under the direction of W. S. Haley, Superintendent. The second digester will be put in commission this week, and then the output will be one hundred tons daily of easy bleaching and unbleached strong sulphite pulp. The dimensions of the digesters are 19 x 65 feet, and the third one is now on the way to Smooth Rock Falls. Joseph G. Mayo, who has been assistant general manager of the company for some months, has been appointed sales manager, and left this week for Michigan, Wisconsin, and other states, on business.

ABITIBI OUTPUT DOUBLED.

The output of the Abitibi Paper Company has been doubled as a result of the completion of the new pulp mill, according to an announcement of President F. H. Anson. He states that instead of 65 tons a day, the sulphite pulp plant is now turning out 130 tons a day, while at the same time the company's capacity of ground wood pulp has been increased to 300 tons daily. "We are selling now to the extent of our total increased output, and the prospects are that we will be able to do so for some time."

NEWSPRINT PRODUCTION INCREASED.

Washington, Oct. 23. — Production of American newsprint paper for the nine months ending September 30, amounted to 950,847 tons, as against 923,197 tons for the same period last year the Federal tarde commission announced today. The figures are based on reports from 36 companies operating more than 56 mills.

Imports, chiefly from Canada for the first eight months of the present year totalled 358,169 tons, compared with 318,091 for the same period in 1916, while exports this year fell from 53,302 to 42,456 tons.

The new customs laws of Ecuador have been suspended.

The Markets

CANADIAN MARKETS.

Toronto, October 29th.

The newsprint enquiry is finished as far as the investigation is concerned. Manufacturers agreed to allow the present price to run till Saturday night to give time for Commissioner Pringle to make his report and the Government to act on it. An early announcement of a new price is expected and an arrangement worked out later for reimbursing losses to certain mills.

There are those who are firm in their conviction that the Hon. A. L. Sifton, the new Minister of Customs, being a man of action and despatch, will do something right away while others, who profess to see far into the political game, aver that no decision will be arrived at until after the elections in December. The government has enough trouble on its hands just now without precipitating any newsprint agitation. The concensus of opinion is that three cents will be the new figure named by Mr. Pringle, who is expected, just as soon as he disposes of the newsprint inquiry, to get busy on the book paper situation.

A largely attended meeting of the Trade and Class section was held last week to consider the question of half tone news and book prices. It was decided to engage special counsel to represent the users of book paper before the commission and the various concerns will bear their proportionate cost of the expense of such services on the basis of the amount of tonnage in book papers used by each in 1916.

It was also decided to memorialize the government to have the present duty on book papers removed, pending the time that the inquiry is going on and until such period as a decision is reached by the Commissioner. No special action was taken in regard to halt tone news as it was thought this would be covered by the investigation now under way in regard to newsprint.

There is some amusement on the part of the manufacturers of book paper over the request for investigation of book papers and just how the publishers expect to have the Commissioner arrive as a basis. Book papers are made in several grades and sell all the way from seven cents up as high as the purchaser wants to go, and how can the product of one mill be compared with another as there is no standard basis like newsprint. The inquiry, unless proceeding along well defined lines is apt to become rather discursive and exhaustive. As for the government removing the duty on book papers and making Canada a dumping ground for the surplus product of some of the mills on the other side—well there is no probability of it. In the first place, such a move would ruin a large number of industries in the Dominion and then how long do the publishers think the American mills would keep down the price once they had the field to themselves. They would shoot up the figure as high as it is at present and even higher. The only reason that they are offering tempting bait now is that business is slack with them and they are willing to make paper at a loss rather than have their machines stand idle. Then certain companies across the border have for years made a special bid for Canadian trade by offering lines at a lower figure than they sold them for at home, being content to sacrifice a little at this end knowing that the profits on domestic orders would amply repay them.

The publishers, on the other hand, forgot that Canadian mills have always taken care of their interests first, last and ever, and this was particularly true during 1916 when everybody wanted paper in enormous quantities and wanted it at once. The Canadian plants were offered fabulous prices to make paper for shipment to England, South Africa and to the United States, but did they accept such business? No, they loyally stuck to their Canadian customers and did not export a ton. Supposing they had thrown down the publishers of the Dominion what a howl would have gone up at that particular time. Many publications would have been forced out of business. The thanks that the mills get, now that business is slack, is the agitation to have the duty removed as if that would be a cure. The minute that things do not go the way that certain consumers would like, they always raise a cry "to take the duty off," little considering if such a course were pursued, the far-reaching, ill-fated industrial consequences that would ensue. Book mills are not busy. Some are running only four and five days a week, for all purchasers seem pretty well loaded up with stock. However, it is hoped that trade will pick up in the near future.

There is a new report that Mr. J. J. Carrick, of Port Arthur, who some months ago was the successful bidder on the Pic River concession, has completed arrangements for the establishment of a big pulp and paper mill at Port Arthur. It is hoped that this report is true and that work will be proceeded with. Previous promises along this line have not materialized.

There is no material change in the groundwood situation except that business is not brisk and prices have come down a little. The number of inquiries is expected to improve in the near future, and in the meantime, the scarcity of labor in the woods grows more acute and wages ascend and yet some persons think that the price of paper should come down. As an instance of how much is being offered, a Toronto employment firm this week had advertisements in all the papers asking men to go north as pulp wood cutters, offering fifty-five and sixty dollars a month and board, together with free fares. Men for outside and inside work around one of the big mills up north were promised thirty-four and a half cents an hour with a bonus of three cents, and free fares. The response to the advertisements presenting such inducements was very limited. "You simply cannot get woods laborers for love or money," remarked a leading operator this week.

Waxed paper plants are busy, although if sugar gets scarcer and the candy production is materially lessened, it is bound to have a very detrimental effect on this branch of the industry. One concern operating in Wisconsin has been making special appeals to the Canadian trade and especially to the bakers, by offer-

ing cut prices, but there is no response on the part of the bread manufacturers, as the practice of wrapping loaves, except the smaller ones, had decreased by fully fifty to seventy-five per cent. since the war broke out.

Board mills and paper box factories have been considerably aroused over the recent edict of Hon. W. J. Hanna, that manufacturers, wholesalers and retailers shall not be allowed within the near future to sell in cartons, cereal products, flour, and similar goods unless in 20 pound quantities, on the ground that such a convenience and advertising add to the cost. To do away with the packing means that a large amount of equipment, which has been installed, will remain idle and hundreds of employees thrown out of work, without any one being correspondingly benefited. It is believed there will be no saving to the public and board manufacturers, box manufacturers, wax paper manufacturers and others would suffer more than can be estimated. For years, the manufacturers of various goods have educated the public to the cleanliness, preservation, comfort, facility of handling, and other important features of package goods, and is the work all to be for naught? A meeting of the Food Controller, with a deputation of the wholesale grocers, and retail men, and the manufacturers, was held in Toronto last week. One man told the Food Controller that he was going altogether too far in prohibiting cartons, and that he might as well prohibit soap. One could get along without washing. Another pointed out that it was necessary to use up the millions of cartons he had in store, and that many cereals, now on the market, could not be kept in bulk. It was also stated that, for climatic and other reasons, certain products would only be marketed in cartons. Machinery costing millions of dollars would have to be scrapped, and it was further explained that cartons, on the average, cost less than a cent apiece. Another conference will be held this week when more specific information will be presented, as Mr. Hanna remarked that, by his decision, there was no intention on his part to knock out or discourage business.

The whole paper business is not as lively as it should be, and new problems face the manufacturer every day. There are higher costs all along the line in everything and now fresh difficulties crop up in the way of securing adequate transportation. Every basic principle points toward firmness and higher prices, but nothing seems to transpire. It is felt, however, that the tranquil weeks of the past will soon introduce a change and more firms and customers will enter the field. Printers are not busy and generally, on the part of all large consumers, there is rigid conservation of paper, which formerly was used very lavishly. There will be a "break" soon is the universal verdict, not in prices which cannot come down, but in orders and, if the figure for paper is advanced there would be a grandstand rush to get in under cover on the matter of supplies.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
News (rolls) in less than carload lots	$2.75
News (sheets) at mill, in carload lots	$3.25
News (sheets) less than two tons	$4.00
News (sheets) two tons and over	$3.50
Book papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$7.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$35.00 to $38.00
Sulphite, easy bleaching	$70.00 to $75.00
Sulphite, news grade	$55.00 to $60.00
Sulphite (bleached)	$110.00 to $115.00
Sulphate	$80.00 to $85.00

NEW YORK MARKETS.

New York, October 29.

Inquiry for chemical pulp is said to be quickening a little, and while business continues on a somewhat limited scale, importers of Scandinavian pulp as well as dealers in the domestic product, say they are effecting some trade with consumers in South American countries. Paper manufacturers in both Uraguay and Argentina are taking fair commitments of bleached and unbleached sulphite, and the basis of prices on which business in these directions is passing is considerably above that ruling in the domestic market. Consumers

in this country appear willing to buy in moderate volume, provided they can secure concessions in quotations, but importers are standing firm and decline to consider lowering their figures, while domestic producers find it possible to act in a similar manner. Book paper mills are buying soda pulp in a fair way, and offering steady values for what supplies they require. Domestic bleached sulphite also is moving in some quantity. Confidence is still expressed by sellers that the business in chemical pulps must necessarily improve shortly, and that when buying is resumed the volume of trade will likely attain substantial proportions in view of the present light stocks now held by consuming establishments. Receipts of Scandinavian pulp at New York and other American ports continue very light. In the first place, steamer sailings from Sweden to the United States have been temporarily discontinued. Then again, prices of pulp on the other side are so far beyond a parity with the market values here, that little buying is being done for American account. Quotations local importers are receiving from their connections in Norway and Sweden, are very high. This is due more to the present excessive manufacturing costs in Scandinavia than to the fact that domestic or near-by consumers are offering such figures in order to secure supplies. Coal, wood, sulphur, and nearly every other raw material entering into the making of sulphite, are costing manufacturers fabulous sums, and it is imperative that high values be obtained for pulp in order to realize a profit. One local importer made the statement that the only shipment of sulphite he had received in the past three weeks was one consignment of 300 tons which was on contract. The fact that the Baltic Sea is now reported to be freezing an dthat it is but a short time before it will not be possible for mills in various parts of Sweden to ship to this country until the early part of Next May, is also a factor to be considered when trying to determine what the status of foreign pulp will be in this market during the next few months. At the present time, paper manufacturers are buying very reservedly because of the unsettled conditions surrounding the industry, and what supplies they are now absorbing are invariably for direct consumption. Domestic consumers of pulp are filling their wants almost entirely with American or Canadian fibre, and only in infrequent instances are they patronizing importers. However, as has already been stated, sellers of foreign sulphite are very firm in their attitude, finding quite some outlet through the South American business referred to.

The mechanical pulp market is still attended by an unusual degree of quietness for this period of the year. Few consumers are buying in appreciable volume, and sales are confined to such proportions as grinders are more than able to take care of the current demand with their present production. Even newsprint manufacturers, who have been actively in the market for some time past, are now restricting their purchases, and are taking exceptionally small commitments of pulp for this season. Dealers and grinders cannot fathom the prevailing situation. Ordinarily at this time of the year, the movement of ground wood into consumption is very heavy. According to advices from Quebec, pulp wood shippers there are feeling the effects of an unprecedented car shortage to an alarming extent, and the prevailing situation is most acute in that their product must be moved before the country roads freeze over. Furthermore, much of their output is for United States and Canadian government requirements and is badly needed.

The ground wood market holds fairly firm, although there is a tone of uncertainty plainly in evidence, and prices tend toward uncertain levels. In the East, around $38.50 per ton at the grinding plant, is the most common figure asked with extra strong pulp held at slightly higher values up to $40.00.

The rag market is somewhat irregular in price, with demand from consumers still on a restricted scale. Some dealers or brokers have a few orders, and are having no great difficulty in securing stock with which to fill these commitments, but the movement towards the mills is insufficient to affect values and quotations prevail on a wide range. Writing paper mills down East are taking few quantities of rags, and pay prices unsatisfactory to the dealers. There is no concerted demand for white rags or thirds and blues. Dealers are disposing of a car or two now and then, but are forced to set low prices to packers because of the weak values they are obtaining from the mills. Prices of new rags are rather steadier, although there is not much difference in the demand. A leading middle western dealer now in this city, said that new cuttings are moving in large volume in his territory, and that values are undergoing considerable enhancement out there. This operator reports that there is a good demand for bleached cuttings.

Despite the apparently dull tone of the paper stock market, buying is of a fair volume, and there appears to be in reality more mill orders in the market to-day than is commonly presumed to be the case. It is known that several local brokers and dealers are inquiring freely for supplies, and certainly they would not be seeking stock if they didn't have orders, for there is virtually no buying being engaged in for stocking purposes.

There has been but slight change in the other markets. In paper, things are still somewhat dull. It is true, however, that the situation in the market has had a tendency to strengthen, rather than to act to the contrary.

TWINE PRICES.

The following are the prices charged by jobbers on various lines of twine. There is likely to be a scarcity, especially in jutes and cottons. The prospects are for higher prices:

3-ply Soft Cotton, per lb.	46½c to 50c
4-ply Soft Cotton, per lb.	50c to 55c
5, 7, 10, 15, 20-ply Soft Cotton, per lb.	50½c to 56c
Sea Island Bulk Twine, per lb.	75c
Do., in boxes, per box	75c
Flax Sewing Twine, 3 to 8-ply, per lb.	58c
Mattress Twine, per lb.	1.00
Hy. Jutes, 2, 3, 4, 5, 6, 8-ply, per lb.	17c to 21c
Fine Jutes, 2, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	20c to 25c
Unfinished Hemps, 3, 4, 5, 6, 8, 10, 12-ply per lb.	30c to 40c
Yucatan Twine, per lb.	27c to 30c
Finished heavy jutes, (sizes 201, 301, 401, 501) per lb.	22c to 25c
Fine finished jutes, (sizes 202, 204, 208), per lb.	35c to 40c



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PROBE IS FINISHED—NEW PRICES LIKELY THIS WEEK.

(Continued from 1026.)

Mr. Clarkson said, a return of twenty-seven and one-half per cent.

Mr. McKee contended that he should be allowed ten per cent. on the common stock. "What do you want ten per cent. for when you are only paying six per cent?" asked Mr. Pringle.

Eddy's Balance Sheet Sent to Publishers.

Mr. John F. Orde, K.C., counsel for the E. B. Eddy Company drew the attention of the Commission to the manner in which the report of the company had been prepared. Mr. Orde said that there was information on two pages of it that should not be in it. One of them related to the Company's balance sheet. As E. B. Eddy manufactures a variety of articles besides paper Mr. Orde contended that office information beyond anything that concerned newsprint should not be made public. The E. B. Eddy Company carries its different paper departments under one head and does not have separate accounts for its newsprint production. Mr. Pringle stated that copies of the official report of Mr. Geoffrey Clarkson had been forwarded to Mr. Irmie, secretary of the Canadian Press Association. In response to Mr. Orde, Mr. Pringle said that as soon as the reports were presented at the inquiry that they were **public property.** Mr. Orde maintained that the balance sheet of his clients as it dealt with a variety of manufactured articles other than newsprint should not be classed as public property nor be put into the hands of the Canadian Press Association to be sent broadcast over the country. Permission was given to remove these pages from the auditor's report.

Referring to the inquiry and the 2½ cent rate for newsprint, Mr. Orde said that instead of being a three months' matter it had extended to eight months. He maintained that the cause of complaint or the evidencing of concern on the part of the manufacturers for a higher price had been shown to be more or less justified as some of the reports showed that the manufacturers had in some cases, had to sell at an actual loss. Referring to the 2½ cent rate Mr. Orde said, "While it sounds all right on paper it is not always so on fact."

The E. B. Eddy Company estimates it has 1,500,000 cords of spruce and balsam on its limits. This includes: pine, 232 million feet; jack pine, 34 million feet; hemlock, 187,500 feet; cedar, 75,000 feet.

Wood costs, with and without an allowance of two dollars per cord for stumpage, were given as follows:

Date.	Without stumpage.	Including stumpage.
1916	$ 9.54	$ 9.88
1917	11.92	12.70

The charge without stumpage embodies other charges which are eliminated in the figures with $2 per cord stumpage, being a substituted allowance.

Groundwood costs, allowing $2 for stumpage, as against other charges followed. They were:

Date.	Other charges Cost.	Allowing stumpage Cost.
1916	$15.48	$15.85
1917 Jan.-Mar.	16.57	16.04
" April-Sept.	18.32-18.86	19.15-19.70

Sulphite costs with stumpage being put in at $2 were given by Mr. Clarkson, to be as follows: 1916, $39.06; 1917, Jan.-March, *$52.24; April, $54.42; May, $52.33; June, $54.02; July, $55.84; August, $56.99; September, $56.70.

*The jump in price in manufacturing in 1917 over last year was due to the cost and use of new wood.

The cost of newsprint eliminating stumpage charges was for the period inquired into as follows: 1916, $39.05; 1917, Jan.-Mar., $44.99; April, $47.10; May, $45.82; June, $46.05; July, $46.61; August, $47.20; Sept., $46.90.

Some of the limits held by the E. B. Eddy Company were acquired fifteen to forty years ago. In some cases ten per cent. for sinkage was allowed. In other instances twenty per cent., according to the distance the logs had to travel in the water from the limits to the mill.

Mr. David Tilley, who has been accountant at the E. B. Eddy plant for over twenty-five years, was called by the Commissioner to explain the charges for timber lands. Mr. Tilley said the practice had been when a limit was acquired to charge it up at its cost price and a credit against the account was put through each year for the value of the wood taken from it. During the same years it was charged up with five or six per cent. for the value of its young growth. Some of the limits, Mr. Tilley said, stood on the books to-day at less than cost.

A sales cost of two dollars per ton on newsprint caused the Crown Counsel to raise the question as to what should be considered a proper allowance for selling expense. No decision as to what should be considered a proper and just selling expense was decided on by Commissioner Pringle. The figures contained in the report and presented at the inquiry were those found on investigation by the Government's auditor and were entered up as actual charges and thus rightly entered into the cost of production.

While the E. B. Eddy report was under consideration Mr. John F. Orde said that Mr. Millen was seriously thinking of giving up the manufacture of newsprint paper at the Eddy plant because there was no money in it. Commissioner Pringle, on hearing this, said it would be unfortunate if the Eddy Company ceased turning out newsprint as almost the entire output of the Canadian paper mills was being shipped and used at present, and that the withdrawal of any one of the mills would make a serious loss in the total supply.

"It is only loyalty to the Government that keeps us in," said Mr. Orde. Mr. Pringle went on to remark that the supply of newsprint compared with the demand was already pretty tight. In Canada he said the daily output was around 1900 tons.

Fire ranging and association fees cost the E. B. Eddy Company as appertaining to newsprint, $1,273.48. Ground rent amounted to $6,005, insurance, $3,561.

Belgo-Canadian.

The official report showed that this company had between 4½ million and 5 million cords of pulpwood on its limits. The head office of the plant is in Brussels, Belgium. The company is nine years behind on its second preferred stock dividends.

Wood costs were given for 1917 at $12.15 per cord, including stumpage.

Groundwood costs were: 1916, $15.97; 1917, Jan.-Mar., $17.01; April, $17.35; May, $17.35; June, $20.29.

Sulphite costs including stumpage were: 1916, $33.07; 1917, Jan.-Mar., $35.81; April, $38.25; May, $39.98; June, $43.01.

Newsprint costs, including stumpage charges, followed. They were: 1916, $36.07; 1917, Jan.-Mar., $42.50; April, $44.20; May, $44.21; June, $47.07.

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The following sales prices were given for newsprint: 1916, $41.41; 1917, Jan.-Mar., $49.37; April, $51.42; May, $52.43; June, $54.10.

Mr. Biermans, head of the Belgo-Canadian Paper Company informed Mr. Pringle that new contract prices for export were now running from $3.10 to $3.35 per 100 pounds, as compared with the two and a half cent rate allowed in Canada. For export to other countries than the United States the contracts, Mr. Biermans said, were being made from $3.25 to $3.75 per hundred pounds.

The official auditor said that interest on arrears on common stock amounted to $230,000. On the question of deferred interest Mr. Pringle asked Mr. Biermans why he did not make enough to pay it?

"We have been selling at a very close price," replied Mr. Biermans.

"What I want to know it: Can you sell at fifty dollars per ton and make any profit?" asked Mr. Pringle.

"No," replied Mr. Biermans.

"Can you at fifty-five dollars per ton?" pressed the Commissioner.

"Not and allow anything for contingencies," said the head of the Belgo-Canadian.

The stock it appears is made up of $865,000 worth of first preferred at 6 per cent.; $76,923 second preferred at 5 per cent.; $39,093 worth of bonds at five per cent., and $400,000 worth of other stock, making a total of $2,345,000. Dividing their production tons daily into their capital invested, this company figures out that their investment per ton per day is represented by $30,000. This completed the review of the Belgo report.

Abitibi Timber Starts a Scrap.

Mr. Victor E. Mitchell, K.C., counsel for the Abitibi Power and Paper Company, appeared before the Commissioner, claiming that Mr. Clarkson in his audit has allowed the Abitibi Power and Paper Co. nothing by way of recognition of capital invested in its timber lands. Mr. Mitchell presumed and maintained that these timber lands were worth **five million dollars.** "He (Mr. Clarkson) has presumed by his report that that five million dollars worth of stock was 'water.' I do not know what water is."

Mr. Mitchell stoutly maintained that even if the auditor had allowed two dollars to the Abitibi for stumpage, that he had allowed the same charge to the other mills and had in addition allowed them a return proportionate to that claimed for Abitibi. Such a course Mr. Mitchell claimed was not just inasmuch as the other companies had an allowance of two dollars per cord for stumpage and a percentage of return on their invested capital as well, that is on the capitalization of their timber lands.

Mr. Mitchell argued that if an individual purchased certain property or lands and developed it or them, could it be expected of him that after his development he sell his property or lands at the same figure he had paid it or them? The property in question Mr. Mitchell said had a valuation of over $13,000,000 to-day. "Yet you (the auditor) write off the timberlands."

Mr. Pringle said and granted that the Abitibi Power and Paper Co. had a very valuable property in its timber limits. The Commissioner commented that as soon as an expenditure had been made on a property, and it become improved that it became more valuable. The function of Mr. Clarkson was to get at what it cost to produce newsprint paper. The Commissioner expressed his view as being that Mr. Clarkson throughout had been very fair in his investigation of the mill books and records, and allowing charges shown to be contained therein. Mr. Mitchell explained that the original parties acquiring the timber land rights and leases in question had turned over valuable water power rights, and leases in the timber lands for $5,000,000 worth of stock.

"That is a matter for you and Mr. Clarkson to thrash out," enjoined the Commissioner.

"I absolutely disagree with Mr. Clarkson," retorted Mr. Mitchell. "I do not see the equity." But Mr. Mitchell's vigorous argument failed to convince Mr. Pringle, who stood firmly for the auditor's method of cost finding.

"Mr. Mitchell," said Commissioner Pringle, "the war has created an entirely new and different set of conditions. We are here to find out what is a fair and just cost price for the manufacture of newsprint paper in the Dominion of Canada. We are not as in other days governed by the law of supply and demand. **If it had not been for the intervention of the Government, it is a question if the newspapers of Canada would have been supplied to-day.** Certainly not from Abitibi." The Commissioner went on to explain the creation of the Order-in-Council governing the sale of newsprint paper in Canada and said finally: "I am going to be guided by Mr. Clarkson. Wood that cost you sixty cents per cord you are allowed two dollars for."

"You have contended with great force," smilingly remarked Mr. Pringle.

"But not very successfully I am afraid," retorted Mr. Mitchell by way of reply. Counsel for the Abitibi expressed the belief that when the price was set for newsprint paper in Canada that it would have an effect on American sales as well.

Mr. Clarkson in reply to the contention of Mr. Mitchell pointed out that the lease for the timber lands in question had originally come from the Government. He said he thought the transfer of the limit leases for stock was a case of changing from the right to the left hand, five million dollars. **Mr. Clarkson did not pretend to say or mean that the limits in question were not valuable or did not have a vlaue.** He said that during his investigation he had sought to give the Abitibi Power and Paper Company **a fair return on its capital actually invested.**

Referring to the margin of one dollar and forty cents per cord already allowed as a just charge for stumpage (i.e., allowing Abitibi two dollars per cord for wood, as against sixty cents per cord Crown dues), the auditor said that if this balance was put away through the yers it would accrue or grow to an amount equal to the value of the limits.

(To be concluded in our next issue.)

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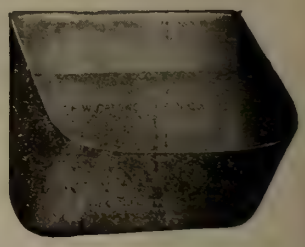
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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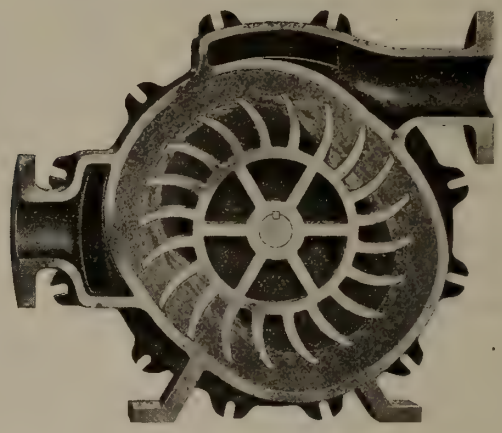
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EDITORIAL

BEGAN AT THE WRONG END.

Paper makers have struggled for eight months to keep their temper and good nature, to deal fairly with the Canadian publishers under a severe handicap, and at the same time to prove that they were being treated unfairly. It was easy enough to prove this point as far as producing conclusive evidence was concerned. In fact, the manufacturers proved their point twice, once with their own figures and again with those of the commissioner's accountant. And these eight months brought a lot of needless anxiety and uncertainty, to say nothing of the legal, clerical and other expenses involved in the newsprint inquiry. Then, to cap the climax, the Commissioner finds that more than half a million dollars has been taken from the paper makers and handed to the newspaper publishers.

Now that the evidence is all in, we propose that an inquiry be started at the other end, namely: Were the publishers paying enough for their paper for the past ten years, and were they not making excessive profits, largely at the expense of the paper makers?

Commissioner Robert A. Pringle, K.C., has been appointed Paper Controller, so we say, "more power to him." There probably is not a better man in Canada for the position, if there must be such a position. He has shown a notable disposition to be fair to both sides and we trust he will make an early proclamation of his decision. There can be but one outcome of the probe and that is complete vindication of the paper makers and full restitution to them of the half million that is theirs. Whether conditions will revert to the "status quo ante" remains for the controller to say.

One thing is absolutely certain. It has cost $57.33 on the average, for thirteen Canadian mills to make paper for newsprint, and this figure does not allow for contingencies or include certain disputed items. The result of the inquiry, therefore, shows that the average North American mill is uncertain of a real profit on newsprint sold at 3 cents a pound. The effect of the inquiry should be to stabilize the industry. The whole world now knows what it cost to make newsprint in Canadian mills last summer. It cost more yet to make it in the United States and it costs more than that to make it in Canada to-day. The cost of labor is the great and fundamental booster of the cost of every item in the manufacture of paper. It goes up—and stays up. Other prices may decline slightly, but what labor gets it holds.

The manufacturer is not so fortunate. He must pay for his materials what the law of supply and demand dictates. He has had to buy at high prices of late, and while this law has for the time being given a good margin over costs of material bought some time ago at lower prices, it will operate some day to cut off the gradually decreasing margin as more and more high priced material is used in manufacture. If the price of the product is artificially restricted without taking this into consideration, there will come a time when demand will be less and then the materials bought at high prices will go into a lower priced product and there may not be any margin. Labor will have to be employed over such a period at a loss if suffering is to averted. We trust and believe that such a transition period of readjustment will be short; but if it is protracted, and in no wise provided for, some paper mills will inevitably be ruined.

There is a nice point for Controller Pringle to work out. The publishers had their innings with the margin coming their way. What did they do with it? From the drastic measures to introduce economy and efficiency some have taken recently, it looks as if they had just discovered the meaning of those words.

OLD KING COAL.

He may be a jolly, warm-hearted soul, but he has fits of being very severe with his subjects. The dusky old monarch is reigning with a tight hand and closed fist this winter. He is not the genial, generous giver of heat and power in abundance and to spare. His palace is in the mines of Pennsylvania, West Virginia and the Central States. His servants, with their petty squabbles, do not move him out as fast as his subjects would like to see him come. And then when he is out the railroads find him so big they can hardly move him around.

The people up in the northwestern states said King Coal was going to Canada too much, so Uncle Sam persuaded him to make Minnesota a visit and cheer up the people there. This was done as requested, but tied up so many boats in the Lakes that Uncle Sam decided the king had better look out a bit more after the Canadians, so now we shall have enough of his mineral majesty to keep things going this winter.

Now the fact that the fuel controller in the States is doing all he possibly can to provide for the needs of Canada does not by any means preclude the probability that there will be serious inconvenience in the Dominion this winter. There is a shortage of fuel and a shortage of transportation facilities. This state of affairs makes all the more urgent the ever-present need of being more economical and efficient in the way we use this material. The wastefulness that has been lamentable is, under present conditions, criminal. We waste our wood, we waste our water power, we waste our coal, we waste our human enthusiasm, energy and power—we waste everything God has given us. We treasure only what we have had to work for or fight for.

It is time our extravagant carelessness and careless extravagance stopped! We let our water powers run off to the sea without turning a wheel, or give them to a bunch of sharks to speculate with, when they might be hauling our trains and driving our factories, cooking our meals and warming our houses. And at the same time we buy thousands of tons of coal, sending away tens of thousands of dollars for it. What do we do with it? We waste it, up to thirty and forty per cent. Price has little to do with the matter. Many a man with the money can't buy the coal. Why? Well largely because so much that is bought is wasted. Its heat goes up in smoke, dissipated in waste gases, lost in trying to get through scale in the boiler, shovelled out as carbon in the ashes. More is wasted in leaky steam pipes, in heating all out-doors instead of driving an engine, in dragging a load of shafting doing no work, and some of our paper mills are burning their coal in the pile.

The sad part of this waste is that much of it is needless, especially in public service and industrial plants. It isn't guess work. Engineers have worked out the problem. Efficient planning, equipment and operation will solve our fuel problem. Guess work is ever the arch-enemy of efficiency. A half-baked fireman, who can't get any other job, and is hired because he knows which end of a shovel is the handle, cannot be expected to care whether the draft gage reads .2 of an inch or 2 inches, even if he could read it. A competent engineer must be in charge and his work and ability are nullified if the management has not the sense to give him proper instruments and authority to work with, and a decent place to work in. Most cases may not need any extra equipment, only the application of common-sense and scientific method to the part of plant that is usually so hot and dirty that the super prefers to avoid it and let Russian and Polock run it.

It takes a good man to run a boiler-room right, and there is hardly an investment that will pay better than an engineer who knows coal, steam and transmission. In a big plant we will have his hands full making steam and by training his crew and watching the leaks he will make steam with surprisingly little coal. This is where the problem must be solved—proper use of what we have. Fixing the price of coal will not bring any more from the mine. Perhaps a pinch will wake us up.

Old King Coal is a good friend to us all. Let us not waste his bounty any longer.

TAKING STOCK OF OUR TIMBER RESOURCES.

The announcement that the British Government is about to consult with the Dominion authorities in regard to the lumber resources of this country will mean much for the whole future of the industries connected with our forests.

During the war the authorities in Great Britain and Canada have realized as never before the importance of having an adequate supply of timber. In the old pre-war days Great Britain secured the bulk of her timber from Scandinavian countries and Russia, but these sources of supply were cut off when hostilities commenced. In pre-war times Great Britain imported some 650,000,000 cubic feet of timber, of which only one-eighth was grown at home. Of Great Britain's importations of timber some $16,000,000 worth was sent from Canada. The Imperial authorities are anxious that the timber resources of the Empire should not only be conserved, but that the conservation should be carried out in such a way as to safeguard a supply for the needs of the Empire. In other words, Great Britain is anxious that her future supply of timber should be secured within the Empire. She has learned the lesson of depending on outside, possibly hostile countries, for her supply of raw materials.

The plan proposed by the Imperial Reconstruction Committee is that there should be a survey made of Canada's timber resources and the whole put under scientific management so that they will yield the maximum output and also be a permanent source of supply. Such a scheme involves a great co-operative movement and will include all that is understood by a proper conservation movement. In Canada it will mean the substitution of a scientific management of our forests for the oldtime hit-and-miss haphazard method.

BOOKIES PLAYING WITH FIRE.

After the way Canadian Newspaper Publishers got burned for sticking their fingers into the paper-makres' business, we should think the other publishers would have sense enough to let well enough alone. American newspaper men got themselves in the hole as regards supply of newsprint by tariff tinkering. Let that be a lesson.

If a cold climate tends to give spruce a peculiar qualification for making kraft pulp, as Swedish pulp makers claim, then kraft pulp made from Canadian spruce should be the best there is.

Fifty Dollar Newsprint is Dead, Yet Lives

By EVERETT ANDREW.

(Written Specially for the Pulp and Paper Magazine)

Canadian newsprint manufacturers conclusively proved and substantially showed by figures secured and averaged by the agents of the Canadian Government, during the fifth and concluding session of the Canadian Newsprint Probe, that two and one-half cents per pound was not a fair or just price for the sale of newsprint in Canada.

The increase that the manufacturers proved was due them amounted to $7.33 per ton, on the basis of thirteen mills considered, above and beyond the arbitrary or set price of the Government, of two and one-half cents per pound. The figure of $57.33 per ton as being a fair and just price, allowing only selling costs, Crown dues, and ten per cent. on capital actually invested, including nothing whatever for contingencies.

If contingencies were allowed as they should be the price would be advanced five dollars per ton. If the common stock of the Spanish River Mill was allowed as capital actually invested the price would, distributed through all the mills considered, increase the price forty-five cents per ton, or $57.83 per ton without contingencies. If contingency costs were added it would bring the price up to $62.83.

The newsprint probe as all the newsprint manufacturers know by now has been attended by a mightly sad sequel—i.e., the issuance of a new order for twenty days in November by Commissioner Pringle, Friday morning, November 2nd, continuing the official selling price of newsprint to Canadian consumers at two and one-half cents per pound. The extension of the order, in face of what was believed to be an agreement of trust between the Manufacturers and the Commissioner or the Government made during the closing stages of the inquiry has been styled as a 'damnable outrage'' by a leading newsprint manufacturer. ''Why should the newspaper publishers be the favored manufacturing class of Canada?'' he asks.

So far as the Canadian newsprint probe went there was only one side to it, and that side bodily belonged to the newsprint manufacturers beyond a shadow of doubt. The manufacturers took the figures in the reports of Mr. Clarkson as reflecting the costs shown by their books without a murmur. They (the manufacturers) after eight months' delay came out of the newsprint enquiry with colors flying, their cause vindicated, and a balance of at least $7.33 per ton increase over the two and one-half cent per pound rate, awaiting them as their rightful and legitimate due.

As a matter of fact, so far as the whole evidence at the Canadian newsprint probe has gone, the newsprint manufacturers should, according to an order made in June, be authorized or placed in a legal position to collect this sum in addition to the $50 rate they have been receiving from the Canadian publishers since July 1st, 1917. This return, now that the manufacturers have proven their case, is retroactive profit due them by the order made in June this year providing that if the price of newsprint was set to be at a figure beyond two and one-half cents per pound that the publisher would have to reimburse the manufacturer by the amount of difference in price. The setting of the price still remains in doubt, even though the inquiry is over, showing of manufacturing price of $57.33.

The concluding session of the Canadian Newsprint Probe, which was held at the City Hall, Ottawa, October 29th and 30th, was a circumstance that will go down in Canadian paper manufacturing history for all time. On the figure produced at the Monday sitting a lead of $7.50 per ton above the two and one-half cent rate per pound was established. On Tuesday three more mills were heard from and in the afternoon, when the official statement of averages was handed to the Commissioner by Mr. Clarkson, the lowest average estimate was shown to be seven dollars and thirty-three cents beyond the Government price.

It was during the last hour of the inquiry, Tuesday afternoon, that the newsprint manufacturers showed they were unwilling to continue putting money into the pockets of the Canadian newspaper publishers, by supplying the publishers with newsprint at two and one-half cents per pound. Mr. George Cahoon told how the Canadian Press had been presented with over half a million dollars by the Canadian newsprint manufacturers.

The evidence, facts and official figures brought out at the inquiry speak for themselves. Continued from the last issue of the Pulp and Paper Magazine they are as follows:—

St. Maurice a Recent Factor.

This company began to make newsprint paper in March, 1917.

Woods costs, including stumpage, were $8.42 in 1916, as compared with $10.33 this year.

Groundwood costs were given as follows: 1916, $13.19; 1917, Jan.-Mar., $13.97; April, $13.29; May, $13.74; June-Aug., $15.93.

Sulphite costs were: 1917, March, $41.88; April, $42.60; May, $38.90; June, $40.16; July, $45.16; August, $45.16.

Sales of sulphite were 263 tons, at $90.67 per ton.

Newsprint costs were: 1917, March, $44.33; April, $44.49; May, $40.09; June, $39.24; July, $42.59; August, $42.59.

Other charges added to actual production cost amounted to $17.22, bringing the latest production cost mentioned up to a total of $59.81 per ton.

Sales prices for newsprint, some of which was sold in Australia, were: 1917, March, $60.17; April, $62.64; May, $61.41; June, $62.63.

Owing to the St. Maurice Company having only entered the newsprint field this year there was not much argument on the figures contained in its report.

Mr. Pringle, in summing up Monday's operations, commented that the first five companies under review at the last (fourth session) of the probe had shown an average production cost of $57.26 per ton. ''Now, altogether, eleven companies have been examined, and I find their averaged production costs amount to $57.50 per ton,'' said the Commissioner.

Mr. Stewart, near the conclusion of the afternoon session, which terminated close to six o'clock, made

objection to the figures of the Ontario Pulp and Paper Company and those of the Fort Frances Company being taken into consideration. The Ontario Paper Co. Mr. Stewart said, manufactured paper for the Chicago Tribune.

"I do not know what view the Government will take of the Ontario Paper Company. I take the view it has the same status and should be considered as other Canadian paper mills," concluded Mr. Pringle.

Mr. Biermans remembered another expense that he thought should be charged up to the manufacture of newsprint. It was a ten cent bonus per employee per day, who had worked at the Belgo mills for a period of six months. He said this charge would amount to about forty-five cents per ton of output since the first of May, 1917. Mr. Clarkson was inclined to view such a charge being more of a moral affair with Mr. Biermans than an actual expense or cost.

This finished Monday's session.

Howard Smith Paper Mills Quit Newsprint.

The first report to come under review Tuesday morning was that of the Howard Smith Paper Mills, Limited. Mr. Stewart, the Crown counsel, said he understood that this mill had gone out of business. Mr. Gordon MacDougall, K.C., said his information was that only the Crabtree mill had closed and the company had stopped manufacturing newsprint. "I am sorry to see any mill stop manufacturing newsprint," remarked Mr. Pringle. It was decided that the report should be taken. It covered operations at the Crabtree mills relative to newsprint from February, 1917, to July, 1917. The costs for making newsprint up to June were:—February, $71.87; March, $74.07; April, $70.49; May, $75.99; June, $76.93.

Sales prices for newsprint over the period were given as follows:—March, $98.98; April, $99.50; May, $92.53; June, $97.18; July, $97.06.

The company purchased sulphite at the following prices:—April, $90.32; May, $92.03; June, $89.92; July, $91,67.

Groundwood was purchased at the following prices:—April, $24.23; May, $22.65; June, $22.88; July, $22.86.

"Well, I don't know that there is much use investigating this report as the company has stopped making newsprint," said Mr. Pringle, "but it illustrates that it is absolutely impossible for any mill to live which has to buy sulphite as it has been for the last four or five months." Mr. Montgomery maintained that the report showed that when a sale price was set for newsprint that the small mill had to go out of business. "Every mill that goes out makes the situation more serious," said the Commissioner. "As it is the margin between the supply and demand is running very close. The Canadian paper mills seem to be keeping up pretty well with an average output of 1,970 tons daily, against an output last year of 1,800 tons."

Mr. George Cahoon, Jr., when asked as to the output of the Canadian mills, said that they had been running above capacity. We have been running every hour for the last twelve or fifteen months without shutting the machines down for repairs. "The paper machines of the mills are running twenty-four hours a day for from six to six and a quarter days per week," said Mr. Cahoon. "I feel safe in making the assertion that there is no period in the history of Canadian paper manufacture where the paper-making machines have run so efficiently and continuously."

News Pulp and Paper Co. Has Low Capitalization.

The report of the News Pulp and Paper Co. was next taken. Wood costs of this plant were: 1916, $6.52, including stumpage; 1917, $6.18, including stumpage.

Newsprint costs in 1914, exclusive of interest, depreciation, or stumpage, were $29.96 per ton. In 1915, $27.95 per ton. This company makes some groundwood and buys some. In 1916 some groundwood was purchased at $37.60 per ton, other quantities were secured at $19.59 per ton. In 1916, 1,658 tons were manufactured at costs of $11.55 with stumpage, and $10.77 without stumpage. The following groundwood manufacturing costs were given by Mr. Clarkson:—1916, $11.55; 1917, Jan.-March, $22.43 (high on account of low water); April, $11.42; May, $10.83; June, $10.75; July, $11.01; August, $10.93.

Newsprint manufacturing costs were given as follows:—1916, $33.71; 1917, Jan.-March, *$51.54; April, $39.36; May, $36.02; June, $36.38; July, $36.10; August, $38.81.

*Increased production cost due to groundwood mill having been practically shut down. The above costs include two dollars per cord stumpage. The increased cost in August was due to the steam plant being out of order and using considerably more coal than in normal operation.

Newsprint sales were given as follows:—1916, $37.16; 1917, Jan.-March, $41.25; April, $51.44; May, $51.55; June, $52.23; July, $52.14; August, $56.83.

Mr. E. S. Sharpe said that this mill had increased its sales to the public. Formerly it had been supplying the Montreal Star. Mr. Sharpe thought that the Commissioner should step in and take action if it was found that this plant was selling at more than the $2.50 price in Canada. "It means they have found purchasers who are willing to pay the higher price," commented Mr. Pringle. "They did not consent to take part in the pool," said Mr. Sharpe. He thought that any price in excess of $2 50 per hundred pounds in Canada should be taken into consideration by the Commissioner. The statement of the Company showed a profit of $7.03 per ton in 1916.

Capitalizing this company on the basis of $50,000 per ton of daily output it was figured that the capital invested should represent $1,500,000. The capital invested was shown to be $762,000, a little more than fifty per cent. of what it should be on the basis of $50,000 per ton of output daily. Taking the August production cost of $38.81, allowing seventy-two cents for selling and $7.76 for return on capital invested, brought the production price, exclusive of contingencies, up to $47.29. If the full estimated amount of capital had been invested, namely, $1,500,000, this price would have been $55 per ton, so Mr. Clarkson said. He pointed out that in the case of this mill it would not be quite right to allow return on a capital of $1,500,000, as its actual invested capital was only slightly more than half this amount. Thus, if a ten per cent. return was allowed on a capitalization of $1,500,000 it would amount to $150,000 on an actual capital of $762,000, or twice as much as it was entitled to receive. Sulphite costs were put in at $35.75 per ton for 1916 and $45.00 per ton for 1917.

Laurentide Commended for Patriotism.

The report of the Laurentide Co. was next dealt with.

In the reorganization in August, 1911, two shares of new stock were issued for one share of old stock. The bond issue amounted to $1,200,000. The officials of the company had been unable to tell at what price the bonds had been sold. In the reorganization the value of the timber lands had been increased $1,300,000. Mr. Cahoon explained that the policy had been to buy limits which were paid for out of operating expense and not out of capital account. The limits were held until they reached a certain mileage. In order to straighten out the books the limits were revalued and the valuation of them increased $1,300,000. The Laurentide Co. pays five dollars per square mile to the Crown.

Wood costs for 1914-15-16, including two dollars for stumpage, were given as having been $8.35 per cord. Without stumpage the figure was $6.95 per cord. In 1917 the cost with stumpage was $10.02; without stumpage, $9.34.

Groundwood costs were given to be as follows:—1916, $17.07; 1917, January, $16.73; February, $16.60; March, $15.96; April, $17.08; May, $14.83; June, $17.75; July, $17.84; August, $17.49.

Sulphite costs were given as follows:—1916, $34.86; 1917, January, $39.59; February, $38.47; March, $37.78; April, $37.34; May, 35.30; June, $41.45; July, $42.64; August, $38.57.

Newsprint costs were given as follows:—1916, $37.82; 1917, January, $40.58; February, $40.21; March, $39.27; April, $40.82; May, $38.26; June, $43.82; July, $45.27; August, $44.42.

These figures do not include interest on capital invested.

At this juncture Mr. Stewart questioned concerning certain charges that were made for the upkeep of a golf course, the figures for the maintenance of which were as follows:—1916, $6,214; 1917, April, $1,417; May, $1,364; June, $474; July, $1,342; August $1,568. This charge spread over the production of newsprint meant a charge of about twenty-five cents per ton. The Crown counsel also noticed a charge of $13,138.30 for "Landscape." The cost of upkeep of a clubhouse and a schoolhouse were also mentioned.

Asked by the Commissioner as to what steps were being taken toward reforestration, Mr. Cahoon said that by next year Laurentide expected to commence the planting of 1,000,000 trees annually. He said that the cost of reforestration so far has been carried in the capital account. No charge for it had entered into the cost of producing newsprint.

Another circumstance mentioned by Mr. Cahoon was that the Laurentide Company was continuing the salaries of any of its employees who had gone to the front, up to amounts coming to $10,000. Mr. Cahoon explained that the Laurentide Company paid the difference between the man's army pay and what he had been receiving when employed with the Laurentide Company. This charge, Mr. Clarkson said, amounted to 68 cents per ton of newsprint. "I do not think anybody can object to that charge," said Mr. Pringle, and commended the patriotic action taken by the Laurentide Company.

Sales of newsprint were given on the basis of tons and the net profit on sales. They were as follows:—

Date.	Tons Sold.	Net Profit.
1916	63,349	$584,101
1917, January	5,475	78,037
" February	4,599	43,714
" March	5,732	58,676
" April	5,403	14,817
" May	6,512	31,840
" June	5,942	6,022
" July	5,693	13,890
" August	6,273	22,260

(Sales of groundwood and sulphite were given on the same basis as sales of newsprint, but have no direct bearing on the matter in hand.—Editor.)

Selling expenses were given as follows:—1916, $1.15 per ton; 1917, January, $1.25 per ton; February, $1.64 per ton; March, $1.42 per ton; April, $1.42 per ton; May, $1.32 per ton; June, $1.55 per ton; July, $1.93 per ton; August, $1.76 per ton.

In making up the cost per ton of newsprint to the Laurentide Company the Commissioner averaged the production costs for the months of July and August, the figure coming to $45.48 per ton. Ten dollars per ton was allowed on capital invested, shipping, depreciation and other charges finally brought the figure up to $59.85.

The question of Crown dues in the Provinces of Ontario and Quebec was gone into for the purpose of showing the effect of the allowance of two dollars per cord to the mills for stumpage. In Ontario the Crown dues amount to sixty cents per ton of newsprint and in Quebec ninety cents per ton. Thus, on the allowance of stumpage at a general rate of two dollars per cord means the Ontario mills would receive $1.40, whereas the Quebec mills would only receive $1.10. Mr. Cahoon said that two dollars for stumpage was away below the minimum. Further, the head of the Laurentide Company stated that his company would be mighty glad to purchase wood at this price. The questions from the Commissioner to Mr. Cahoon drifted into the production of sulphite and newsprint and the Canadian situation generally since the war began. Mr. Pringle said that the increase in the production in sulphite and newsprint sales had been due to the war closing the Scandinavian market.

Canada's Golden Opportunity.

In dealing with the sulphite situation Mr. Cahoon said:—"I look on it as a reflection on the Canadian trade if we do not avail ourselves of the opportunity of running the Scandinavian trade out of the American market." The head of the Laurentide Company went on to tell how when the war brought about a shortage of Scandinavian shipments to the United States that an increased demand had sprung up for easy bleaching sulphite and strong sulphite. All the Canadian mills, with the market now secured, should prepare to make these sulphites to hold the American trade after the war.

"Canada so far has established a firm trade with the United States in pulp, paper and wood products," remarked the Commissioner. Mr. Cahoon, continuing, referred to the lifting of the British embargo against Sweden regarding shipments. "The Englishmen, even with the war on, brought it (Scandinavian sulphite) against Canada," said Mr. Cahoon. Mr. Pringle recalled the difficulty of shipment from Canada to England as compared with the shorter shipment from Sweden to England. Mr. Cahoon remarked to the effect that while Sweden was not openly hostile to the Entente cause, it appeared to be more or less in sympathy with Germany. The question of a purchaser's choice in sulphite was not so much the facility of shipment or price as to the quality. He added: "When

we can meet the Scandinavian in quality, and when we get that quality, we will manufacture it just as cheaply." Referring to Canadian mills once having the market, Mr. Cahoon said: "We can get it again if we are men enough, to properly equip ourselves."

Price Brothers Brought Up the Rear.

The report of Price Bros. & Company was the last one to be considered during the inquiry.

Wood costs for 1915-16 were $6.47 without stumpage and $7.84 including stumpage. The 1916-17 cost with stumpage was $9.48. The estimated cost for coming wood was $10.37.

Groundwood costs including stumpage charges were as follows:—1916, $14.86; 1917, January, $17.16; February, $24.72; March, $22.03; April, $17.19; May, $16.28; June, $16.07; July, $16.11; August, $15.92; September, $18.14.

High costs in February and March were due to only partial operations of the groundwood mill.

Sulphite costs were given as follows:—1916, $32.19; 1917, January, $32.33; February, $33.85; March, $31.15; April, $30.64; May, $31.25; June, $34.50; July, $36.56; August, $37.07; September, $35.13.

Newsprint costs were as follows:—1916, $33.94; 1917, January, $36.06; February, $98.48; March, $76.06; April, 37.86; May, $35.38; June, $37.23; July, $38.44; August, $39.14; September, $42.08.

High production costs shown for February and March due to low production. With other costs included the cost of production at Price Bros. mill was set down at $43.77, to which was added $13 per ton for capital invested, $1.20 for selling and ninety-four cents for Crown dues, bringing the cost up to $58.91.

This concluded the examination of the mill reports to be reviewed at the fifth session of the probe and adjournment was made for lunch.

Resuming on Tuesday afternoon, Mr. Pringle said that since the adjournment Mr. Clarkson had prepared a statement on the discussion of the morning session and of the mills which came under review. **The average cost production for thirteen companies, Mr. Pringle announced, was $57.33,** ALLOWING NOTHING FOR CONTINGENCIES.

The question of allowing two dollars stumpage on wood used was raised and it was pointed out that during the course of manufacture that a manufacturer might use fifty per cent. of wood that he cut from his limits and use the other fifty per cent. furnished by a jobber. On the whole number of cords used he would receive $2 per cord stumpage on the basis worked upon.

Mr. Geoffrey Clarkson, in prefacing his special statement showing the cost of newsprint production, said he had added $1 per ton to Abitibi as in his calculations he had left out $1,000,000 worth of seven per cent. preferred stock.

The special statement of the official auditor, excluding the Fort Frances and the Howard Smith mills, was read for the purpose of official record as follows:

Mill—Month.	Newsprint cost.	Selling.	Interest on cap.	Dues	Total
Brompton—					
May	$50.99	$ .22	$ 7.00	.94	$59.15
Canada Paper—					
June-July	53.09	2.19	6.50	...	62.08
Ont. Paper Co.—					
July	45.32	.56	7.28	...	53.16
St. Maurice—					
August	41.34	1.25	17.22	.84	60.65
J. R. Booth—					
May	50.17	1.09	10.81	.40	62.47
Belgo-Can.—					
June	48.27	1.20	5.66	.56	55.69
Abitibi—					
August	45.99	2.29	6.49	.28	55.05
E. B. Eddy—					
Sept.	46.90	2.00	10.81	.63	60.34
Donnacona—					
August	44.75	1.20	9.43	.47	55.85
Spanish River—					
Sept.	43.88	.91	8.51	.42	53.72
Price Bros.—					
August	43.77	1.20	13.00	...	58.91
Laurentide—					
July-Aug.	45.71	3.70	10.00	.94	59.85
News P. & P. Co.—					
August	38.81	.72	7.76	.94	48.23
Total	$598.99	$18.53	$120.47	$7.36	$745.15
Average	$46.07	$ 1.42	$ 9.27	.57	$ 57.33

If the claim of Spanish River on its common stock were allowed it would make a difference in total cost for this plant of $5.88 per ton, which spread over the costs of all the mills in the totals would mean forty-five cents per ton increase, and **the average of the price for newsprint for the thirteen mills would be $57.87.** Such was the official auditor's calculation.

Mr. P. B. Wilson, vice-president of Spanish River, inquired what figure Spanish River had been put in at. Mr. Clarkson said $53.42. Mr. Wilson said this did not make allowance for the common stock.

No Provision for Contingencies.

Mr. George Montgomery told the Commissioner that he wished to put in evidence for mill contingencies that had not been included or allowed for in making up the newsprint costs. Mr. Montgomery said that in the setting of a sale price in Canada for newsprint that something should be allowed for these contingencies. Among them he mentioned fire loss on limits, shut-downs, interruptions due to shortages of water or water power, and shut-downs for repairs. Other items of increased expense Mr. Montgomery said had been the unsettled coal situation due to the war, which had caused the paper manufacturers to depart from their peace-time custom and lay in reserves or stocks of coal to ensure the operation of their plants during the winter months. Sulphur was another commodity that was causing concern and had a bearing on the expenditures of the paper mill men. "Sulphur used to come by water, but now it is purchased at the mines and comes by rail. Thus the cost is increased," said counsel for the newsprint manufacturers. These increased costs, i.e., the extra investment in coal and increased cost of sulphur, Mr. Montgomery said, had not been reflected in the figures during the first six months of this year. A shortage of railway cars necessitating shut-downs, storage of newsprint and extra handling costs were items that were not properly taken care of by the figures submitted. Then again there were lots extracted for colonization purposes that were not shown on the books. Allowance for loss through floods, breaking of dams, etc., should also be provided for.

Mr. George Cahoon, Jr., was called by Mr. Montgomery to tell what these contingencies meant to the mill costs and how they worked out over the year's operations. Mr. Cahoon said that first came the paper machines, which had not been shut down for the last twelve months and were working about six and one-quarter days per week. The cost of repairs to these machines now would be double that had they been taken down and repaired when they should have been. He thought that seven days was a fair average to allow for the repair of a paper-making machine. The loss of time occasioned by such repairs was not represented in the figures submitted to the Commissioner.

Formerly the newsprint manufacturers had been buying coal according to their needs. Now, however, they had to buy large quantities at once to ensure the operation of their mills. To handle the big quantity of stock coal the Laurentide Company had to put in a coal-handling plant which had cost $100,000. Another loss incurred, Mr. Cahoon said, was from fire in the coal piles. Laurentide had a pile of thirty thousand tons which, Mr. Cahoon testified, was on fire from one end to the other. "If we get ninety per cent. of the fuel value from the coal we purchased we shall be very fortunate," he added. Altogether the amount of money already invested in fuel with the Laurentide Company was estimated to be $300,000. Ten per cent. return on capital invested would mean interest charges of $30,000 for the year, or about fifty cents per ton of newsprint manufactured. Another item of expense to Laurentide that was not taken care of on the books was the erection of a storage warehouse for paper due to the car shortage. This warehouse cost $75,000. Mr. Cahoon said that when the war ended and the car situation became normal that the Laurentide Company would have no use for this warehouse, except perhaps to "use it for a dance hall." The cost of its construction should be provided for before the war ended. Referring to other means of transportation, Mr. Cahoon said "steamships act as a balance between the producer and the consumer."

"We, the paper manufacturers, have passed through lean years and now when a rich one comes the Government steps in and sets a price," said the head of the Laurentide Company. "The price we should get for the next twelve months should make an allowance for contingencies," continued Mr. Cahoon. Mr. Pringle asked witness what, in his (Mr. Cahoon's) opinion, would be a fair and just allowance above the ten per cent for capital invested, to take care of contingency charges. Mr. Cahoon thought the amount should be about five dollars per ton. Mr. Cahoon explained that he thought this charge over and above the return on capital invested was justified. He said that there were so many risks connected with the paper manufacturing business that investors, when they put their money into a paper company, expected to get something more than they would have expected from the same investment in Government bonds. Another nice item to the manufacturer's business was that it took about four years for his money to return to him. In this direction he pointed out that from the time the wood was cut until it reached the paper mill and was converted into paper ready for shipment was from anywhere from two to three years. In the case of shipments to Australia, Mr. Cahoon said "then we have to wait another year to get our money back."

The Commissioner asked Mr. Cahoon what he thought would be a fair and just price to the newsprint manufacturer to cover all his expenses and leave him a fair margin of profit on his invested capital.

"**Without disrespect to you or the Government I feel compelled to say that I am not in favor of supplying one pound of newsprint paper to anybody after November 1st at a price less than three cents per pound,**" was the reply.

This statement threw down the gauntlet of the newsprint manufacturers to the Commissioner and the Government. The Commissioner said that he would try within twenty-four hours to have sufficient information to the Government to permit a price being made for the extension of the order for the month of November. Mr. Pringle assured the manufacturers there would be no unnecessary delay. At present the Government was much pressed for time and it might be ten or fifteen days before the Government could go into the newsprint situation and decide what the price should be. If the order for November was made, he said, the Government, for want of time, might not be able to go fully into the situation and thus an order at the two and one-half cent rate might be made for the month of November. The Commissioner said that he understood that the Newspaper Publishers were to have an opportunity of being heard before the Government before any price was set. Mr. Pringle referred to the necessity for having the order renewed for the month of November.

Mr. Cahoon reminded the Commissioner that the Newspaper Publishers had had ample time during the progress of the newsprint probe to wait on the Government. If the publishers did not care to do so, it was their own affair, but the newsprint manufacturers should not be made to suffer further as the delay or fault was not theirs. Mr. Cahoon went on to state that the Canadian Newsprint Manufacturers had given the Canadian press $550,000 by having been forced to sell in Canada at the two and one-half cent per pound rate.

"We have given them (publishers) over half a million while waiting for the Government to have us prove the statements that we made eight months ago," said Mr. Cahoon. The president of Laurentide practically said in effect that the newsprint manufacturers had had enough of waiting for a new and just price, if the practice of delay was continued on the part of the Government, Mr. Cahoon said:

"I think it will cause a break in the friendly relations between the manufacturers and the Government."

"That is so," replied the Commissioner.

"And it will be up to the Government to know how it will go," significantly added Mr. Cahoon.

Mr. Cahoon said that he did not, without authority, wish to speak for all the manufacturers and requested that the Commissioner grant an adjournment for five minutes to permit the manufacturers to get together in another room and decide on what should be done. The manufacturers filed out of the City Council Chamber into the hallway near Mayor Fisher's door and a held a private conference. Five minutes later they came back and announced to Mr. Pringle that they would keep on supplying newsprint up to Saturday night at two and one-half cents per pound. This practically amounted to an ultimatum to the Government, and gave the Government up to Saturday night to give the Newspaper Publishers a hear-

(Concluded on page 1060.)

Present Condition of the World's Markets

In submitting his monthly review of the world's trade situation to the News-print Manufacturers Association, the acting secretary, Mr. R. H. Houk makes the following general comment as an introduction to the subject:

There is little change to report in the world's pulp and paper markets, prices ruling at practically the same levels that existed last month. Swedish chemical wood-pulp arrived in England during September, but only in small amounts, and practically all of it had been paid for and held in Sweden on the British paper makers' account. Swedish licenses to export were only obtainable up to October 15th and furthermore British licenses to import are very nearly exhausted. The industry in Norway is almost at a standstill.

The British Paper Commission set the price of news-print paper at 9½ cents per pound early in October, as against the September price of 8⅛ cents. Paper prices in England are expected to advance, but the pulp situation is very unsettled, as the buying power of the countries is limited, shipping space high and hard to obtain, and a curtailment in production in evidence everywhere abroad. Scandinavia has almost disappeared as a factor in this pulp market, and arrivals in October were on a still lower scale than previously.

ITALY

"L'Industria della Carta", Milan Italy, September 1, states that the Italian Union of Publishers have at a meeting in Torino unanimously decided to increase the price of their papers to two cents. This action has been put in the form of a resolution to the Minister of Industry, with the hope that the Government will issue a decree to apply to all daily papers in Italy.

Manufacturing conditions show no improvement. Imports of paper-making materials for the first three months of 1917 are on the average per month:

Chemical wood-pulp	2,500 short tons
Mechanical wood-pulp (dry)	300 short tons
Mechanical wood-pulp (wet)	11 short tons

against a monthly average in 1913 of 8,000 short tons of chemical wood-pulp and 900 short tons of mechanical wood-pulp. Of this 2,500 short tons of chemical wood-pulp, Norway furnished an average of 340 short tons monthly, Sweden, 2,100 short tons, and Switzerland 60 short tons. One-third of the mechanical wood-pulp came from Sweden, but the countries of origin of the balance are not stated. The importation of all papers amounted to about 100 short tons a month, and board about 1,700 short tons, over half of the latter being supplied by the United States. Exports of paper amounted to about 1,500 short tons a month, one-third of which was wrapping paper and one-third printings and writings.

AUSTRALIA.

The Sydney correspondent of **"The World's Paper Trade Review"**, London, England, September 7, writes as followsabout the paper shortage in Australia:

"A paper famine is threatening Australia. Newspapers are reducing their size and adopting other measures for meeting the situation, such as abolishing the system of "sale or return". At the same time, the price of news-print has gone up from $47.50 per short ton before the war to $173.80 per short ton."

"The Weekly Bulletin of the Department of Trade and Commerce", Ottawa, Canada, has a report from the Canadian Trade Commission at Melbourne to the effect that, since it seems impracticable to try to build up a self-containing paper manufacturing industry in Australia by the utilization of hoop pine, blady grass and other domestic fibres, the Executive Committee of the Commonwealth advisory Council of Science and spruce and poplar in the high altitude of Victoria. It Industry have become interested in a scheme to plant is stated that wood from 900 acres so planted will supply the needs of Australia for one year, and it is recommended that 2,000 acres be planted the first year and 1,000 acres a year thereafter until the first planted trees are ready for cutting, and then to start a general cycle of reforestration scheme. While it would take a number of years for this wood to reach the size for cutting, it would place Australia in a self-supporting position so far as the pulp-wood for paper making is concerned.

JAPAN

"The World's Paper Trade Review", September 14, states that 'the returns of the foreign trade of Japan for the first half of the present year show a decline in the import of pulp for paper making."

RUSSIA.

The Petrograd correspondent of **"The paper-Maker and British Paper Trade Journal"**, London, England, writes as follows:

"The provisional Government has issued the following decree respecting the size of newspapers:—Until the scarcity of paper has been removed newspapers may only be published as follows: Morning papers to contain not more than 252 columns, and evening papers not more than 156 columns in the week. This decree does not apply to the Provisional Government Gazette or to the Bulletin of the Petrograd Council of Soldiers' and Workmen's Delegates. Newspapers that were published of less than the dimensions named in the present decree have not the right to increase their size beyond that which they had during the month of Januanary and February this year. Then follow penalty clauses for non-observance of the decree, etc."

"The World's Paper Trade Review", states that pulp mill interests are concerned in the Riga retreat, as several pulp mills have been erected in that district during the last twenty years.

FINLAND.

The Helsingfors correspondent of the above-mentioned authority writes as follows on the chaotic conditions in Finland's industries as relating to the pulp and paper industry.

"The political situation in Finland continues to be a very anxious one and will probably continue to be so for some time. What the outcome of the present struggle for autonomy will be it is difficult to forecast, but it need scarcely be said that until the country's relations with Russia are placed upon a settled basis and until Finland's internal troubles are disposed of, its industry and commerce must suffer.

"Owing to a general strike of printers and a lock-out on the part of the employers practically no newspapers have been published in Finland since July 1st. The printers are demanding an advance in wages of no

less than 140 per cent, but the employers decline to grant more than 80 per cent.

"Conditions in the pulp and paper industries are, of course, affected by the general situation, but hopes are entertained that the country's dificulties will be surmounted without ruin to Finland's industrial and commercial life."

ENGLAND.

During September small quantities of Swedish chemical wood-pulp arrived in England, but the quantity is insignificant in comparison with the expectation. "**The World's Paper Trade Review**" circularized the paper makers in an effort to collect data on the actual arrivals of Swedish pulp, and while many of the replies were to the effect that arrivals were daily expected, few had received consignments of over 50 to 75 tons. Most of this wood-pulp had been purchased in Sweden before the embargo had been put into effect, and the market prices were not affected during the first of the month. British paper makers who were free to purchase in the open caused a livening of the chemical wood-pulp market, but this was of short duration, as a shadow was thrown on the renewal of operations between England and Sweden because of the Argentine affair, and prices again reacted to normal. "**The World's Paper Trade Review**" of September 28th quoting the same levels that existed in our last Digest (except in the case of bleached sulphite) viz:

"C.I.F. prices, based on F.O.B. values plus insurance, freight, etc. at prevailing rates:

	per short ton
Sulphite, bleached, good quality . .	$173.80 to $195.53
Sulphite, easy bleaching, 1st quality.	152.08 to 156.42
Sulphite, news or strong quality . .	130.35 to 143.39
Soda, bleached, 1st	152.08 to 156.42
Soda, unbleached, kraft	130.35 to 152.08

Subject to license for shipment as soon as can be arranged."

Aside from the above-mentioned cause of reaction, "The World's Paper Trade Review", London, England, states that available shipping space is still hard to find and that it is difficult to arrange insurances. Licenses, furthermore, are prettty well used up. "**The World's Paper Trade Review**" explains this situation excellently in the following article.

"Licenses to import have been freely drawn upon by British paper makers, with the result that operations must necessarily be on a restricted scale until the renewal of licenses at the commencement of March, 1918. Present regulations provide for the importation during the twelve months commencing March 1, 1917, of one-half of the weight of paper-making materials imported in the previous year. As regards imports of wood-pulp, the following figures cover half-year periods:

	March-August, 1916	March-August, 1917.
Chemical	96,582 short tons	90,240 short tons
Mechanical. . .	265,660 short tons	142,724 short tons
Total	362,242 short tons	232,964 short tons

It will be seen that the arrivals of chemical wood-pulp show a decrease of only 6.5 per cent, which means a drastic curtailment in supplies during the next half-year. The imports of chemical wood-pulp more closely approximate to the official regulations, the decrease during the last half-year being 46 per cent. Probably the scarcity of licenses to cover future imports of chemical wood-pulp is largely responsible for the present chaotic state of the market. Prices, for instance, show considerable variation, and the tendency is extremely weak. The arrivals of Swedish chemical pulp may also have an important bearing on the situation, as licenses must be used that would otherwise cover Norwegian, American and Canadian contracts for Swedish chemical are anxious to get deliveries, and have agreed to pay extra costs. It is evident that plenty of pulp is on offer, but difficult to place. Consequently quotations are unstable."

Through September the mechanical wood-pulp market was lifeless and weak, with prices easing off from $78.21 — $86.90 to $71.69 — $76.04 for wet mechanical and from $117.31 — $121.66 to $99.94 — $104.28 for dry mechanical. These prices represent c.i.f. United Kingdom ports prices based on F.O.B. values plus freights, insurances, etc., at prevailing rates, and were quoted by "**The World's Paper Trade Review.**" There was very little Norwegian mechanical offering, owing to the curtailed production and high cost, and Swedish mechanical was adversely affected by the low rate of exchange.

A slight improvement was noted at the end of the month in wet mechanical, owing to a brisk demand from France.

Paper prices show signs of hardening, states "**The World's Paper Trade Review**", and higher levels are expected. News-print is particularly in demand and the quality is generally very poor.

As regards British imports and exports of paper, we give you herewith the Government figures as recorded in "**The World's Paper Trade Review**", September 21, 1917:

"With the exception of April, the month of August ranks the lowest this year in regard to the imports of paper, etc., into the United Kingdom. The total quantity amounts to only 12,135 short tons. Compared with August of last year, a decrease is shown of 44,730 short tons. The arrivals of reel paper were on a very small scale, the reduction last month, as compared with August 1916, being 20,996 short tons. Packings and wrappings show a decrease of 9,952 short tons, and strawboards 9,497 short tons. It is very evident that paper consumers find very little relief from imports, as the total quantity last month fell off 78.6 per cent compared with August a year ago. The total value of last month's imports was $1,703,986.66 a decrease of $2,596,360.00, or 60.3 per cent compared with August of last year."

"British paper exports continue on a small scale. The shipments during August amounted to 3,766 short tons, a decline of 8,866 short tons, or 70.1 per cent, compared with the corresponding month of last year. The exports of printing show a decrease of 6,195 short tons and writings a reduction of 759 short tons. Last month's total value was $1,136,292.07, a drop of $1,329,492.25 or 53.9 per cent, compared with August of last year.

The imports of chemical and mechanical wood-pulps were on a more satisfactory scale than in the case of paper:

Short Tons	In August. 1916	1917
Chemical—		
Bleached	1,557	3,811
Unbleached	19,218	7,150
Wet	1,499	.....

Mechanical—		
Dry	1,426	5,792
Wet	28,463	12,551
	52,163	29,304

SWEDEN

The Swedish paper trade Journals are greatly limited by the Government as to the information which they may publish, and in addition to this these papers have been taking from six weeks to two months to reach this country. It is necessary therefore to obtain our Swedish current quotations and information from British paper trade journals, which check up very closely with the information contained in the Swedish papers when they finally come to hand.

The August issues of our correspondents state that the reduction in production grows daily, upon the advice of the Government, but that work will be resumed in the winter as far as the supply of raw materials will permit.

The foreign paper trade journals are full of financial reports of the Swedish pulp and paper concerns and we quote herewith from "**The Paper-Maker and British Trade Journal**" of September 1, 1917:

"Despite the shortage of coal and the blockade, 1916 appears to have been a record year for the cellulose and paper factories of Norway, if one may judge from the annual statements of some of them have issued. Cellulose factories show earnings of from 30 to 260 p.c. of the share capital and paper mills from 50 to 140 p.c. Usually only a part of the earnings have been distributed among the shareholders, the balance being set aside for extensions and the purchase of modern plants, while in other cases they have been devoted to increases of share capital. Exceptionally high prices have, of course, chiefly contributed to this result.

"**Affarsvarlden**" Stockholm, Sweden, August 29, 1917. reports that the chemical wood-pulp market is unchanged with quotations at $88.54 F.O.B. Gothenburg and $81.36 F.O.B. Baltic for sulphite pulp-wood and $83.75 to $95.71 F.O.B. Sweden for sulphate wood-pulp, all per short ton clear net F.O.B. This same authority quotes dry mechanical wood-pulp firm at $52.64 to $59.82 per short ton cash F.O.B. Gothenburg, inclusive of the agent's commission, and states that there is a strong demand from Italy, France and Spain. According to the same issue of "**Affarsvarlden**" and from the mechanical wood-pulp is barely 50 per cent of normal, and further restrictions are to be expected.

Timber freights are $57.43 — $62.21 per short ton from the Baltic to the East Coast of England, accordingto the same issue of "**Affarsvalden**" and from the West Coast of Scandinavia to East Coast of England coal ports $35.89 — $40.68 the differential due to the high freights obtainable for return trips with coal.

"**Svensk Pappers Tidning**", Stockholm, Sweden. August 31, says that paper prices are firm around $118.00 per short ton F.O.B. Sweden and large contracts have recently been closed, especially with Russians. The demand from Germany for sulphate pulp and paper is still strong, but the liquidation question is still a difficult one. Sulphur, according to the abovementioned authority, is bringing $371.65 per short ton. lubricating oil $1.64 a gallon and coal $72.94 per short ton in Sweden. Furthermore, the State Railways are prohibited from transporting paper and cardboard, so after the manufacture of paper has finally been accomplished, the difficulty of moving it has to be faced. The situation is serious but the Swedish manufacturers seem to feel that their markets are safe because other countries are experiencing similar difficulties.

NORWAY.

The Norwegian pulp and paper industry is almost at a standstill owing to the difficulties attending manufacture, scarcity of ships and the weakening of markets below the cost of manufacture.

"**Tidsskrift for Papirindustri**," Christiana, Norway, Sept. 1, 1917, states that five grinder mills are shut down, four of them indefinitely.

"**Papir-Journalen**", September 13, 1917, has just come to hand and calling attention to the dullness of the markets quotes the following prices per short ton, F.O.B. Norway:

Prime Bleached Sulphite	$145.87	—	
Prime Easy Bleaching Sulphite	99.68	—	$102.11
Prime Strong (News) Sulphite.	97.25		
Prime Strong Sulphate	94.81	—	97.25
Dry mechanical wood-pulp	53.49		

Newsprint paper is stronger.

"**Tidsskrift for Papirindustri**," Christiana, Norway, of September 15, 1917, states:

"Wet mechanical Wood-Pulp. The few sales that have taken place of late have mostly been ex stock. Many mills have closed down and the demand is falling off. The price F.O.B. East Norwegian Port is about a decided falling tendency and Canadian competition $29.18 per short ton.

"Dry Mechanical Wood-Pulp. This article has still is being more and more marked. Very few sales have taken place of late and prices are nominal.

"Paper. The market for this commodity is without much life, there being very few inquiries and orders. Australia has, however, bought to some extent, but on the whole the situation is not satisfactory."

According to "**Farmand**", September 8th:

"On the 31st of August the Paper, Cellulose, and Woodpulp workers' organization gave notice that they would stop work on September 15th unless their claims for higher wages and other changes in their conditions were granted. The official negotiator has, in acordance with the authority vested in him by the law, prohibited stoppage of work until negotiations have been attempted. The first meeting before the official negotiator was held September 7th."

It does not seem possible that the labor situation will cause further manufacturing difficulties as the Norwegian pulp and paper makers have been pressed to such a point by the markets, that they are quite ready to shut down. It is felt that the laborers are being led blindly into a situation that may take away their livelihood, by labor union heads who are not properly posted on the seriousness of the whole situation.

In regard to the price fixing of paper for the Norwegian newspapers, the "**Anglo Norwegian Trade Journal**," London, for August states as follows:

"Since the war started the Norwegian Paper Mills assisted by the pulp manufacturers, have been supplying the Norwegian press with paper at prices below the cost of production. The German declaration of a ruthless U-boat campaign as from February 1st has had such an effect on the paper mills that only one-third of the machines have been kept going; the high prices of coal and other raw materials, accompanied as they have been by almost impossible conditions for export, rendered it necessary for them to demand re-adjustment of the prices for home consumption. The result was

that the Norwegian Government and Parliament took the matter in hand and passed a law according to which the paper manufacturers are obliged to supply each newspaper at prices fixed by the Government with up to 55 short tons per annum. The larger and presumably more prosperous newspapers must buy whatever more they need at market prices. The mills also have to provide paper for school books at the same reduced prices. The mills insist that they have already been providing paper at prices more than $44.14 per short ton below the cost of production, and that in this way they and the pulp mills have contributed about $116,796.00 during 1916 for the support of the Press. During the first half of 1917 they have similarly contributed about $77,864.00."

The following agreement has been reached by the Paper Bill Commission and the Paper Wholesalers Association as regards profits:

"For Paper to be delivered at the reduced price from wholesalers, the dealers may take a remuneration of: A. When delivering from a mill to customers in Christiana (smallest delivery 1 ton) $10.90 per short ton (freight and delivery charges included); B. When delivering from mill to customers outside of Christiana (smallest delivery 1 ton) $7.30 per short ton (freight and delivery charges not included); C. For paper directly from the dealers stock (smaller lots) in addition to the mentioned, $12.18 per short ton."

Conditions are expected to grow more chaotic until peace is in sight.

Paper Controller Pringle will have no Fooling

By EVERETT ANDREW.

(Written Specially for the Pulp and Paper Magazine)

The entire Canadian paper trade virtually, indirectly, passed into the control of the Canadian Government Monday afternoon, November 5th, when Robert A. Pringle, K.C., was officially appointed by Order-in-Council as the first Canadian Controller of paper. Co-operation with the Federal Trade Commission is also provided for. All manufacturers of newsprint, kraft, coated or other grades of paper, as well as manufacturers of pulp, sulphite, or sulphate, are for the duration of the war bound or controlled by the Paper Commissioner.

At midnight Monday when this the most historic story in Canadian paper trade annals is being written the best advice that the correspondent of the Pulp and Paper Magazine can give the trade (incidentally some facts which have a future bearing cannot at present be mentioned) is to obey the order and accept the circumstances as they come. The path is not a rosy one; from the present outlook it is a choice between treading on nettles or thorns. Candidly, it is up to the paper manufacturer to choose or set his course now.

Without betraying confidence, or without giving inside information that I should not give the situation as every paper manufacturer will appreciate it is unofficially this:—"If you try to shut your mill down for repairs or any other kind of excuse, for the purpose of defeating the order, watch out." The author of this article, while he cannot officially say so, has good reason to believe that if the mill operators try to pull 'high jinks' (for the purpose of strangling the newspaper publishers) that their mills and plants are liable to be commandeered over night."

It is absolutely apparent at Ottawa that the Dominion Government, first, last, and all the time (so long as the war lasts) means business.

Many important happenings have occurred from the time the Canadian Newsprint probe ended Tuesday afternoon, October 30th, up to the time that the Order-in-Council appointing Mr. Pringle went through. Here are some plain bald facts in skeleton form:—

Thursday, November 1st.—Late in the afternoon rumors were heard that the price of newsprint at two and one-half cents per pound was to be extended. How far or for how long nobody seemed to know.

Friday, November 2nd.—At 10.45 a.m. the correspondent of the Pulp and Paper Magazine had official confirmation that the two and one-half cent per pound order had been extended for twenty days. One newsprint manufacturer on being informed of the happening styled it as "a damnable outrage." To get absolute confirmation of the happening the correspondent of the Pulp and Paper Magazine got in touch with Mr. Pringle. The outcome of the telephone conversation was that the publishers (who, the manufacturers at the end of the inquiry expected, would come to town and wait on the Government) had not arrived. Nor is there any set date for their coming. "Meanwhile the order has been extended for twenty days," said Mr. Pringle.

Saturday was more or less a day of uncertainty. Apprehension apparently lurked everywhere. In some minds there were grave misgivings that the newsprint manufacturers would not continue supplying newsprint at two and one-half cents per pound after Saturday night; i.e., the date on which they told the Commissioner at the concluding session of the probe they would continue to supply newsprint to the publishers. Rumors of a meeting of the manufacturers at Montreal, Saturday night, brought no confirmation at Ottawa. George F. Henderson, K.C., counsel for John R. Booth and Fort Frances, was reported out of the city. On the other hand, George H. Millen, Jackson C. Booth, H. I. Thomas and John F. Orde were in Ottawa. On an average analysis it looked as if there was nothing doing; that is so far as personal representation was concerned.

On Saturday night it was pointed out that the time had been too short for combined action.

Sunday was a day of more or less uncertainty up to 5.45 p.m., when your correspondent was reliably informed that the Order-in-Council appointing a newsprint Controller was actually in existence. According to the information this Order-in-Council was prepared Friday or Saturday, but awaited official signature. The important Government House wed-

ding of Lady Maude, eldest daughter of the Duke of Devonshire, was cited as being responsible for the Order-in-Council appointing the Controller not being signed on Saturday.

Monday moulded history for the paper trade of Canada.

Again without betraying any confidence the mills kicked. And certain mills kicked hard against supplying newsprint to the publishers at two and one-half cents per pound. Newspaper publishers complained by wire, letter, or other mediums, to the Commissoner that they could not get newsprint. Before this appears in print some mills, if they persist, may be commandeered or taken over by the Government before the situation is clarified. It is absolutely certain that Mr. Pringle is not going to stand for nonsense.

Three-cent newsprint is virtually assured for the Canadian sales, but the big question with the Controller is apparently setting a price that will apply as a fair and just continental rate. Three cents per pound for Canada and from three to three and three-quarters as a continental price seems from this angle to be about right. In setting the price the Controller will very likely consider that eighty-nine per cent. of the Canadian output goes to export—of which the sales and profits thereon has proved the backbone of the existence of the Canadian paper mills since the war began.

Under the official Order-in-Council it is believed the price for newsprint in Canada may change from time to time as circumstances warrant.

The twenty days' stay that has been allowed through the extension of the order at two and one-half cents is virtually for the benefit of the publisher. It is the intention, so the writer understands tonight, that the Newspaper Publishers are to have a hearing before the Government before any price is set.

Mr. Pringle will not interfere with the two and one-half cent per pound rate during the tenure of its official existence—November 20th. The Controller will finally set the price, which is likely to be announced on or before November 20th.

The inquiry into book and other papers will be held at Toronto, commencing November 9th.

The New Order-in-Council.

The official text of the Order-in-Council appointing Canada's first paper controller is as follows:—
Privy Council, approved by His Excellency, the Governor-General, on the 3rd November, 1917.

The Committee of the Privy Council have had before them a report, dated November 2nd, 1917, from he Minister of Finance, submitting the following information and recommendations respecting the paper situation of Canada.

About the beginning of the present year conditions affecting newsprint paper became very acute and newspaper publishers experienced difficulty in obtaining an adequate supply.

On April 16th, 1917, in order to ensure the publishers of Canadian newspapers an adequate supply at reasonable prices, Robert A. Pringle, K.C., of the City of Ottawa, was appointed Commissioner with all powers given under the Inquiries Act, Ch. 104, Revised Chapters of Canada, and Amending Act 2 Geo. V, Chap. 28, to conduct an inquiry into and concerning the manufacture, sale, price and supply of newsprint paper within the Dominion of Canada. He was also appointed an officer under the provisions of Sec. 6, of the War Measures Act, for the due enforcement of all orders and regulations made by the Minister of Customs under Order-in-Council, P. C. 1059, of 15th April, 1917.

Orders were made from time to time by the Honorable the Minister of Customs, under the authority of Order-in-Council, the provisions of which have not as yet been completely fulfilled.

Robert A. Pringle, K.C., was also appointed a Commissioner with full powers under the Inquiries Act to investigate into the cost of production of pulp, book, and half-tone papers.

Both investigations are still in progress. Acting under different orders made by the Honorable the Minister of Customs, the Commissioner has exercised control over the supply of newsprint paper in the Dominion of Canada, and up to the present time domestic needs have been adequately safeguarded. The last order made by the Minister of Customs was dated 1st October, 1917, and under that order he fixed the price and quantity of newsprint in sheets and rolls furnished, or to be furnished, to the publishers in Canada by the manufacturers up to the 1st November, 1917. He did also order as follows:

> "And whereas under existing conditions the supply of newsprint paper to Canadian publishers is not proportionately distributed between them, and by reason of the fact that the prices fixed are lower than the manufacturers are receiving from export business, I do order that each manufacturer should bear his due proportion of the cost so entailed in complying with above; and that if arrangements are not made between the manufacturers for the pooling of such cost and for adjustment between themselves in proportion to the percentage of their output supplied to Canadian publishers then an accounting be made, and the manufacturer or manufacturers who have supplied a greater percentage of Canadian tonnage than properly attributable to them shall be paid by the other manufacturers sufficient to place them in the same position as the manufacturer or manufacturers who have not supplied their proper percentage of paper to the Canadian publishers."

As both investigations are still proceeding and the Commissioner considers that it is imperative to continue the exercise of public control over supply and prices as the only effective means of assuring to the newspapers of Canada their requirements, the Minister of Customs recommends that Robert A. Pringle, K.C., be appointed a Controller, continuing to have all the powers given under the Commissioner given to him 16th April, 1917, and that he also be given full power to carry out all the terms and conditions of the different orders made from time to time by the Honorable, the Minister of Customs, that he be authorized and empowered to fix the quantity and price of newsprint paper and other classes of paper to be furnished to the publishers in Canada by the manufacturers during the continuance of the war unless otherwise ordered, and also to fix the price of pulp, including sulphite and sulphate. The prices aforesaid, however, to be first approved by the Governor in Council

The Minister further recommends that as Controller Mr. Pringle be further authorized and empowered to make such order or orders as he may deem necessary or

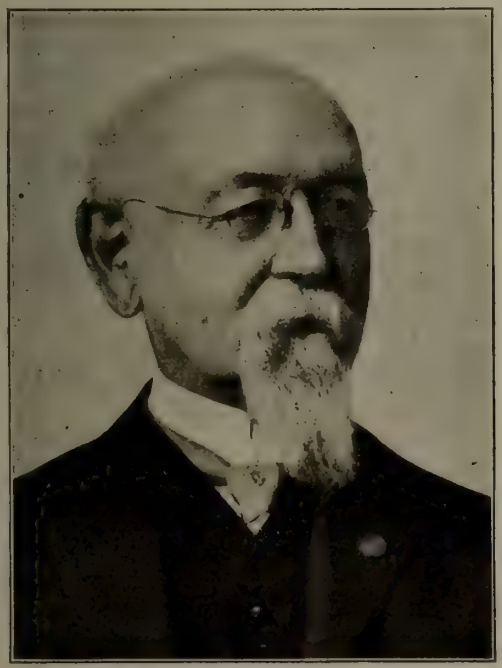
advisable for the distribution and delivery of paper by the manufacturers to the publishers, and for the distribution nad delivery of pulp (including sulphite and sulphate) to manufacturers of newsprint and other papers; that all orders and regulations made by the Controller under this authority shall have the force of law and shall be enforced by such officer or officers as the Controller may appoint; that any persons who contravenes or fails to observe any regulation or roder made under this authority shall be liable to punishment as provided by the War Measures Act; and that in the course of and in connection with his investigations the Controller be authorized to confer with and cooperate with the Federal Trade Commission of the United States of America, and that the Controller be authorized under the Inquiries Ac, Ch. 104, Revised Statues of Canada, and Amending Act 2, Geo. V, Chap. 28, to engage the services of such accountants, engineers, technical advisers, or other experts, clerks, reporters, and assistants as he may deem necessary and advisable. The expenditure incurred hereunder to be charged to War Appropriation.

The Committee concur in the foregoing and submit the same for approval.

(Sgd.) RODOLPHE BOUDREAU,
C. P. C.

GEORGE H. MILLEN, GENIAL AND EFFICIENT.

Radiating health and happiness from a person that shows no sign of the ravages of time, Mr. George H. Millen, president of the E. B. Eddy Company recently passed another milestone on his way when he attained the age of seventy-nine — nine years beyond the allotment of three score years and ten.



George H. Millen.

From service in the American Civil War the presidency of the E. B. Eddy Company is a mighty long stop especially when one takes the course through working up to the job. Mr. Millen took it the same as he is taking a generous slice of life's span, and according to his best friends he has another ten years or more ahead of him.

On the occasion of his seventy-ninth birthday recently he was surrounded by his employees many of whom have been with him for over a quarter of a century, and in his office was presented as tribute of affection with a basket containing seventy-nine American Beauty roses. In honor of the event bunting was flown from the flagstaffs on all the E. B. Eddy buildings. Nor did the remembrance of the president's birthday cease to exist beyond the confines of the big Eddy Plant at the Chaudière, for from coast to coast came congratulatory messages and telegrams from the branches of the E. B. Eddy plant scattered throughout the Dominion.

Mr. Millen came to Hull in 1866 a year after the Civil War ended and soon afterward entered the employ of the E. B. Eddy Company. He grew with the plant and his fifty odd years of untiring service and efficiency eventually placed him in the position he occupies to-day. His appointment to the presidency took place four years ago, Mr. Millen succeeding to the late W. H. Rowley.

The weight of years totalling almost eight decades does not fall heavily on the broad shoulders of genial Mr. Millen and every day he is down at his office attending to the proverbial hundred and one things of the big paper and manufacturing plant.

Mr. Millen has been one of the outstanding figures in the Newsprint Inquiry and that his years have not impaired his mental efficiency for quick thinking has been repeatedly shown by his ready replies to questions put to him by Commissioner Pringle. Mr. Millen, so it has been said by close associates, still has a mind like a steel trap. He was born October 23rd, 1838, at Glen Falls, New York.

IMPROVEMENTS AT PRICE BROS.

Among recent extensions to Canadian mills none perhaps is of greater importance than the big development at the Jonquiere plant of Price Brothers & Co., Ltd., whose head office is in Quebec City and who also operate mills at Kenogami and Rimouski, Quebec.

At Jonquiere they have expended approximately $250,000, making the plant modern and up-to-date in every department. New concrete head-gates, with racks, and a steel tube penstock 14 feet in diameter and 300 feet long, have been installed, as well as new water wheels. They have also set up three extra grinders, which, with those they had, make a total of nine at this mill.

The old wooden mill has been demolished, and reconstructed of concrete and steel throughout, and they are putting in a new boiler, and building a new concrete chimney; in fact, all the structural changes are being made of reinforced concrete. A new screening system has been installed, abandoning flat screens and substituting rotaries.

The two machines, as well as the beating engines and, in fact, practically the entire mill, is now driven by electricity. The only water power used is for grinding pulpwood. The production at this plant has been increased by more than 110 per cent. The equipment includes one 78-inch six-cylinder machine and one 110-inch Fourdrinier, the product being newsprint, manila, sheathing, tag and board products.

At Kenogami the company operates four 156-inch Fourdriniers on newsprint.

UNITED STATES NOTES

The Continental Paper Bag Co., has declared the usual quarterly dividend of 1½ per cent. on the common and preferred stocks, payable November 15, to holders of record November 8.

The Globe Paper Co., of Cleveland, Ohio, has increased its capital from $30,000 to $100,000.

Manufacturing activity in New York State factories showed a decided improvement in September, 1917, as compared with August. In September, which normally displays greater activity than does August, the number of employees increased two per cent. The aggregate of wages paid was not only five per cent. in excess of the previous month, but was greater than in any other month during the period since June, 1914. These statements are based on returns received by the Bureau of Statistics and Information of the State Industrial Commission. The paper industry employed two per cent. more workers and paid out four per cent. more wages in September as compared with August of this year, and employed four per cent. more workers and paid out 20 per cent. more wages than in September of last year.

The Chicago Waste Paper Co. of Chicago, Ill., has just been incorporated to do a general paper stock business with a capital of $25,000. J. Ellsworth Gross, Frank D. Fulton and G. E. Snyder are the incorporators.

Newsprint men in this city were interested in what was regarded as an attempt by the "New York Times," to obtain a plant for the manufacture of the paper needed for its own consumption. The "Times" put in a bid to the creditors and stockholders of the Iroquois Pulp & Paper Co., offering to take over the assets of the concern for the sum of $360,000. The company, in which John A. Dix, former governor of the State is interested, has been bankrupt for some time and it was thought that, perhaps, this action would wind up the affairs of the concern, at the same time, giving the "Times" its own paper plant. However, no agreement could be reached with regard to accepting this offer —so the "Times" has not yet got its own plant.

One of the big corporations of the week was that of the Perrault Paper Products Co., Detroit, Mich., which is capitalized with $500,000. The company was organized to make paper containers.

An important meeting of the Middle States Wrapping Paper Association is scheduled to be held in St. Louis, on November 20. No details have yet been given out as to what may be expected at this gathering, except that a large attendance is anticipated and that it will be "worth while."

Auer & Twitchell, of Philadelphia, have discontinued their rag and paper stock department. This is said to be the result of the resignation of Herbert Brock, which was announced in these columns last week. Mr. Brock was known as a paper stock expert. The concern intends to devote all of its energies to the development of its paper business, which has already attained remarkable proportions. William Carruthers has been made sales manager of the concern. He is well equipped for this responsibility, having seen considerable service in the employ of Chas. F. Hubbs & Co.

The Bardeen Paper Co., of Otsego, Mich., is contemplating the erection of a new mill for the manufacture of book paper, in the near future, according to S. B. Monroe, who is acting as president of the concern. Mr. Monroe made it understood that it was yet too early to give out any details regarding the plans for the mill, but intimated that the plant would most likely be along the style of the two-machine book mills which, he claimed, were regarded as on the most economical plan of construction. The company is about to issue $500,000 in bonds, part of which will be set aside, it is understood, for the proposed structure.

Authority to the government to control prices and the distribution of articles controlled during the period of the war has been approved by the Rochester Chamber of Commerce. At the recent meeting of the trustees, thy went on record to this effect. In the preamble to its report, the committee declared that the Rochester Chamber of Commerce, in voting should make clear its appreciation that the control of prices must be considered purely as a war measure and for the time of the war, and should emphasize its belief that, under other conditions, the Chamber would oppose the proposition.

Using German Dyestuff Patents.

Because many of the American manufacturers of dyestuffs to whom the Federal Trade Commission opened the trade secrets and patents owned by the enemy are German concerns operating under American incorporation papers, it was prophesied by the dyestuffs experts there will be comparatively few demands upon the Federal Trade Commission for licenses to use these enemy copyrights and patents. Those who are behind the scenes of the present dyestuffs situation, say the Germans with their well known foresight, have largely discounted the United States government's action in making valuable German patents public property under a system of licenses. The regulations state that any manufacturer in this country who can convince the Federal Trade Commission there is a real and urgent need for a certain dye which has heretofore been covered by a German patent, will be granted a special license to manufacture that article according to the formula of the enemy, such licenses to run until the natural expiration date of the patent or copyright. One statement given out was to the effect that there are now comparatively few dye patents of great value which have not already expired, so even if there were a large number of real American firms who are equipped with money and material to make dyes profitably, the value of the license privilege would be considerably curtailed. It is admitted that, if the war continues for any great length of time, many dye firms, with genuine American backing, may get on their feet and the access to certain patents through licenses may be of service. One of the most interesting of the new dye firms which have sprung up as a result of the war is that organized by the members of the Madero family of Mexico. Since the downfall of President Madero, it is said that several of the Madero clan have invested rather heavily in the dye business and apparently have large supplies of dyes stored in New York warehouses.

PULP AND PAPER NEWS

A despatch from Chatham, N.B., says that a steamer loaded rossed pulp wood at the Miramichi Lumber Company last week. Two or three other boats are expected before navigation closes.

The Labor Gazette for October reports steady business for the pulp and paper industry throughout Canada. Several districts report difficulty in securing labor, especially for lumbering. Printers of newspapers were everywhere busy, while job printers and box makers were slack in some districts.

Lazier Paper Mills, Ltd., Belleville, Ont., is now being operated on straw corrugating paper.

The new experimental pulp mill at the Forest Products Laboratory, Montreal, is coming on nicely under the direction of Mr. O. F. Bryant, head of the pulp and paper work. The walls and roof are practically finished and some of the machinery is under construction.

Mr. Safford, chemist at the Riordon Pulp and Paper Mills, at Merritton, has been appointed and will teach the senior chemistry class at the Thorold Industrial evening classes.

An unfortunate mishap occurred at the Kinleith Paper Mills, at St. Catharines, when a teamster employed by them backed his team and wagon into the canal, which resulted in the loss of one of the horses.

The work of preparing the plans and estimates for a vocational school, in connection with the Thorold High School, is under way, and an expert vocational school architect is to meet the special committee appointed by the Town Council this week.

The classes of the Thorold Industrial evening classes have resumed for the season. During the week about thirty students have enrolled and many more have expressed their desire to join. Among the students from the surrounding towns is a good representation of the Riordon Pulp and Paper Mills at Merritton. Classes will be opened in chemistry, electricity, mechanical drawing, English, mathematics and dressmaking. The latter subject is a new venture this year, for the benefit of the girls employed at the mills, and from the number of enrollments to date bids fair to be very successful.

The author of "The Story of Paper Making," reviewed in this Magazine on page 916, is Mr. F. O. Butler, president of the J. W. Butler Paper Company, Chicago.

NEWS FROM DRYDEN TIMBER & POWER CO.

General Manager J. B. Beveridge left on Tuesday last on a business visit to Chicago.

Many lumbermen are arriving in town for distribution among the logging camps of the Company.

The SS. Frank Marshall, which sank in shallow water last Friday, is now being pumped out.

REGULAR RIORDON DIVIDEND.

Riordon Pulp and Paper Company has declared a regular quarterly dividend of 1¾ per cent. and bonus of 1 per cent., payable November 15, to holders of record November 8.

CAYFORD LEAVES WAYAGAMACK.

A. F. Cayford, formerly secretary and treasurer and manager of sales of the Wayagamack Paper Company, Three Rivers, Quebec, has severed his connection with this company owing to a nervous breakdown last May. He has been in the South and the woods of Maine trying to regain his health.

On October 15 he accepted a position with the Hartje Paper Manufacturing Company, of Steubenville, Ohio, as director of finance.

Mr. Cayford was secretary and treasurer of the Wayagamack Pulp and Paper Company ever since the mill started, some six years ago, devoting his entire time and energy to making this great kraft paper and kraft pulp mill the successful project it is. This continuous work was the cause of his nervous breakdown. He is now fully recovered from his sickness and will take hold of his new duties in the energetic manner that is his chief characteristic.

FOREIGN PULP DESTROYED.

(Special to Pulp and Paper Magazine.)

A conservative estimate puts the amount of chemical pulp destroyed in the great Baltimore dock fire at 15,000 tons. The bulk of this consisted of unbleached sulphite and kraft pulp, and was held by local importers on consignment. The wiping out of the large supply of fibre has had little material effect on the market, but the sentimental effect is self-evident. Paper manufacturers are not buying imported pulp at present, and have not for some time past, owing to the cheaper prices at which domestic pulp has been obtained. The fact that a large portion of the available supply in this country has been destroyed, and with imports from Scandinavia practically cut off for the time being, it is most likely that more attention will be given to foreign pulp in the near future and any show of concerted buying would undoubtedly result in a rapid enhancement of values if for no other reason than the limitations now placed on supplies. The Baltimore conflagration is the sole topic of interest in the pulp trade. Importers are waiting to see the ultimate effect of the loss. The argument is advanced that paper manufacturers, knowing that good stocks of pulp were held on docks, refrained from buying until forced to do so, but now considerable doubt may arise as to the volume of stock available, which may cause buyers to enter the market on a more active scale.

A new addition to the New York trade is Thomas Fox, who comes from Cincinnati. He has been made manager of the New York office of the Whitaker Paper Co. and is the son of the man who was formerly head of the Fox Paper Co.

Added machinery is to be installed with the equipment of the Smith Paper Co., of Lee, Mass. The concern manufactures a high grade tissue paper and is well known to the consumers of this material.

The manufacture of paper is being promoted in Argentina under government encouragement.

The Markets

CANADIAN MARKETS.

Toronto, November 5.

The price of newsprint is not yet fixed and probably will not be for a couple of weeks. It is felt that when the figure is named it will likely be for the duration of the war. The mills have put up a strong case and practically all newspaper publishers admit that the continuance of the present figure of two and a half cents is an impossibility under the circumstances. However, whatever figure is named it is not probable that the press will raise much comment at the present time, for never did the papers in Canada carry such generous government advertising as they are doing just now. There are the large announcements in connection with the War Loan, the Military Service Act, War Certificates, etc. Advertising in other lines is also flourishing.

It is announced from Ottawa that Mr. Pringle has been appointed controller of newsprint in Canada and is given full power to fix the price, regulate the supply and to appoint officers to aid him in carrying out his orders. The appointment of Mr. Pringle as newsprint controller is good news to the paper manufacturers as they feel that he will give them a square deal and will base his decision on the evidence which has been placed before him.

In the meantime the production of newsprint goes steadily ahead and mills are very busy. The export of paper in August last was very heavy, being $3,454,777, while in August, 1916, the amount was $1,963,958. The value of mechanical and chemical pulp exported in August was $2,078,458, of which chemical pulp totaled $1,465,623, and mechanical $612,835. Both of these show a substantial increase over the corresponding month of last year. The quantity of paper exported during the past two years has increased by forty per cent. and the value shows a gain of one hundred per cent.

Book manufacturers are ready for the probe into their products and are wondering just what shape it will take. They think, of all nervy applications that have been made to the Government, that of the farm and the trade and class papers to remove the duty from book papers pending a decision by Commissioner Pringle takes the premium. "We pay duty on everything entering into the manufacture of our product and then to talk of having the duty on the finished article lifted is too absurd to be worthy of serious discussion," remarked a leading manufacturer this week. While prices are a trifle easier there is no indication of a movement in the direction of fresh orders for the book mills. Business is just about the same as last week.

Speaking of the importation of book and other papers from the United States, one producer said that the business placed here was generally a surplus or a special run or something of that character, and if the users of book papers could get it cheaper from the other side than from Canadian mills, why it was their privilege to do so.

The inquiry into manufacture, sale, price and supply of book and half tone papers, pulp and sulphite will start in Toronto on Friday of this week, and manufacturers of book paper are ready to take the stand.

It appears there is some misunderstanding on the part of the trade and class publications in regard to bearing the expense of counsel. One of the largest users of book papers has written to the chairman of the section that they will have nothing to do with the payment of legal fees on a percentage basis of book papers used in 1916 as, in that event, they would have to bear the greater portion of the cost. A member of the firm told the Pulp and Paper Magazine that they were not keen anyway on the inquiry and did not know what was to be gained by the whole inquiry into newsprint. They will have to pay three cents and more perhaps for their supply and this figure was offered them by the mills several months ago."

In this agitation for the removal of the duty, an Ontario manufacturer stated this week to your correspondent that the total imports of paper into Canada during 1913, the year before the war, reached over eight million dollars. A certain amount of these goods came into Canada free of duty and other lines at a very low rate, thus paying no revenue to the country either direct or indirect; nor do they employ Canadian labor. In some cases the goods that come in duty free are for such articles that the matter of duty would hardly affect the finished price of the goods, such as blue print paper, photo paper, etc. The capital cost of erecting a mill in Canada is at least forty-five per cent. over the United States and Europe, as machinery and equipment carry duties of from twenty-seven and a half to thirty-five per cent, and very little of this machinery is made in the Dominion. Then there is the war tax of seven and a half per cent. Owing to the restricted market in Canada, the manufacturers have to make a great variety of papers, and notwithstanding that they are, if anything better equipped than the United States manufacturer, a large amount of paper is sent in from the United States owing to the wider market and the fact that over-runs are disposed of at lower prices as it pays to sell a certain portion of output at cost or less to keep the mills busy.

Coated paper plants are getting busier and board mills are very well employed. Groundwood pulp is still dull and mills are piling, but it is hoped there will be a change in conditions in the near future. Canadian paper mills of all kinds are expecting to do a large export business after the war and overtures are already being received from Australia, where the newsprint situation is acute and the daily papers are being hit hard. There the price of newsprint has been quadrupled, while in Canada the increase so far has been only from fifty to seventy-five per cent. and Canadian paper mills have been steadily losing money on domestic newsprint trade. Canadian publishers are the best off in the world, but do not seem to realize it.

There is considerable speculation indulged regarding what will be the outcome on sulphite pulp prices since the plants of the Mattagami Co., and the Lincoln Paper Co. have been put in operation while the new Port Arthur mill will be running next month and will have

a certain portion for sale. The general tendency seems to be in the direction of a still further easing in sulphite although no change is reported this week.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$6.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$36.00 to $38.00
Sulphite, easy bleaching	$70.00 to $75.00
Sulphite, news grade	$55.00 to $60.00
Sulphite (bleached)	$110.00 to $115.00
Sulphate	$80.00 to $85.00

NEW YORK MARKETS.

NEW YORK, November 5, 1917.

Demand for chemical pulp continues weak for this season and trading was still confined to rather small compass during the week. Conditions in the paper field have not improved as expected and, as a result, the consumption of pulp has not reached such proportions as is customary at this time and manufacturers are not forced to do very much buying in the open market. Sellers of pulp retain their confidence in the market and maintain that there is every indication of an advance in values in the near future. They argue that, with the holiday season approaching, consumers of paper must necessarily begin buying in heavier quantities and that stocks of pulp now held by mills will be wiped out in short order, and that the entrance of consumers in the market to replenish supplies is bound to be followed by a rise in price because of the shortage of fibre. It is reported on what is considered excellent authority, that few producers have any large amount of unsold sulphite on hand and a period of concerted buying would undoubtedly soon bare the market of available supplies. Sellers are urging consumers to look ahead and not be guided by their immediate needs. They point out that it is inevitable that the freight situation will become such that it will be more than a difficult proposition to ship stock. Even at present, certain parts of the country are tied up by railroad embargoes. As time passes, the indications are that this situation will become more acute. It is argued that the wise thing to do under these circumstances is to buy pulp and stock up, under immediate shipment, as well as one can do. In this way, it is urged that one will be guarded against the future. For they say, there is no chance that the market will go lower, while there are many chances that it will reach higher levels. On the other hand, it may get to the point where price will not be a question. The Priority Board is taking hold of the freight situation and is going to give preference to the Government in all cases. This will mean that shipments to mills not doing work for the Government may be delayed very long—perhaps months. There is also the added uncertainty of coal. The Government has announced that it will do its utmost to see that plants producing materials for it will get all the coal they need—and not a word has been said about the other plants. Everyone is agreed that this will result in a serious situation with regard to supplies of coal and may hamper production to a material extent—may do more than even some of the pessimistic think is possible. Thus far, however, these warnings have not been heeded.

Some pulp sales of restricted volume were recorded at fairly firm values, the only price fluctuation reported being a slight weakening in domestic unbleached sulphite. Offerings of pulp of this grade were reported freely made at as low as $60 a ton at the pulp mill, although, for extra strong fibre, up to $70 is still asked. Domestic bleached brings about 5½ cents a pound at the pulp mill. Some business is passing in foreign unbleached at a basis of about $100 per ton, ex-dock New York. Foreign easy bleaching is quoted at 5¼ cents to 6 cents; domestic soda bleached at 4½ to 5¼ cents; Mitscherlich unbleached, at 5½ cents to 6 cents; Scandinavian kraft, at 5½ to 6 cents.

Quite some reaction was noted in groundwood during the past week. Several sales of good size were reported at $36 a ton, f.o.b. grinding mill in the East. In fact, it is said that some of the manufacturers are offering stock at even lower levels, though as far as can be definitely stated, the above figure is about the lowest at which pulp in volume is available, while numerious grinders are asking substantially higher prices. News print mills are buying in moderate volume and the bulk of pulp moving into consumption is going in this direction. Many concerns tell of the difficulty they are having in supplying their customers with pulp. An interesting case is one in which it was found necessary to send the stock by boat, because it was impossible to get the proper car facilities. However, as ship tonnage is not any more plentiful than freight cars, it is not thought that much can be expected from this source.

There is practically no change in the cotton rag market. Mills are placing a few orders here and there with dealers and, while there was some movement of stock effected, the situation is marked by exceptional quietness for this period of the year. Dealers have arrived at the definite conclusion that this is due entirely to the limited demand now prevailing for new paper and are of the opinion that manufacturers can hardly be expected to increase their buying activity until business in the paper field quickens. For the present, mixed satinets, wipers and ganzies still lead what demand there is. Felt makers are taking moderate tonnages of roofing stock. In new rags, an improvement in demand is noted, especially in new cuttings, and there are indications that business is about to undergo expansion. Manufacturers display more concerted interest in offerings and, while few are willing to pay the prices at which considerable stock is now held, they, nevertheless, are absorbing quite a lot of rags at certain values. As an example, sales of washables to mills have been noted at 5¼ cents delivered; new light silesias, at 6⅛ cents delivered; and fancy shirt cuttings, at 5½ cents deivered. White shirts, light flannellettes and canton flannels are among the other grades selling.

An easy tone is prevailing in the paper stock market on several grades which seem to manifest a sliding tendency. While a moderate volume of trade is passing on contracts, dealers and brokers alike state that extreme difficulty is experienced in corralling new orders as mills for the most part are altogether out of the market for the moment. Brokers are said to be freely offering stock to consumers and the latter, having gained an impression that a large supply is available in the market, are constantly reducing their buying figures, which, of course, is creative of unsettled conditions. Low quantities of stock still lead the demand and a moderate trade in mixed paper, overissue news, manilas and similar grades is passing. No. 1 manilas were reported sold at 65 cents a hundred and it was said to be doubtful whether more than 70 cents can be obtained for this material. Krafts also are weaker under a lessening demand. A broker told of being offered 2 cents delivered for No. 1 packing by one consumer. Quotations on shavings are largely nominal and business is confined almost wholly to deliveries on previous orders. Folded news is quiet and tending lower.

In the paper market considerable disappointment has been expressed because of the way things have turned out. Instead of an improvement, which is generally looked for at this time of the year, the situation remains unchanged. As a matter of fact, there seems to be considerable shading of prices on the part of second hands who have surpluses available and are trying to dispose of them at prices under those being asked by the mills. To what extent this will continue one cannot tell, but it is having a depressing effect all around at the present time. Interest is shown in the announcement that the Federal Trade Commission has called a conference to be attended by attorneys of the book paper manufacturers for November 8. At a later date, it is understood, the manufacturers themselves will be summoned to Washington. Manufacturers are looking ahead to December wondering whether, at the next session of Congress, the price-fixing agitation will have gained any actual progress, so far as paper making is concerned. It is understood that considerable export business is being carried on, which is enabling several of the plants to maintain their prices in spite of the poor demand at home. However, the shipping situation is such that the manufacturers cannot avail themselves of this opportunity as much as would otherwise be the case. The demand for news is good and the prospects are that it will continue so. Boards have weakened in price considerably. News board is held for $45 per ton; straw board, for $50 per ton; chip board, for $40 per ton; binders board, for $60 per ton—all f.o.b. New York. Wrappings are moving, but not to any unusual extent.

PULP AND PAPER NEWS.

T. A. Weldon, Vice-President of the Provincial Paper Mills Co., wife and daughter, has removed to Toronto from Thorold for the winter months, and have taken a lease of the Rev. Dr. J. A. McDonald's house, at 87 Spadina Road. Mr. Weldon now spends several days a week at the head office of the company. Dr. McDonald, who is a former editor of the Toronto Globe, left this week, accompanied by his wife and daughter, on an extended trip to Japan.

Major Jaffray Eaton, for many years a member of the staff of the Toronto Globe, and a grandson of the late Senator Robert Jaffray, President of that paper, who was a member of the Fourth Canadian Mounted Infantry, was killed in action recently in France. He was thirty-two years of age, and his home was in Owen Sound, Ont.

A charter has been granted to the National Index Card Company with a capital stock of fifty thousand dollars and headquarters in Toronto. The company is empowered to make and deal in general card index cabinets, and to manufacture envelopes of all kinds, card-board, etc. The incorporators of the company are Jos. H. Saunders, Harold J. King, and James F. Osborne.

Lance-Corp. Harry Prew, a former employee of Alex. McArthur and Co., paper manufacturers, Montreal, who went overseas with the 73rd Highlanders, Montreal, and was recently reported wounded, is now believed to be dead. He was thirty-seven years of age and leaves a wife and three children.

Reports for August sent the U.S. Department of Labor showed that for 50 paper mills there was a decrease of 4.9 per cent. in labor employed and an increase of 13.3 per cent. in the payroll, as compared with August, 1916.

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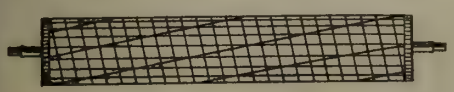
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FIFTY DOLLAR NEWSPRINT IS DEAD.

(Concluded from Page 1047.)

ing and investigate the claims of the justness of the claims of the papermakers. Thus the order for November was left in abeyance until Saturday night.

From the earnest and sincere manner in which Mr. Cahoon spoke it was evident that the critics between the newsprint manufacturers and the Government had been reached, and that the manufacturers, as they had proved their claim for a higher price, were not going to be kept waiting for it any longer.

Sir William Price, of Price Bros., was the last witness to be heard Tuesday and the concluding witness of the newsprint inquiry. Sir William, when questioned by Mr. Montgomery regarding contingencies for which allowance had not been reflected by the audit, said that during the last two years Price Bros. had had three big fires over their extensive limits. Witness said that the amount to be written off for these fires would be between two hundred and two hundred and fifty thousand dollars. He said Price Bros. were always having fires in their coal pile and one was in progress Tuesday. Regarding flood, Sir William said his company was not much troubled by them. Regarding this loss, however, Sir William mentioned the losses on the Chaudiere River this year and said it was generally regarded that $1,000,000 worth of logs had been lost. Price Bros. was having considerable difficulty in securing railway cars and, therefore, the mill might have to shut down for a short time if more cars could not be secured.

Colonization, he said, at any time might take large lots from the limits held by Price Bros. In the past many hundreds of square miles had gone from their limits this way. He thought that the manufacturers should be allowed something for contingencies. "I think if we can earn twenty or twenty-five per cent. that we should be allowed to get it," concluded Sir William Price.

FIRE AT GEORGETOWN IN PROVINCIAL MILL.

Fire broke out last week in one of the beater rooms of the Barber mill, at Georgetown, owned by the Provincial Paper Mills Co., the blaze starting from an unknown cause in a vacant room overhead. The fire fighting appliances of the mill were brought into play and splendid assistance was rendered by the brigade of Georgetown, with the result that the flames were confined to one department of the plant. Two beaters and a Jordan refining engine have been put out of business and some four car loads of sulphite pulp and a stock of colors were ruined. The loss is estimated at twenty thousand dollars which is partially covered by insurance. The seventy-six inch Fourdrinier, on which book and colored paper was made will be out of commission for some time, owing to lack of supplies of raw material. The fire walls and fire doors in the mill kept the flames from finding their way into the other departments. There are two beater rooms, but the other one was in no way interfered with, and the second Fourdrinier is operating as previously.

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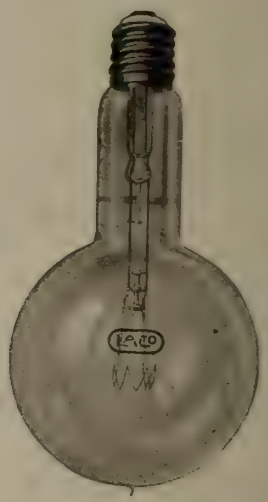
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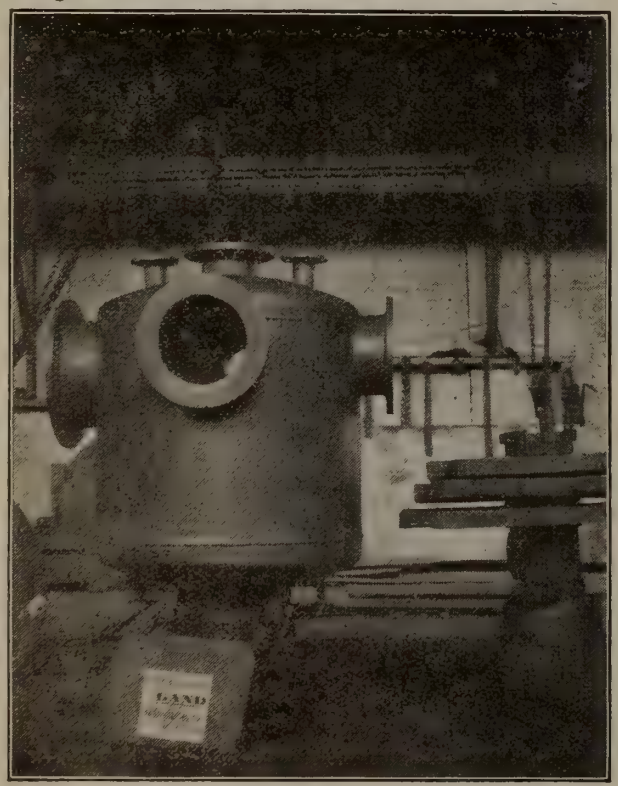
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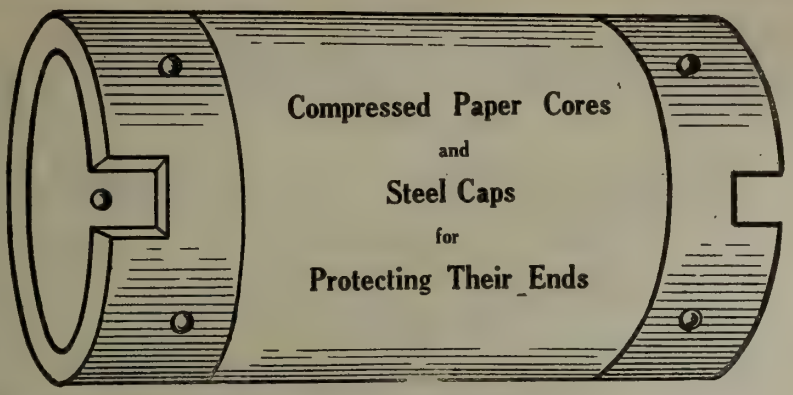
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EDITORIAL

SHOULD A FOREMAN UNDERSTAND HIS WORK?

The Pulp and Paper Magazine has learned that in spite of the war, the pulp and paper courses at the University of Maine are being continued. This is very gratifying news, when college work all over the country is necessarily much curtailed this year. The Pine Tree State still has the honor of having the only college giving undergraduate instruction in the principles of pulp and paper manufacturing. The location of this university in the centre of a paper making district has been fortunate in many ways. Besides the inspiration of being in the midst of the industry, the students this year have the advantage of being guided by instructors who have had their training in Chemical Engineering at the University of Maine and have supplemented this with actual work in the mill. Both of the new instructors are employed at the Eastern Manufacturing Company and are loaned for a generous amount of time each week. This is but another of the many instances of cordial co-operation between the university and the mills.

Of the forty-odd graduates from Maine who are in the industry, about half have taken the pulp and paper courses. The steady demand for these men shows that this fundamental undergraduate training is appreciated by the industry.

There is, however, another link to be welded in the chain of intelligent operation of our mills; that is, a better trained force of foremen. The university men, when they have had experience will, in time, be fit for superintendents' positions, but the cry of the industry is for better trained workmen, especially foremen. There is a great dearth of material for these positions, and unless men with some education and training can be provided, the abilities of the superintendent, chemist and engineer, are almost sure to be overtaxed or wasted.

Such an intermediate school should provide for two classes of students; those who come fresh from high school or continuation school, and those who have been for some time in the mill. The latter present the more difficult case, as they are likely to be embarrassed at being told things about their own work, especially at first and among the older men. The possibilities for interesting discovery are so great, however, that under careful instruction this temporary embarrassment should give way to an enthusiastic desire to learn about every phase of the industry. It is this "aliveness" to the many interesting features of pulp and paper making that will develop alertness and resourcefulness in every department of the mill.

The co-ordinating power of education is great. Think how much more cordial and sympathetic would be the understanding between the foremen of the wood room, acid-making, digestor house, and bleachers, if each knew something of the principles underlying the work of the others as well as his own. They would not only have more in common in the mill, but would have more in common outside the mill. Who can estimate the possible results of an intelligent discussion among workmen of their problems in the mill?

A start must be made sometime and the sooner, the better. If mistakes are made they can be corrected but there must be a beginning, even to make mistakes. It is better to know where we are wrong than not to know we could be wrong. Several mills are ready now to select a small group to send to a school where they can put intensive study on the fundamentals of their particular department of manufacture. The Technical High School at Toronto is ready to co-operate in this movement. The first thing to be done is to appoint a director to lay out a plan of work, to see that proper apparatus, material and instruction is at hand and then to work the plan.

There might be two lines attempted the first year, that would be enough: One on the manufacture of sulphite pulp and one on the operations associated with the beater room. For men who have been working in the mill, lectures and textbook work comes hard, while experiments and demonstrations not only hold the attention and interest, but are better understood and appreciated. For younger men, not so far removed from school age, and especially those who have just been studying chemistry, more "lesson work" can be introduced. One point seems to us very important, that the student be surrounded by a thoroughly studious atmosphere. There should be as complete a collection as possible of literature on pulp and paper manufacture, and allied scientific and engineering branches.

Equipment for such a school should be largely forthcoming from machinery manufacturers. Practically everything in the noted Darmstadt school was donated. At the University of Maine, some was donated (especially materials) and much was sold at cost or

less. Similar generosity could doubtless be anticipated in Canada. It might also be expected that experts in special departments could be induced to assist in the work. The committee on education of the Technical Section of the Canadian Pulp and Paper Association is at work on the problem.

THE BENEFITS OF PROBING.

The pulp and paper industry of Canada is facing another inquiry. In fact, the probe into the reasonableness of the price of magazine papers and the pulp of which they are made has already begun. At the opening session last Friday, in Toronto, Mr. Pringle, now Paper Controller, suggested that the manufacturers and publishers, compare their differences without the delay and expense of an investigation. There seemed to be no response.

One well-known paper maker claimed that his firm had been unable to devise a method of accounting that would give an accurate cost of production of each of the many grades of paper made in their mills. It was brought out by another that his eight-cent paper was not the same as that sold by someone else for the same price. If the investigation develops a method of cost accounting that will solve the first problem and establish a basis of standardization that will simplify the many grades and varieties of book and magazine papers, some good will have been accomplished. Surely the Controller will not presume to fix a price till accurate costs have been established. A half-baked measure of that kind was sprung on the newsprint manufacturers and its absurdity and unfairness has now been established at much expense and unnecessary trouble.

Another point that may be established by an investigation is that the wholesaler and commission merchant have a legitimate and useful place in the distribution of the product of the paper mill. A better understanding is certainly necessary among the makers, distributors and consumers of paper and if the probe will bring this about, it will be well. Such an understanding will not be reached, however, in the midst of a squabble where each is trying to squeeze an advantage from the other. An understanding is only the result of an honest effort to appreciate the other fellow and his problems; it can not be forced on people by artificially restricting their business dealings.

An unfortunate incident of the session last Friday was the introduction of the tariff. The publishers seemed to think that letting the bars down so as to make Canada the dumping ground for other folks' left overs would solve all their troubles. It was just such action on the part of American newspaper publishers that was largely instrumental in bringing them to the serious predicament they have been in for the last few years. The time may come when a protective duty will not be really necessary, but that time is not yet. As a prominent American manufacturer said, when asked what would happen when Canada re began to make book paper from her extensive raw terial for sulphite and soda pulp, "That time ha come yet. Canada can't produce it cheaply enou to compete with us and against our duty." As Co troller Pringle rightly said, a discussion of the ta has no place in the paper probe.

One of the arguments of the publishers was th American magazines had the advantage of the Ca adian and practically swept the field. The reason not that the Americans have cheaper paper, but mo expensive brains. They have a bigger home field larger advertising constituency and for the most pa a better organization. When a Canadian magazine journal is well organized and efficiently run, when serves well its field and gives real value, it is su ported and succeeds to such a degree that the price paper, while important, is not the dominant factor its life.

To be quite frank, we should like to pay less f our paper, but we don't want the Controller to s what the price shall be, certainly not without givi the mills a guarantee for the continued prosperity th are trying to insure for themselves by tested an recognized business practice.

AMEN.

We have word from Washington that the dissolut of the Bureau of Statistics of the book paper mills approved by the Federal Trade Commission, provid they desist from engaging in any concerted moveme (1) to enhance prices of book print paper, or (2) maintain such enhanced prices, or (3) to bring ab substantial uniformity of such prices, or (4) to eff or maintain such enhancement or such uniformity prices through the medium of telephone communi tion, or by correspondence, or by personal meeting or through other communications, or in any other ma ner whatsoever. . . . etc., etc.

WHAT A FOOL A HUN IS!

The logical deduction from the reports of numero incendiary conflagrations in American factories em ploying Teutons is that some idiotic Huns are incitin American employers to blacklist the whole tribe. Wh fools!

EDITOR MUNTZING IS DEAD.

The Svensk Pappirs-Tidning for August 31 brin news of the death on August 22 of Alvar Müntzing, i editor from 1903 till last spring. He was nearly years old. He was engaged as chemist and mill ma ager for 26 years and was instrumental in the for ation of the Swedish cellulose engineers and man facturers associations, of which he served as secretar ary.

We are sorry he has gone. May his spirit of serv and idealism live in his journal.

Read page 1082.

An Investigation of Stresses in Digester Shells

By H. O. KEAY, B.Sc.
Laurentide Company, Ltd., Grand'Mère, P. Q., Canada.

In the design of sulphite digester shells, it has long been the practice to calculate the stresses by means of the conventional formulae for cylindrical pressure vessels—as in the case of boiler shells—without any apparent consideration whatever of the possible action of the masonry lining. Where such a lining reaches a thickness of seven inches or more, it will be recognized that we are dealing with a circular arch of no meager strength. To demonstrate that under certain circumstances such linings do impose a heavy tensile stress upon the shells of sulphite digesters is the aim of this paper.

To settle the question of the influence of temperature of the lining upon the shell stresses, Professor A. P. Mills and the author were requested two years ago by the Laurentide Company, Limited, and the International Paper Company to conduct a joint investigation of the behavior of the shell of a digester under working conditions. The J. & J. Rogers Company of Ausable Forks, N. Y., very kindly offered the use of a new digester for this purpose. While the effect of temperature was found to be less than had been anticipated, it was discovered that the digester shell was still subject to heavy tensile stresses even after the contents had been discharged and the digester cooled to room temperature. The fact that either investigator was working quite independently of the other, with entirely different instruments, renders the striking identity of the results throughout the range of the tests a very satisfactory check on the testing methods.

The Laurentide Company has taken a very keen interest in this work and has made it possible for the author to conduct two more similar tests upon digesters at the Company's mills at Grand'Mère, P. Q. The general agreements of the results with those of the previous tests now seems to justify bringing the whole matter before the technical men of the paper industry for their serious consideration.

An account of the tests at the mills of the J. & J. Rogers Company will be given first, followed by an outline of the second series of tests at the mills of the Laurentide Company.

The instruments used by the author in these tests consisted of a ten-inch Howard extensometer set, thermometers for indicating the temperature of the shell and lining, and a pressure of the digester gauge for determining the internal pressure of the digester at the test level.

To those who may be unfamiliar with the Howard type of extensometer, it may be explained that this is a micrometer which accurately measures the distance between the centers of two small holes especially prepared in a plane surface, as illustrated in Fig. 1. The points of the extensometer are pressed into these holes and the micrometer screw turned up until it strikes the end of the sliding shaft within the sleeve. One point being on the shaft and the other on the sleeve it is evident that the points are free to assume the exact position required to measure the distance between the centers of the holes.—The measurements are accurate to one ten-thousandth of an inch. A tram punch is provided to mark the holes—in this case, ten inches apart—and a comparator bar of steel (shown in section in Fig. 1) is also used to standardize all measurements taken. Attention is directed to the thermometer cup in the comparator for correction to a standard temperature. In practice, it has been found expedient to incline this comparator somewhat and partly fill the thermometer cup with mercury.

The delicate shell thermometers were supported against the digester at the test level by means of wooden seals having glass fronts to enable the thermometers to be read without disturbing them. Four of these seals were securely held against the shell by means of wire hoops around the digester.

In order to obtain a record of the temperature of the digester lining at the test level, a half-inch hole was drilled directly through the shell and half way through the lining. Into this hole was inserted and sealed another delicate thermometer.

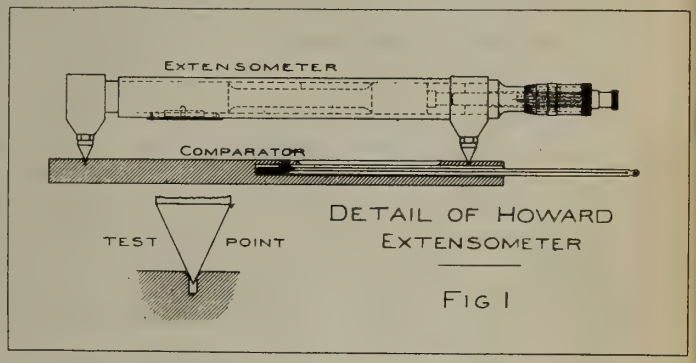


FIG 1

The pressure gauge was mounted at the test level on the digester and connected to the sampling nozzle near the top by means of a brass pipe into which a little glycerine was poured before filling with digester liquor. Since the top connection was below the level of the charge in the digester, the head of liquid was added to the top pressure, thus registering the exact pressure at the test level.

For the accurate determination of either longitudinal or circumferential stresses in the shell plate, it is of course necessary to take account of the strains in both directions as derived from the corresponding distortions; so provision had to be made for extensometer measurements both longitudinally and circumferentially.

The middle portion of each of the two shell sheets of the lower cylindrical course was selected for test, as indicated in Fig. 2, where the digester seam details are also shown.

Upon the unstressed shell of the digester when it

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[1]—Read at the joint convention of the Technical Associations of the United States and Canada, at Holyoke, Mass., September 27, 1917.

All papers read at this meeting were published in Paper, Oct. 3 and many have appeared in other journals. The Pulp and Paper Magazine is printing the proceedings serially.

was unlined, empty and at room temperature were taken the first extensometer and temperature readings, together with the corresponding extensometer and temperature reading of the comparator. All subsequent readings were referred to these as standard.

Advantage was taken of this opportunity to determine the elastic constants of the steel plate by noting its circumferential and longitudinal extension under a graduated hydrostatic pressure test. Thus it was found that the modulus of elasticity, or Young's modulus, for this material is 29,200,000 and Poisson's ratio, usually designated as $\frac{1}{m}$, is $\frac{1}{3.75}$ or 0.267

The apparent coefficient of thermal expansion of the plate was also obtained at this time by heating the water with which the digester had been filled, and observing the extension with rise in the shell temperature. The apparent thermal coefficient was found to be 0.000013097 per degree centigrade. It has been called an apparent coefficient since, partly by reason of radiation at the thermometer seal, the value is manifestly too high for the actual linear coefficient. Whether it represents the actual thermal coefficient is entirely immaterial because the essential fact remains that each centigrade degree rise in temperature of the shell as registered by these thermometers with identical settings in subsequent tests meant an extension of 0.000013097 inch per inch of length, as measured by the same extensometer.

The foregoing completed the preliminary work of the test. The instruments were all removed and the test holes filled with gum to protect them from corrosion. The digester was then lined and put in regular service. The lining of the digester was made up of a layer of 1:2 cement mortar 3 inches thick next to the shell; a 2-inch course of fireclay paving brick followed; then came a 1-inch course of cement grout and another 2-inch course of paving brick, making a total thickness of eight inches of lining. The bricks were laid on end, the circumferential dimension being four inches and the vertical dimension eight and a half inches. The facing course was laid with litharge cement.

After a period of nearly three months, the meter measurements made during three successive regular cooks, after which the digester was cooled to room temperature and filled with digester liquor and chips for another graduated hydrostatic test. The test was carried out in the same manner as upon the unlined digester, the temperature remaining practically constant.

Following this test, the digester was very gradually steamed to cooking temperature and pressure, and finally blown after a cook lasting about twenty-three hours, extensometer, temperature and pressure observations being continued throughout. This completed the collection of data.

Proceeding now to the calculation of stresses from the observed extensometer and temperature readings, it will be recalled that the standard condition of the instrument was taken as the extensometer and corresponding thermometer reading of the comparator in the reference observations on the cold unstressed shell. In subsequent tests, corrections had, therefore, to be made on account of changes in temperature of the comparator from the standard temperature taken, and for any changes during a set of readings. The combined corrections are for the instrument alone.

In addition to the corrections for the instrument, the extensometer readings had to be further corrected for changes in the temperature of the shell itself from the standard reference temperature, making use of the thermal coefficient determined in the separate test, previously described. Each extensometer reading recorded was an average of five readings made.

The difference between the final corrected extensometer reading and the original reference reading gave the distortion and this divided by the original length gave the strain in the direction taken. Corresponding actual stresses in the shell in the named direction were calculated from a consideration of both

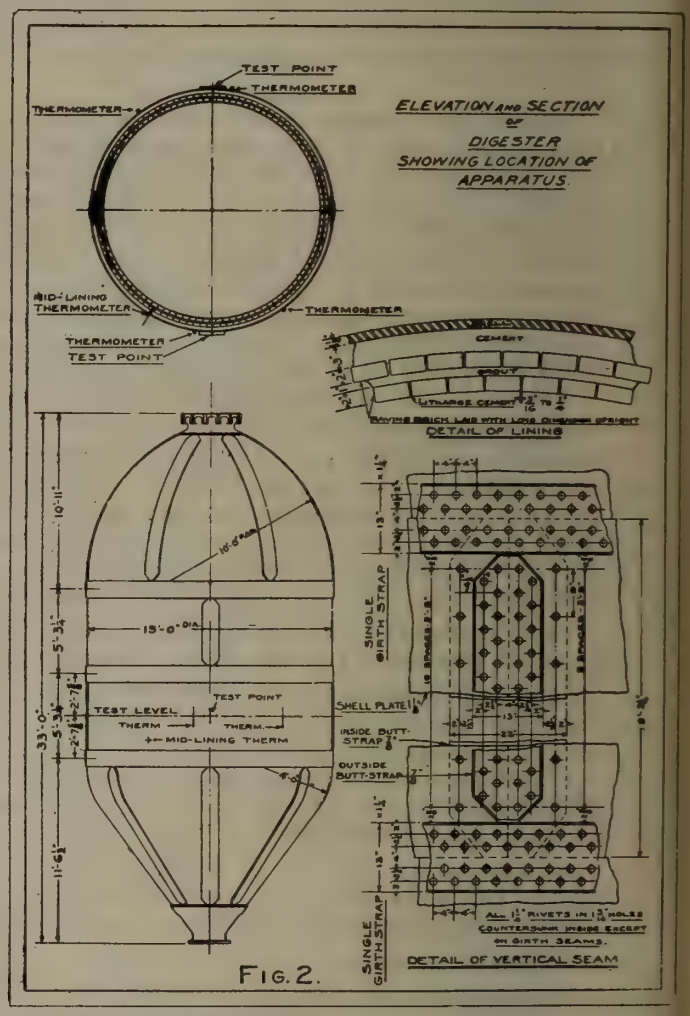


FIG. 2.

circumferential and longitudinal stresses, as follows:

Where e_1=circumferential strain, inches per inch,
e_2=longitudinal strain, inches per inch,
P_1=circumferential stress, lb per square inch,
P_2=longitudinal stress, lb per square inch,
E=modulus of elasticity of the steel,
$\frac{1}{m}$ =Poisson's ratio,

within the limits of elasticity of the steel under the given conditions, the following relationship holds:

$$e_1 = \frac{P_1}{E} - \frac{P_2}{mE} \quad \text{and} \quad e_2 = \frac{P_2}{E} - \frac{P_1}{mE}$$

from which we obtain

$$P_1 = \frac{mE}{m^2-1} \times (e_1 m + e_2) \quad \text{and} \quad P_2 = \frac{mE}{m^2-1} \times (e_2 m + e_1)$$

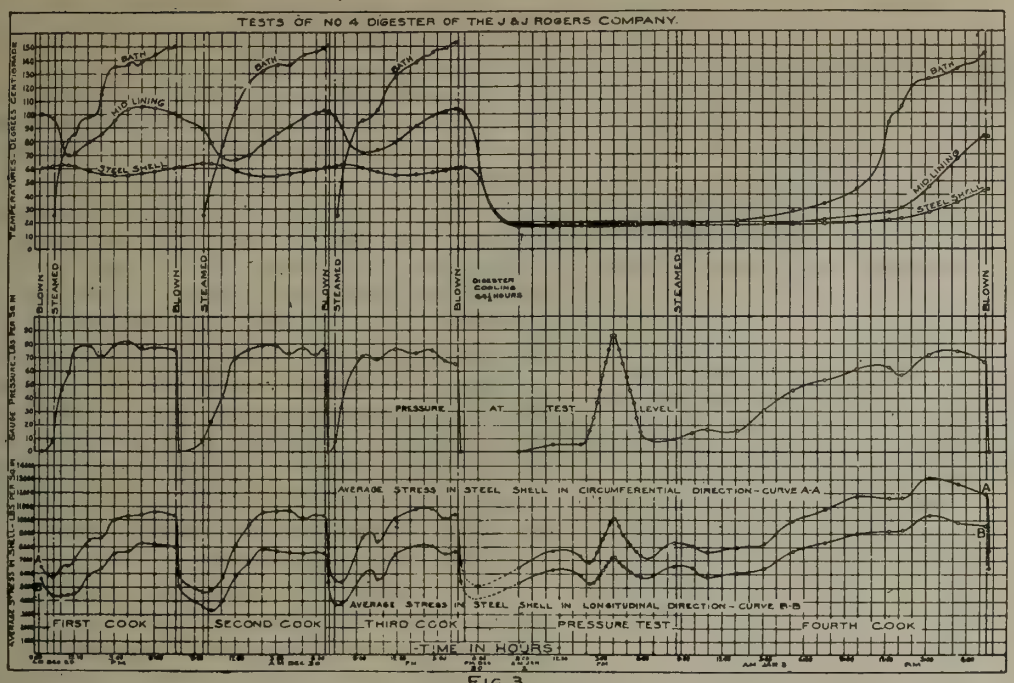


FIG. 3.

200,000 and m=3.75 from the preliminary test, the calculation resolves itself to the following:

$$P_1 = \frac{3.75 \times 29{,}200{,}000}{(3.75 \times 3.75) - 1} \times (3.75\ e_1 + e_2) = 8{,}384{,}000 \times (3.75\ e_1 + e_2)$$

and $P_2 = 8{,}384{,}000 \times (3.75\ e_2 + e_1)$

Averages were taken of the circumferential and longitudinal stresses on both sides of the digester, and these are plotted in Fig. 3, based upon the readings obtained for the cold unstressed plate. Corresponding curves, showing the internal pressures, as well as the temperatures of shell, middle of lining, and cooking bath, are also plotted in this figure.

Referring to the plotted curves, the sequence of these will be found to be in order of the tests as described; first the three continuous cooks, then, after an interval during which the digester was cooled, comes the hydrostatic pressure test, which in turn is followed by the retarded cooking operation. The upper of the two stress curves is that of circumferential stress and the lower one the longitudinal stress.

Had no extraneous stresses been encountered, calculation shows that the magnitude of the values represented in the upper curve would have been approximately double those of the lower curve, but we see that such is not the case, nor do the curves return to the base line of zero stress, even when the digester has been cooled down to room temperatures (as before the hydrostatic test). Further, the difference between the maximum and minimum of neither the circumferential nor the longitudinal stress curve is as great as the calculated values corresponding with the known maximum internal pressure. This can be accounted for only in one way; namely, that, subsequent to the lining of the digester, compression had accumulated in this lining, reacting as a residual tensile stress in the plate. The effect of internal pressure and the elastic extension of the steel shell tends to relieve the compression in the lining and its consequent reaction on the shell; so, at the point of maximum internal pressure, the resultant stress is necessarily less than the sum of the residual stress and that which would have been produced by hydrostatic pressure alone.

The residual circumferential stress is shown to be about 5,000 lb per square inch in the solid plate, and the maximum circumferential stress in the final cook reaches a value of 13,000 lb per square inch, with a corresponding longitudinal stress of 10,400 lb per square inch. Since the strength of the longitudinal seam, expressed in terms of the strength of the gross section of the uncut plate is 85.42%, and that of the girth seam 67.19%, the corresponding maximum circumferential stress becomes $\frac{13{,}000}{0.8542} = 15{,}220$ lb per square inch, and the maximum longitudinal stress $\frac{10{,}400}{0.6719} = 15{,}480$ lb per square inch. The higher stresses encountered in making the first cook after the digester has been cooled down emphasize the necessity for extreme care in bringing the digester up to working temperature and pressure similar circumstances.

Directing our attention now to the tests conducted at the mills of the Laurentide Company, it may be said that the method of testing was practically identical with the foregoing except that no mid-lining temperatures were taken, the hydrostatic tests were omitted, a change was made in the thermometer arrangements for obtaining the shell temperature and the thermal co-efficient referred to this thermometric device was obtained by separate test, as described below.

An extra piece of digester shell was framed in wood in such a way as to form the front side of a steam box, shown in Fig. 4. One of the shell thermometers was attached in the usual manner to this steel plate, and test holes laid out for the extensometer as close as possible to the thermometer location. Starting with the temperature of the plate at 22.65° C., careful readings were made of the test length by means of the Howard extensometer. Steam was gradually introduced into the steam box and extensomteer readings continued until a temperature of 100° Cent., was reached. The total extension per inch divided by the rise in temperature in degrees centigrade gave the thermal co-

efficient 0.0000125 per degree centigrade as the proper value to use with the instruments as actually applied in the digester test.

A drawing of the shell thermometer used in the latter tests is given in Fig. 5. Each thermometer seal carried an auxiliary thermometer for correcting the error due to the exposed stem. The bulb of each shell thermometer was surrounded by a mercury bath communicating directly with the shell. This arrangement gave very consistent results and it was

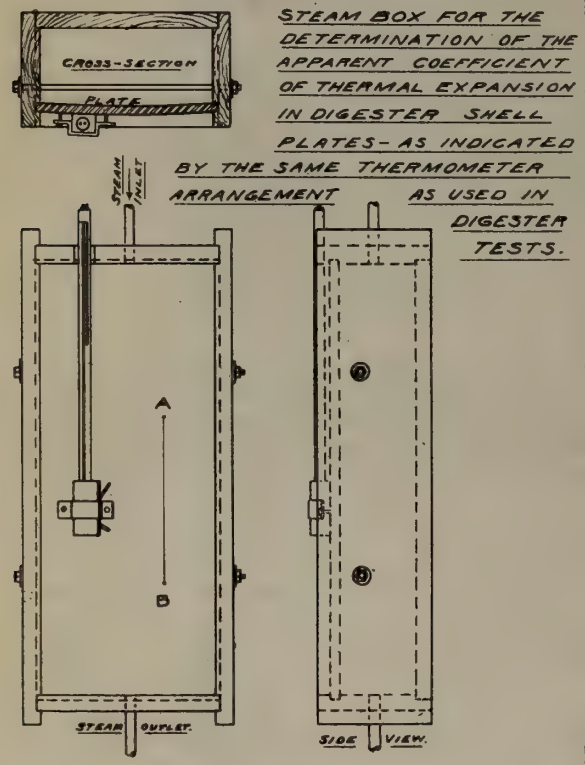


FIG. 4.

less troublesome than that used in the former test.

The new digesters selected for test at the Laurentide Company's sulphite plant were Nos. 3 and 5. The strength of the longitudinal seams, expressed in terms of the gross section of the plate, is 85.2%, and that of the girth seams correspondingly 67.5%.

The lining of Digester No. 5 was made up of a layer of lining cement two inches thick next to the shell, a 2½-inch course of 6 inch × 8 inch digester brick (set with the 6-inch dimension vertical), then a ½-inch course of cement grout, and finally a facing course of similar digester brick. The lining of Digester No. 3 differed only in respect to the facing course brick, which in the latter case were ordinary fireclay paving brick two inches thick. In both instances, the facing course bricks were laid in litharge-glycerin cement.

Two test locations were taken on each digester at the middle portion of each of the two sheets forming the middle course of the shell, as shown in Fig. 6. Gauge points were prepared as before for both circumferential and longitudinal readings of the extensometer, the special thermometers were attached, and the pressure gauge connected as indicated. Details of the longitudinal and girth seams are presented in Fig. 7.

After collecting the data, averages were taken of the circumferential and longitudinal stresses on both sides of the digester in each case, and these are plotted in Figures 8 and 9, based upon the readings obtained for the cold unstressed plate. Corresponding curves showing internal pressures, as well as temperatures of shell and cooking bath, are also plotted on these diagrams.

Referring to the curves, Fig. 8, for Digester No. 5, it will be noted that test readings were made on March 31, as soon as the lining of the digester had been completed, but before any cooking had been done. Circumferential and longitudinal stresses in the shell at this time were both about 800 lb per square inch.

Cooking operations were started at once, and on May 19, observations were made covering the period of two regular cooks, Nos. 1446 and 1450, as indicated. The higher circumferential stresses in the solid plate ranged from 10,000 to 11,700 lb per square inch, while the lower circumferential stresses ranged from 2,000 to 3,600 lb per square inch.

After a period of somewhat over seven months, during which the digester had been in continuous operation, observations were resumed on December 26 covering three regular cooks, Nos. 4116, 4122 and 4128. The higher circumferential stresses in the solid plate now ranged from 12,300 to 13,300 lb per square inch, while the lower circumferential stresses ranged from 4,000 to 5,000 lb per square inch. The curves of longitudinal stresses show similar increases during this period.

Taking the maximum observed circumferential stress in the shell during the cooks in the final tests as 13,300 lb per square inch in the solid plate corresponds with

$$\frac{13{,}300}{0.852} = 15{,}610 \text{ lb. per square inch at the minimum}$$

section of the plate in the vertical seams. Again, taking the corresponding maximum observed longitudinal stress at 8,800 lb per square inch in the solid plate

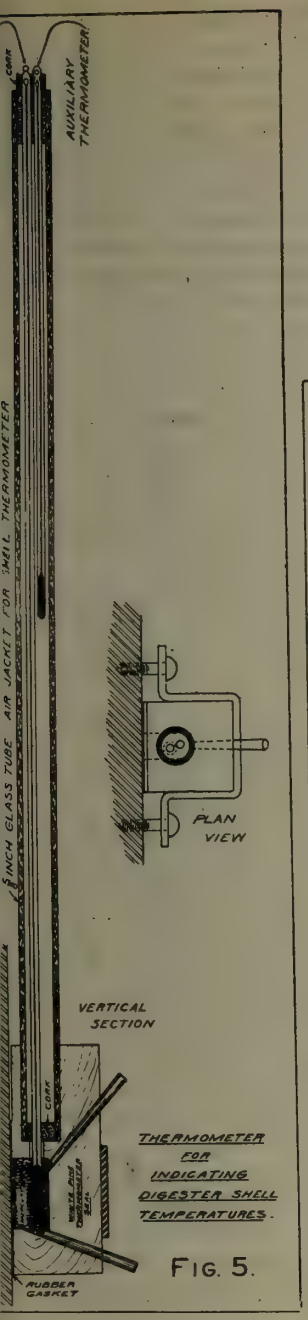
$$\text{gives} \frac{8.800}{0.675} = 13{,}030 \text{ lb per square inch at the minimum}$$

section of plate in the girth seams.

Reference to the curves, Fig. 9, for digester No. 3, indicates results essentially similar to those observed on Digester No. 5.

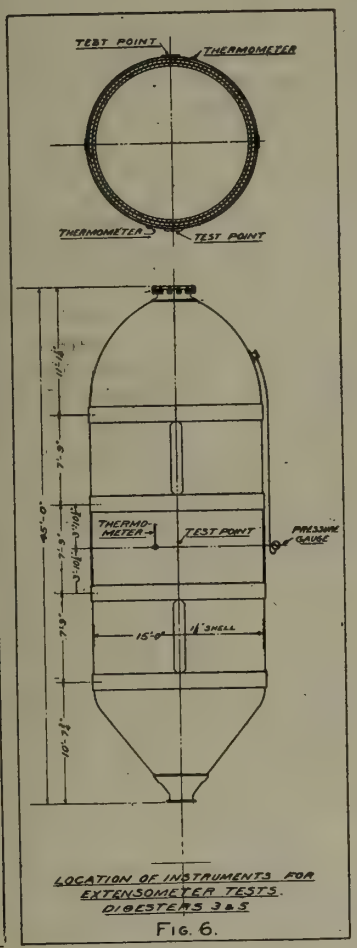
Comparison of both of the foregoing with the corresponding curves from the test at the mills of the J. & J. Rogers Company shows a striking similarity in the behavior of these digester shells, although in the former instance the lining cement was gauged with sodium silicate solution at 5° Baumé, while in the latter case the cement was gauged with a sodium silicate solution at approximately 36° Baumé. a circumstance which appears to indicate that, if this silicate has an influence in producing the permanent expansion of the lining, an excess over a certain amount has little or no effect. It should be clearly understood that the above mentioned maximum stresses are about double those which we obtain by the usual method of calculation by the conventional formulae ordinarily used in the design of cylindical pressure vessels. and where we may have counted upon a factor of safety of 6, this factor is actually reduced to about 3.

To give some idea of how the residual stress in the shell accumulated in the time covered by the tests,



THERMOMETER FOR INDICATING DIGESTER SHELL TEMPERATURES.

FIG. 5.



LOCATION OF INSTRUMENTS FOR EXTENSOMETER TESTS. DIGESTERS 3 & 5

FIG. 6.

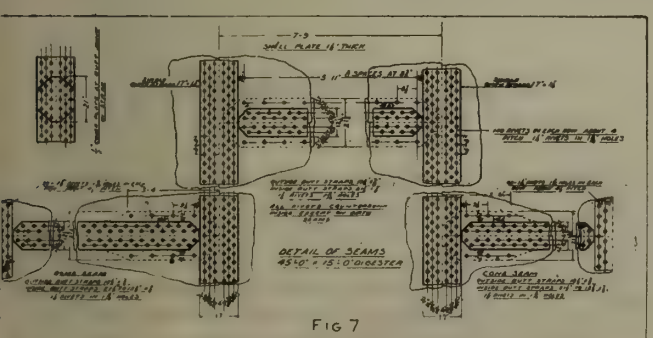


FIG 7

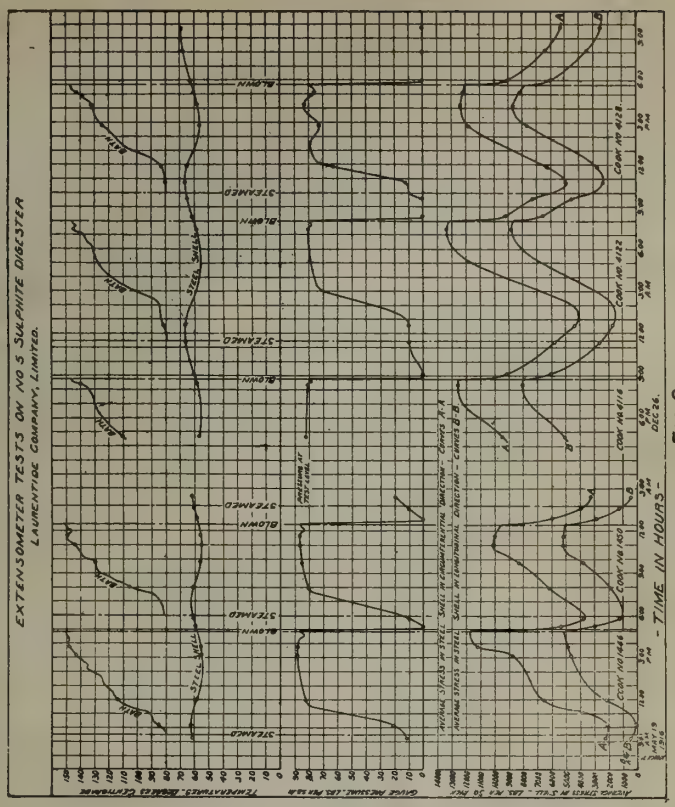


FIG. 8 - TIME IN HOURS -

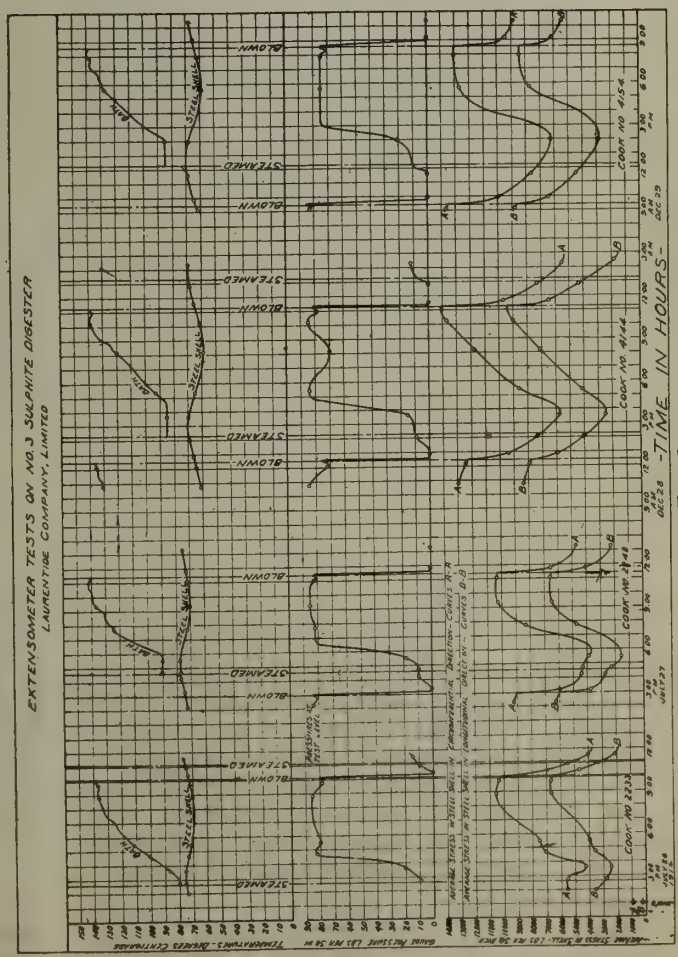


FIG. 9. -TIME IN HOURS-

curves are shown in Fig. 10, combining the results of the tests on all three digesters.

The object of this paper has been to present the facts of the case so far as the research has taken us. The causes of the action cited undoubtedly exist in the chemical and physical readjustment which takes place within the lining after it has been built in place. We might wander a long way in the discussion of the setting of cement without evolving an entirely satisfactory theory as to its bearing in the present case.

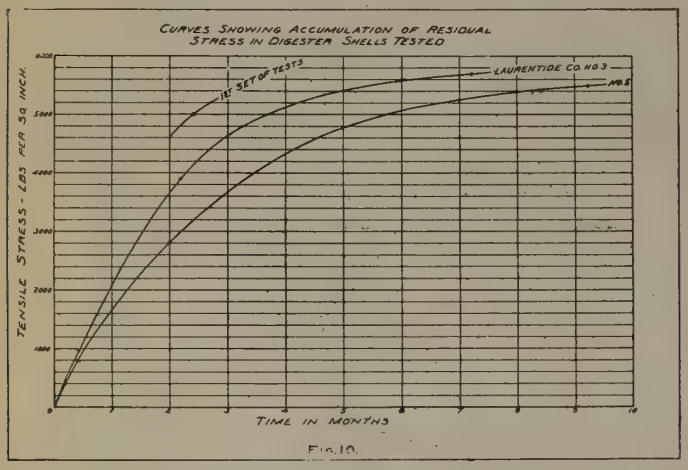


Fig. 10.

What is needed is actual research and proof. For want of any better method, it has been the author's aim to make up cubes of various lining materials confined in such a way as to reproduce as far as possible digester conditions, and to subject these to repeated changes in temperature within the range of ordinary cooking operations, noting the amount of distortion. By varying the proportions of the various ingredients conceded to be desirable in digester linings, it may be hoped ultimately to strike a balance of conditions where the lining will neither shrink in setting to cause cracks for the inflow of acid, nor to expand to the extent of imposing undesirable stresses upon the shell. In the meantime, it may be well to bear in mind in the designing of new digesters that, under certain circumstances at least, these residual stresses do exist.

Prof. Keay added the following statement, which is a point to be further investigated:

The glycerine-litharge mixture in some cases exudes from between the lining bricks of a digester and must be removed. A sample of this cement was examined and appeared cellular, apparently from evolved gas. This may result in a stress. The presence of sodium silicate may advance the trouble but there should be a point of balance with the shrinking of the silicate.

WILL THE PAPER LAST AS LONG?

A specimen of wood found recently in a glacial drift in Wisconsin was submitted to Mr. Koehler for identification. He found it to be a spruce tree and estimates its age at about a half million years. The specimen was unearthed in a railway cut at Woodville. The specimen was found at the base of a hill fully fifty feet high. It was very brittle and much distorted, most of the cells having flattened out, but there was enough of it still in good state of preservation so there could be no mistake in identifying it.

Paper for newspapers may be imported into Argentine free of duty.

SIDELIGHTS ON THE PROBE.

That half-million-dollar donation that the newsprint manufacturers have made to the publishers by selling at two and one-half cents per pound could be very usefully invested in Victory Loan Bonds. However, the publishers can split it up among them for investment and chuckle to themselves while they are drawing dividends for the next twenty years to come. It looks from this angle that the newsprint manufacturing trade is being made the "goat" for the favored publishers' class.

What one newsprint manufacturer in the Ottawa district said about the extension of the two and a half cent rate wouldn't look very well in print. By the new order of things John R. Booth has got to keep on making his donation of $10.81 per ton for a couple of weeks at least.

The Commissioner showed considerable concern every time a reduction in the gross production of Canadian newsprint mills was mentioned.

Evidently from what Mr. Pringle told Mr. McKee, of Donnacona, regarding the necessity of supplying the Canadian publishers with newsprint it appears that contracts with United States customers are only "scraps of paper."

On the official computation of Mr. Clarkson The Canada Paper Company had the highest manufacturing cost, $53.09. Laurentide had the highest selling price, $3.70 per ton. St. Maurice the highest return on capital actually invested, and Price Bros., Laurentide and the News Pulp and Paper Company the highest allowance for Crown dues. In the official totals of all costs considered John R. Booth had the highest production cost, $62.47 per ton. Twelve dollars and forty-seven cents above the two and one-half cent rate. The Canada Paper Company, with the second highest production cost, was second, but no allowance for Crown dues was made for this company.

The highest prices for newsprint submitted during the inquiry came from the Howard Smith Paper Mills, whose manufacturing cost in April amounted to $99.50 per ton. On the figures shown this company never manufactured a ton of newsprint for less than $92.53. Forty-two dollars and fifty-three cents beyond the two and one-half cent rate. The figures of this company was not included in the official computation.

Those British Columbia paper manufacturers seem to be playing high jinks with the provisions of the Commissioner's order and Mr. Pringle apparently does not like it. Too bad.

STATIONERS' "CLEARING HOUSE."

The Clearing House conducted by the Information Bureau of the National Association of Stationers and Manufacturers is a great institution, particularly these days when certain lines are short, for it enables the man who wants something that he cannot get from manufacturer or importer to secure it from some other dealer who has superfluous stock, and it enables the man with a superfluous stock to make a quick turnover to someone who wants what he has.

The deposits of marine or posidonia fibre on the South Australian coast are being put to industrial uses. The fibre is stated to be useful in the manufacture of carpets and paper, and also an insulating material.

The Book Paper Probe has Begun

The inquiry into the price of book papers, asked for by the trade and class section of the Canadian Press Association has begun and the preliminary sitting of the Commission was held by Mr. Pringle in the reception room of the Legislative Buildings, Toronto last Friday. There was a large attendance of periodical publishers, who were represented by I. F. Hellmuth, K.C., assisted by A. B. Kerr. Britton Osler appeared for the Nashwaak Pulp and Paper Co. of St. John, N. B., and G. F. Henderson, K. C. of Ottawa, was there as he expressed it "on principle to look after the interests of certain firms."

Among those present representing the paper and pulp industry were Mr. A. L. Dawe, secretary of the Canadian Pulp and Paper Association, T. J. Stevenson, sales manager of the Riordon Pulp and Paper C., Montreal, I. H. Weldon, President, and S. F. Duncan, secy-treas. of the Provincial Paper Mills Co., R. S. Waldie, President of the Toronto Paper Mfg. Co., H. F. E. Kent, managing director of the Kinleith Paper Mills, and George H. Millen, President of the E. B. Eddy Co., Others connected with the trade who were in attendance were George Carruthers, President of the Interlake Tissue Mills, Merritton. E. P. Foley, of the Foley-Rieger Pulp and Paper Co., Thorold, T. H. McDermott, of the Lincoln Paper Mills Co., Merritton, while among the publishers, who put in an appearance were Acton Burrows, Col. J. B. MacLean, Major Hugh, C. MacLean, Frank Wise, R. F. Dale, and others. J. H. Woods, of Calgary, President of the Canadian Press Association and John M. Imrie, of Toronto, manager of the Canadian Press Association were also spectators.

At the outset Mr. Pringle read the Order-in-Council for action in the matter of the inquiry and announced that he had been ready to go on with the investigation for some time, but that one thing and another had interfered up to the present time, while he had been very busy with the newsprint proceedings. He asked for suggestions from counsel on how to proceed.

This brought Mr. Hellmuth to his feet and he thought that a series of questions should be submitted to the manufacturers of book papers and forthwith began reading off a long list of interrogations which was to form the basis of a questionaire.

These questions concerned the organizations of companies, stock issues, bonded indebtedness, operation of plants, cost of materials, dividends, expenditures, depreciation, contracts, cost of upkeep, distribution, etc. Mr. Henderson, Mr. Osler and others pointed out that it was an impossibility to get all the data covered by the questions. It was not available from the records of the mills.

After a long discussion, in which Mr. Hellmuth intimated that if it were not possible to get all the facts set forth in his questionaire he thought that the mills should answer such questions as they could. He was willing to have the list submitted to Mr. Pringle who could go over them and leave in what questions he thought should be answered. The Commissioner stated that he would do this and send out the revised questionaire this week to the plants giving them about two or three weeks to fill in the answers and return the same to him when the inquiry will be resumed. and the officers of the mills could be examined before the Commission for further particulars.

Mr. Henderson suggested that Mr. G. T. Clarkson, who has examined the books of the newsprint manufacturers, should go through the books of the book paper makers in order to expedite matters and Mr. Hellmutt thought this plan would be advisable.

Mr. Pringle pointed out that certain returns had been made by the news print manufacturers to the Commission which had been cast aside when Mr. Clarkson had got at the books. It was on the statements of the latter gentleman that examination was conducted at the later sittings. Finally, it was agreed that Mr. Clarkson should proceed at once with his investigation of the books of the pulp and paper manufacturers and, in the meantime, the mills will have to answer the questionaire as completely as possible.

The companies who will have the revised list of questions submitted to them and to whose books the official auditor will have access were named as follows: Provincial Paper Mills Co., Toronto, E. B. Eddy Co., Hull, Canada Paper Co., Windsor Mills, Que., Toronto Paper Mfg. Co., Cornwall, Kinleith Paper Mills Co., St. Catharines and Rolland Paper Co., Montreal.

The sulphite firms who supply the book paper mills and whose books will be examined will be the Riordon Pulp and Paper Co., Montreal, the Nashwaak Pulp and Paper Co. (formerly the Partington Pulp and Paper Co.), St. John, N. B., the Dominion Pulp Co., Chatham, N. B., St. Lawrence Pulp and Lumber Corporation, Chandler, Que. and possibly the British Columbia Sulphite Fibre Co., Mill Creek, B. C.

Mr. Pringle, before matters had gone very far in the discussion on the questions to be submitted, stated that there were manufacturers before him and those who wanted their product and he thought it should be possible for them to come together and agree upon a reasonable price. It would take months to go into all the issues raised and he would eliminate nothing that was desired. He, however, pressed his point that it was advisable to get together and see if the mills and the consumers could not work out a solution without proceeding with the investigation. Mr. Pringle declared that he merely threw this out as a suggestion and in no way did he desire to shirk responsibility and was willing to sit for months if necessary.

Mr. Henderson favored the idea that Mr. Clarkson be appointed official auditor or to go into the mills and make his report and then questions could be asked of the manufacturers as the result of the reports. He added that the news print manufacturers had implicit confidence in Mr. Pringle as a result of this work and they also had every confidence in Mr. Clarkson.

Mr. Pringle asserted that statement had been obtained from the news print manufacturers at first but no attention had been paid to them after the report of the auditor had been brought in. It was upon the latter statements that the investigation had proceeded. "What we want to get at in this matter" he declared "is the cost of production and whether the manufacturers are charging a reasonable price for their product."

R. S. Waldie of the Toronto Mfg. Co. said the manufacturers were not there in any contentious spirit. The welfare of their customers was theirs and they should

try and come together and settle the trouble amicably. This led to the following dialog:

Mr. Pringle.—"If you manufacturers have taken advantage of war conditions to enhance prices I can assure you this will not be permitted."

Mr. Waldie.—"If the idea is abroad that we have taken advantage of war conditions, I think that the investigation in that event should go ahead. We want our customers to be satisfied. About ninety per cent. of our product is sold to the jobbers and only ten per cent. to the publishers."

Mr. Pringle.—"Why can not the customers get the paper direct from the mill?"

Mr. Waldie.—"They can if they buy in large enough quantities."

Mr. Pringle.—"Then why not control the jobbers?"

Mr. Waldie.—"We do not mind if you do. We cannot give the best paper at the same price as proper paper."

Mr. Pringle.—"I understand that one reason for the higher prices of book papers is that sulphite has advanced."

Mr. Waldie.—"We do not make the sulphite."

Mr. Pringle again threw out the discussion here that he did not see why manufacturers and customers could not come together and see if they could not arrive at a fair basis on price and thus obviate an investigation that might take months to conclude.

Mr. Waldie remarked that he did not see how book papers could be investigated satisfactorily as the mills all made different grades and could not tell exactly what the costs were. Book papers were not a staple like news print. "We make papers" he added "from six to ten cents but the other manufacturers' eight cent paper is not the same as ours. Mills also make envelope, writing and a dozen other different varieties, and it is difficult to give any accurate information as to costs, If any accountant ca ngive us an accurate system of cost in book papers we would like to get it as we have never been able to arrive at one in book papers."

Mr. Pringle.—"Do you export any paper?"

Mr. Waldie.—"Not at all."

Mr. Waldie then pointed out that his mill could not make the same grade of paper twice running and as for American mills making cheaper, they often made up special lines at a price on which they were willing to lose money in order to keep their plants going. They would say that it was a special run, or off color, or present some other excuse.

If Canadian mills exported they also would prabably sell for less abroad. American mills were content to lose money on certain lines exported making up for any loss by domestic orders. When a mill does an exports business it generally disposed of its paper abroad for less than it receives at home.

Mr. Hellmuth said that Canadian publishers of magazines had to compete with American publications and, if it could be shown that Canadian publishers went to the United States and bought book paper, made from Canadian pulp at about two thirds the price they would have to pay for the same paper in Canada, then it looked as if something was wrong on the face of it.

Mr. Pringle said if this was the case he preferred that the investigation should go on to a certain point and, if what has been said is true he might be called upon to fix a price. Consequently he would like some facts in regard to costs so that he would be in a position to fix a reasonable figure.

Mr. Waldie said that certain mills across the line might be hard up and desire to make a paper at a price to keep their machines running and could offer most any excuse for making it such as a job lot, off color, It is easy to sel lon export at a loss and make up on home orders side run, etc.

In the course of further arguments on costs, Mr. Pringle remarked that there were able, competent and clever business men on both sides of this controversy and he thought that they should be able to get together on a reasonable basis. If the manufacturers and consumers could not do this he predicted that there might be such a thing as state control of the manufacture and distribution of paper.

In asking for the sulphite mills which should be investigated, the names of the Riordon and Nashwaak Company were the only ones mentioned. This brought T. J. Stevenson of the Riordon Pulp and Paper Co. to his feet and stated that other concerns which supplied the book mills were the Dominion Pulp Co. of Chatham, N. B., the St. Lawrence Co., of Chandler, Que. and the British Columbia Sulphite Fibre Co.

Mr. Pringle.—"I understand that your company and the Nashwaak are able to supply all the paper mills in the east."

Mr. Stevenson.—"Not all of them. There are the other mills that I have mentioned. About ninety-five per cent. of our customers are in this room."

Mr. Pringle.—"I am glad to see you are on such friendly terms. What is the price of sulphite?"

Mr. Stevenson.—"It has been reduced by thirty-five per cent since January 1st by four reductions and book pulp is now selling at $70 per ton, F. O. B. mill."

Mr. Pringle.—"What was your price prior to the war?"

Mr. Stevenson.—""Forty-five dollars delivered in Canada."

Mr. Pringle.—"What was the price of Scandinavian sulphite before the war? I understand it was about forty dollars."

Mr. Stevenson.—"Yes, there was some at that figure."

Mr. Pringle asked about cost of production and the effect of the submarine war on importations from Scandinavia and on the fluctuations in the price of domestic sulphite. Mr. Stevenson assured the Commissioner that he was not informed on production costs, being on the sales end, and that changes in price were made to meet market conditions. As this was considered a preliminary meeting, definite information was not at hand to answer some of Mr. Pringle's questions. The existence of several grades of pulp did not enter the discussion.

Mr. Pringle seemed quite impressed with the fact that some Scandinavian pulp was sold for $40 before the war, and that domestic went to $110 and back to $70. The reasons will come out in the investigation.

Frank Wise, chairman of the Publishers' section of the Toronto Board of Trade wanted to know if the statement made by one of the lawyers was to the effect that, if they could get paper cheaper in the United States than Canada, they should go there for it. If such were the case then he saw no reason why the duty should not be taken off and the paper allowed to come in free.

Mr. Waldie remarked that Mr. Wise had misunderstood matters and that Canadian makers of book papers

e anxious to preserve friendly relations with their omers as their welfare was mutual.

Ir. Pringle said they were not going into the tariff now and if Mr. Wise felt that there was a com-ation on the part of Canadian producers, proceed-s could easily be taken against them under the minal law.

n the course of further discussion Mr. Pringle said t it might be difficult to get at the different class-f papers and fix the costs, giving actual costs for different grades.

Ir. Duncan of the Provincial Paper Mills said,—"I uld not want to attempt such a task, I would rather e this work thrown on the accountant and see if he work out something approximate. I have never n able to get at the exact cost for the different des of paper to my satisfaction. We take the rage for a certain number of months and the sell-price and then are able to tell whether we are mak-money or not, but to say that we are making or los-money on a certain grade of paper, well I could not definitely."

Ir. Hellmutt.—"How do you fix the selling price if do not know the cost?"

Ir. Duncan.—"We estimate carefully but cannot definitely on any one particular grade."

t was finally decided that the questions drawn up Mr. Hellmuth should be submitted to Mr. Pringle will go over them and pass upon what he thinks practical and answerable. These will be sent to pulp and book paper mills already named, with the ectation that replies as full as possible will be hcoming in the next two or three weeks. In the ntime Mr. Clarkson and staff will begin auditing rder to expidite matters, the same procedure being owed as in the case of the news print mills. Further ings of the Commission will then be held at dates to named by the Commissioner. It is likely for the t part that they will be conducted in Toronto.

THE BRITISH EMPIRE IN THE BUSINESS WORLD.

hrough the courtesy of Mann & Cook, the well wn merchandising house of London, the Pulp and er Magazine has received a booklet entitled, itain and Her Colonies." It is beautifully illus-ed with pictures of street scenes and public build-s in prominent cities all over the Empire. The ntispiece is an excellent and unusual picture of Majesty King George V.

he introduction is a history of merchandising, es-ially the growth and organization of international ness. Then comes a brief chapter on each of the ts of the Empire, Canada, Australia, New Zealand, ia, South Africa, and London, giving in a most resting manner, an account of the history, re-rces, people, development and opportunities.

Iann & Cook have only recently come to figure ely in the pulp and paper industry, but are among world's largest importers of vegetable oils, rosin, pentine, etc. Their main office is in London but do business wherever the sun shines.

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he manufacture of dyes has been started at Santa Argentine, and samples of the products have al-ly been received in England.

VICTORY BONDS AND THE PAPER BUSINESS.

By EVERETT ANDREW.

Usually the Canadian paper trade, outside of investment purposes is not very much interested in bonds as they come and go. The Victory Loan is different. It means considerable for the future of the Canadian newsprint industry and the Canadian Paper Trade.

War measures especially from the newsprint end has brought about hardships as the final evidence submitted at the Newsprint Inquiry has shown. Certainly anyone who has sat through the inquiry and has a reasonable mind cannot say otherwise than three cents per pound is the rightful due of the newsprint manufacturer.

On the other hand even though wires, wrappers, felts, sulphur, coal, labor, wood, etc., have increased in price since the war began, the paper trade of Canada has indisputably derived other benefits to wholly or partially offset the increases and opened up new fields for trade. Canadian manufacturers to-day have an opportunity they have awaited for years to snatch the Scandinavian sulphate trade in the United States and keep it. This is due to the war.

Every paper manufacturer in the country knows that war conditions have in many instances increased his paper sales. This is particularly true at Ottawa where most of the Government printing is done, records kept, and the thousand odd ledgers of the Government are being constantly added to. The Government business alone at Ottawa in paper has increased thousands of dollars annually against the expenditure of peace times.

The floating of Canada's Victory Loan, in itself has created a war time demand for tons of various grades of paper from newsprint to coated stock. Posters, hangers, tags, envelope stuffers, newspaper advertisements, envelopes, cheques, record books, prospectuses, instructions to workers, instructions and advice to investors, etc. There are thirty million pieces of educational matter being sent out in connection with the loan campaign.

The Victory Loan is being floated for the purpose of advancing a credit to Great Britain, Canada's best trade customer, which in turn is to be spent in Canada for war needs. Thus munitions work continue and there is with the workers continued prosperity, steady work, and in general mill parlance, "something ahead." The success of the Victory Loan affects both labor and capital. Poor business means less work.

So much for the monetary, trade, financial results or whatever you like to call it. The newsprint and paper trade of Canada has a deeper and more serious obligation. The mill owner, stockholder, bondholder, superintendent, and mill employee owes a debt through patriotism to his fellow paper trade workers who are already overseas. The number of these men who have come from the loyal banks of paper mill workers and woodsmen can only be reckoned in terms of thousands.

Many of them have paid the supreme sacrifice of war. Others are maimed. Hundreds of others are giving and doing everything they have got to help along the cause. Through their unselfish actions it is possible to-day for the Canadian paper manufacturer to enjoy a wider and a probably more lucrative field without foreign opposition than he had in 1914.

The paper trade at Ottawa is showing a very deep interest in the Victory Loan drive which started throughout Canada Monday morning.

Get your subscription in early.

The Cooking Process in the Manufacture of Rosin Size

By J. A. DeCEW, Chemical Engineer, Montreal.

If anyone investigates the literature on the subject of rosin soaps for paper making, he will find that it chiefly consists in the statement of formulae or methods of working without any reasons being offered for the methods of procedure. The matter has in fact always been treated as an isolated process without any direct reference to the physical and chemical properties of the material itself. For instance, one observer will state that rosin soaps for paper making should be saponified with 20% of sodium carbonate on the weight of the rosin, that so many hours should be used for cooking and that a definite number of months be allowed for the salting out process, during which time the soap expels a portion of its water along with the inorganic salts. Another observer will state that rosin soap should always be cooked under pressure but neither gives any adequate reason for his conclusion and the element of mystery still remains. In dealing with material which may be variable in composition, such as the products which are classified as rosin, there will always be some degree of uncertainty as regards the actual results of complete or partial saponification. Recent investigations of organic chemists however, seems to throw some light upon the subject and the following statement regarding the chemistry of the process seems to be confirmed by experienced observers.

Since the methods of making rosin soap were no doubt adopted largely from the standard methods of soap making, it is natural that in the early process an excess of alkali should be used and thorough saponification obtained. Naturally it was desired to remove the excess alkali before using the rosin soap for sizing so that the salting out proces followed which required long standing in the cold. This method is still in use in many mills today and one reason for its persistence is the fact that during the removal of the excess alkali a certain amount of coloring matter goes with it and it is presumed that this has a sort of brightening action on the remaining rosin. This bleaching process however, is somewhat of an illusion, for if the alkaline water removed from the soap should be made acid, it would be found that the color of the materials in solution would closely resemble the color of the original rosin.

Later on there developed theories in sizing paper as a result of which, it was shown that although completely saponified rosin soap could size paper fairly well, yet it could be sized much better by means of a rosin soap carrying in solution unsaponified rosin. These theories resulted in the development of diluting systems designed to treat the various free rosin soaps in use, but they did not react upon the cooking process with any definite results. The free rosin soaps were still cooked under pressure or cooked by means of the long boiling processes used in the soap industry. A laundry soap is used for detergent purposes and for this requirement complete saponification and the maximum of hydrolizing action is desired but in the manufacture of a free rosin paper size, the requirements are reversed. In any fresh gum rosin there is a certain amount of elasticity and this property when the rosin is in the paper has something to do with its ability to resist the drying and crushing action which it undergoes on the paper machine. This property can be seriously injured by treatment with high temperatures or pressure, or by heating for a considerable time. The same effect takes place when rubber is over heated; in the latter case the results are much more apparent.

In an article on abietic acid published in the journal of the American Chemical Society 1914, by Emil Oscar Illington, it is clearly shown that abietic acid is partially decomposed in the process of melting and as fresh gum rosin consists almost entirely of abietic acid, the effect on it by heating must be identical. It is obvious therefore, that methods for making detergent soaps are not at all applicable to the treatment of partially saponified rosin and that this free rosin size should be made under atmospheric pressure and in a minimum of cooking time. It has been demonstrated in many places that the best free rosin size can be made in less than 4 hours cooking time for the entire operation. Under such conditions the chemical change in the unsaponified rosin due to heating will be reduced to a minimum and the properties of the rosin precipitated in the paper fibres will be more like that of the original gum.

There is a certain class of rosin made from dead timber, which is an oxidized or polymerized product and it has been found that this lacks certain properties found in fresh rosin from live trees. This rosin will not stand up with any regularity when used for making hard sized papers and the probable explanation is that it is an altered product.

Our conclusion is therefore that in making a free rosin size for use in paper manufacture, the reasonable method is to make it fresh and in small batches and in the minimum of cooking time, so that neither polymerization nor oxidation may affect the properties of the unsaponified rosin.

Weights of Timber

Weight of one cord of green spruce pulpwood is about 4,500 pounds.

Weight of one cord of dry spruce pulpwood is about 3,000 pounds.

Weight of one cord of green white-birch is about 6,000 pounds.

Weight of one cord of poplar pulpwood is about 3,200 pounds.

Weight of 1,000 feet of old growth spruce logs (according to Maine or Holland rule scale) is about 6,000 pounds.

The weight of green lumber may be reduced from 30 to 50 per cent. or more in seasoning, while the strength of small clear pieces may increase in seasoning up to double the strength when green.

Review of Recent Articles of Interest to the Pulp and Paper Industry

The Reduction of Selenic Acid. E. B. Benger. J. Am. Chem. Soc. **39**, page 2171 (Oct. 1917). Selenic acid is decomposed both by hydrogen sulfide and by sulphur dioxide $3H_2S + H_2SeO_4 = 4H_2O + Se + 3S$. This reaction takes place in several steps.

$H_2SeO_4 + 3SO_2 + 2H_2O = 3H2SO_4 + Se$. This reaction takes place in two steps.—Note: Selenium is found in some sources of sulphur supply and may give trouble in making acid.—A.D.C.

An Investigation of the Wet Thiogen Process. A. E. Wells, U. S. Bureau of Mines Technical Paper 133. (Abstracted in J. Ind. Eng. Chem. Vol. 9 page 872. September, 1917.) This is a method for recovering sulfur dioxide from smelter gases. The sulfur dioxide is caught in water or mother liquor. Barium sulfite is added. Barium sulfite, barium thio sulfite, and sulfur are obtained as precipitates. The precipitate is dried and distilled to recover sulfur. The residue, barium sulfite or sulfate is reduced to sulfide by some form of carbon at 750 to 1200 C. The process is discussed in detail.—A.D.C.

Method for Analysing Wood Paper Pulp — Paper **21** (1917) No. 3, p. 23. A color reaction method based on the numerous color reactions shown by wood fibres, one of these being the reaction of iodine and sulphuric acid upon vegetable cells. The different classes of cellulose in paper pulp are treated first by iodine and then by sulphuric acid (after having removed excess iodine), and the microscope shows that pulp made from rags now takes a violet brown color, mechanical wood pulp becomes yellow and chemical wood pulp as well as straw and esparto cellulose are blue color. If the pulp is subsequently diluted with a sufficient amount of water, the pure cellulose appears colored while the ground wood pulp remains yellowish. The author considered that in the case of a mixture of different kinds of cellulose in suspension in a suitable liquid the coloration will be yellower in proportion as the mixture contains a larger amount of ground wood. Two standard solutions were made (1) mechanical pulp; (2) chemical cellulose in bleach solution. Solutions were prepared as follows: Treat 1 gr. of each pulp with 100 cc soda lye (2 per cent) solution by boiling for five minutes. Filter upon wire gauze and wash until a neutral reaction is obtained, then dry at 100° C. Take 0.02 gr. of the dry pulp and saturate it with iodine by the use of a solution containing 3 gr. K I per 100 cc distilled water and also iodine in saturation. Remove excess of iodine. Place 20 mg. of this prepared substance in a standard bore test tube and add 20 drops of a solution composed of 66° sulphuric acid, 22 cc; water 16 cc; glycerin 16 cc. Rub up the whole in the tube using a glass rod, add 10 cc of a solution of equal parts of glycerin and water; shake well and observe color. This color corresponds to a given standard percentage of cellulose in the solution, and it only remains to establish a series of colors by using different tubes, each containing another standard percentage of wood cellulose. These standard colors are now fixed once for all upon a sheet of paper by the use of water colors. This color scale is then employed as a standard.—E. K. M.

Points About Fine Papers for Salesmen. By W. A. O. Weber Paper **21** (1917) No. 3, p. 11-13. A talk on the manufacture of bond and ledger papers. The following are discussed: engine-sized, tub-sized or surface-sized, machine-dried, air-dried and loft-dried papers, furnishes; and finishing.—E.K.M.

Extracting coal dust from sulfite lye. Anon. Paper Trade J. **65**, No. 7, 36-42 (1917). — A reported interview with R. W. Strehlenert in which S. describes his process in detail and gives data as to heat and chemical requirements, yields and erection and production costs. — R. B. Roe.

PATENTS.

Machine for the Manufacture of Paper Twine. Arthur Dymoch, Stockport, England. U. S. patent 1,241,943. Assigned to American Coretwine Co., Boston, Mass.

Machine for Cutting and Interfolding Sheets of Paper and the Like. Louis A. Stranbel, Green Bay, Wis. U. S. patent 1,242,262.

Split Shaft for Use on Paper Machines. Joseph Hundhausen, Schofield, Wis. U. S. patent 1,242,807. It has collapsible core-engaging numbers to hold paper rolls in position.

Waste-Paper Press. William J. Pahn, Minneapolis, Minn. U. S. patent 1,242,232. Dogs on presser plate engage serrated bars on removable side.

Roll-Paper (protecting) Shoe. Wm. A. Norman, Chicago, Ill. U. S. patent 1,242,966. A flat sole with curved flange for supporting rolls of print paper without damage.

Paper-Walled Vessel. Ben King Ford, Detroit, Mich. U. S. patent 1,243,658, assigned to Detroit Can Co. A can made of paper and hard sulphite pulp with a metal bottom crimped on.

A Paper Hat. Edwin L. Henderson, of Norwood, Ohio, has been awarded U. S. patent 1,239,483 for a hat made of elastic paper, which may be waterproof. The hat has a roll brim and the appearance of a straw hat. It appears to be made in three sections.

(Courtesy of Chemical Abstracts.)

Cellulose from reeds wire grass and similar materials. H. E. Ellis. U. S., 1,236,072, Aug. 7. — Fibrous material such as cocoanut fiber, saw grass, spartina or reeds is shredded, freed from dust, treated with a heated solution of NaOH in sufficient amt. to impregnate the fiber, and after preheating sufficiently to bring it to the boiling point when subsequently treated with steam is subjected to steam-cooking.

Wood alcohol from the products of the soda-cellulose manufacture. J. and O. V. Bergstrom. Swed., 42,374, Apr. 18, 1917. Addition to 38,682. — The condensate which is obtained by condensing the vapors resulting from the distn. of the boiling liquid used, either with or without the condensate of the vapors arising from the boiling, is subjected to the treatment specified in the principal patent.

Extracting alkaline substances from the products of combustion from regenerat ves processes in sulfite or soda cellulose factories. K. W. Sundblad. Swed., 42,-440, Apr. 25, 1917. The substances are obtained by washing and cooling the gases, and a portion of the resulting solutions is used for washing to remove lime used as an alkalizing agent, and then for dissolving fresh soda.

UNITED STATES NOTES

Application has been filed with the Interstate Commerce Commission for approval for filing of an increased rate by the Maine Central Railroad Co, on wood pulp, paper board, paper bags and other articles from various stations of this company to certain trunk line territory, also to Cleveland, Ohio. This application will be treated by the Commission in the regular way.

The Peerless Paper Co., Dayton, O., has made application for an increase in capital stock from $35,000 to $600,000. The increase in capital stock is thought to mean an extension and broadening of the business.

Announcement was made late during the week by F. P. Glass, vice-president of the Newspaper Publishers' Association that an abundance of newsprint paper would be on the market within the next few weeks to relieve the existing shortage. Mr. Glass says that about 4,000 tons would be shipped to New York from the Association's mill in Newfoundland.

The shipment of indigo and colors, valued at close to a million dollars, previously reported as being enroute to this country from Switzerland, arrived several days ago and is being appraised for duty by the customs officials. The foreign market value of these goods is placed at about 4,500,000 francs, to which must be added duty, freight and insurance to arrive at the cost of bringing the merchandise to the United States. The shipment consists of synthetic indigo and coal tar colors, all of Swiss manufacture. The synthetic indigo is subjected to duty at the rate of 30 per cent. ad valorem, the coal tar colors at the rate of 30 per cent. ad valorem, and five cents per pound.

A. Klipstein & Co. will receive all of the indigo, while the coal tar colors will be proportioned among the following concerns: The American Dyewood Co., F. Bredt & Co., the Heller & Merz Co., Geisenheimer & Co., Thomas & Co., F. W. Sykes and the Consolidated Color and Chemical Co. It is understood that large shipments of colors have also been received at Philadelphia, Boston and Detroit.

Paper men have been interested in a movement for conservation which has culminated in a movement to do away temporarily with Christmas cards of the elaborate variety. For many years business houses, as well as individuals, have indulged in the custom of sending elaborate Christmas greeting cards as a token of their esteem. Realizing the large amount of paper, ink, etc., involved, several large corporations have co-operated in this movement to forego the custom during the war and thus release the labor used in the production of the cards for purposes more directly related to war needs.

The organized workers of Greater New York, represented in the Central Federated Labor Union, have uttered protest against the newsprint manufacturers. What complaint these men have, does not seem to be known, nor is it known what they know regarding the paper situation that would make them competent to take such action. However, they have gone on record endorsing the recommendations of the Senate Printing Committee for government control of the print paper industry.

Jessup & Moore Paper Co., of Philadelphia, announ that they have acquired the services of S. A. Benedi who recently resigned from the Paper Mills Co., Chicago.

The Peninsular Paper Co., of Ypsilanti, Mich., ca attention to the fact that it has now connected wi its staff, Carl E. Lincoln, for the past two years know to the Boston trade as a jobber. Mr. Lincoln was f a number of years, also with the S. D. Warren Pap Co. His friends feel he has gone rather far from hom

E. P. deHaven has just been made vice-president the John Leslie Paper Co., of Minneapolis, Minn., o of the most progressive jobbing houses of the Nort west. Mr. deHaven has had many years of experien in the paper business and is thoroughly fitted to a to the credit of the concern in his new capacity.

To Plan Standardization of Dyestuffs.

Three concerns—the Cambria Steel Co., Bick & Und and S. H. French & Co., have signified their approv of the call issued by Dr. H. Gardner McKerrow, sale manager of the Marden, Orth & Hastings Corporati for a meeting of manufacturers of dyes and dyestuf to be held in New York, the week of January 21, 191 to form a national organization of manufacturers an dealers. . . . The trade is very much interested i the outcome of this meeting and in the very fact tha there has been some response to Mr. McKerrow's ca as the conference plans to discuss the standardizati of colors and to perform a number of services that wi be of value to all in the trade.

Publishers Interested in Reclaiming Paper.

The principal subject discussed at the recent mee ings of the Inland Daily Press and the Illinois Dail Press Associations, held in Chicago, was the process reclaiming waste newsprint through a de-inking pr cess patented and perfected by John Welsh, treasure and general manager of the Green Bay Paper & Fibr Co., Green Bay., Wis. Mr. Welsh, at the invitatio of both associations, outlined his plan for de-inkin paper, assuring his hearers that the process can b made a great commercial success. The Welsh proces is a plan whereby used newsprint is reduced to pul and the ink rising to the surface of the pulp tank through special chemical action is cleared away, leav ing the residue practically white — a faint bluish white to be exact. The paper is given added whitenes by supplementing the de-inked pulp with 25 per cen new wood pulp. The paper, in tensile strength an evenness of coating, is said to surpass the fresh news print. Mr. Welsh estimates that the de-inked pape can be commercially produced at a cost under presen day conditions not to exceed $3.25 per hundred. Mr Welsh, it is reported, expressed his willingness t convert his own plant into a plant for the manufac ture of reclaimed newsprint upon some plan of mutua co-operation. His plant, with its present capacity an some slight changes in equipment, can produce 40 ton of reclaimed print daily. So strongly were the pub lishers impressed with the possibilities of the pla that a committee was appointed to make an early an complete investigation of the situation to report t the association.

PULP AND PAPER NEWS

I. H. Weldon, President of the Provincial Paper Mills Co., who has been on a deer hunting expedition up the French River, with a party of friends, has returned. He reports deer as plentiful and managed to shoot a fine specimen.

W. J. Wallace, mill manager of the Toronto Paper Mfg. Co., Cornwall, is enjoying a few weeks holidays, which he is spending in New York State.

W. F. Christie, of the John Christie Co., rag and paper stock dealers, Toronto, has returned from a successful deer hunt in Hastings County, north of Bancroft.

J. G. Barnet, of Renfrew, left recently for British Columbia, where he will spend several weeks looking after his interests, pulp limits, and mills.

J. H. Payne, secretary of R. G. McLean, Limited, printers and publishers, Toronto, died last week after only a few days illness of pleuro-pneumonia. He has been with the firm for a number of years and was well known.

Just twenty years ago The Empire was founded in Toronto by the Conservative party, then lead by the late Sir John A. Macdonald, displacing the Mail as the official Conservative organ. For eight years the Empire was published as a losing financial venture, and then it was amalgamated with the Mail, that paper ever since going by the title of The Mail and Empire. Vividly during the past two weeks the era of the old Empire been recalled to the minds of papermen. W. R. Brock, who was President of the Board of Directors, died a few days ago. He was one of the largest shareholders of the Empire and only last week David Creighton joined the silent majority, at the age of seventy-four years. Mr. Creighton conducted the Owen Sound Times for a long period, and for several years was the manager of the Empire. When the latter publication was merged with the Mail, Mr. Creighton, who has represented North Grey in the Ontario Legislature for a quarter of a century, was appointed assistant receiver-general, with headquarters in Toronto, which post he held until his death. David Creighton was one of the old timers in journalism and his passing will be deeply regretted.

S. T. Wood, for thirty years member of the Globe editorial staff, Toronto, and a widely known writer on economic and nature topics, passed away in Toronto last week aged fifty-seven years, after being in poor health for some time. He was widely known in newspaper circles and leaves a wife and two sons.

A charter has been granted to the Mingo Pulp, Paper and Land Co., Limited, with headquarters in Toronto and a capital stock of one million dollars, divided into two hundred thousand shares of five dollars each. Among the incorporators of the company are Clarence R. Pope, of New York city, and W. A. Brodie, of Toronto. The company own twenty thousand acres of land north-east of Chapleau, on the Loon and Nemegosenda rivers, in the townships of Borden, Gamey, Chewett and McGee, and the land is well wooded with spruce, balsam, jack pine and white birch. The company will, during the coming season, take off fifty thousand cords of pulpwood. The property is reached by the C. P .R. on the south, and the C. N. R. on the north, and is well watered to the Transcontinental line, and has rich veins of iron pyrites, one vein being half a mile long and thirty-five feet wide, and showing on analysis a percentage of sulphur of 46.94. It is understood that the company will erect a large groundwood pulp mill on the property.

E. Pullan, of Toronto, has returned from an extended trip to the paper mills of Michigan and other points, and reports business in the rag and paper stock line as being rather quiet.

Many safety engineers, superintendents and others interested in accident preventive work in the pulp and paper mills of Ontario will attend the gathering which will be held in the assembly room of the Normal School, Toronto, on Tuesday, November 20th. Notices have been sent out by F. M. Tobin, of Toronto, secretary-treasurer of the Industrial Accident Protective Association of Ontario, calling members of all industries together for a conference, which will be representative in every respect. Addresses will be delivered by C. W. Price, field secretary of the National Safety Council, Miss Nesta Edwards, of Kimberly-Clark Co., Neenah, Wis., and others active in the promotion of accident preventive work. A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers Safety Association, Toronto, has notified all the mills and expects a large number of those interested will be in attendance at the sessions.

E. Simonson, superintendent of the Dominion Pulp and Paper Co., at Chatham, N.B., has been granted U. S. patent number 1,239,976 for a "means of securing the outer ends of pulp rolls."

E. R. Barker is New Mattagami Manager.

The third digester of the Mattagami Pulp and Paper Co., at Smooth Rock Falls, Ont., is expected to arrive about December 1st, and will be in operation in three months. The other two digesters are now in complete running order and the output is at present one hundred tons of sulphite per day. The digesters are all 19 x 65 feet. All the hydraulic equipment has been completed at the mill and some seventy-five houses erected for the accommodation of the employees while the new hotel is a model of convenience and comfort. About seven hundred hands will be employed in the woods and at the mill during the winter.

E. R. Barker, of Boston, who is the founder of the Barker acid system and has been prominently identified with some of the largest sulphite plants in America has, it is understood, been appointed manager of the Mattagami Pulp and Paper Co., and will have his headquarters at Smooth Rock Falls. S. R. Armstrong general manager, it is learned, has become one of the vice-presidents of the company and will spend the greater portion of his time at the head office in Toronto. W. S. Haley is the superintendent of the plant Mr. Barker, the new manager, is an expert in bleaching equipment, chlorine bleach liquor and caustic soda plants, and in the recovery of by-products.

The rag and paper store house of A. L. Florence, in Ottawa was burned recently. The loss was $80,000, and the cause unknown. It was the biggest establishment of its kind in the city.

Mr. and Mrs. Kennie of Pyrites, N. Y., have arrived at Iroquois Falls, Ont. Mr. Kennie is the new master mechanic at the Abitibi mill, and has entered upon his duties like a man who knows how.

The Powell River (B.C.) Company, Ltd., has acquired a third tug for log-towing between the Kingcorne River camps and the big paper mill at Powell River.

The Pacific Mills, Ltd., Ocean Falls, have placed an order with the Vancouver Equipment Company, Ltd., Vancouver, for 25 logging trucks for their woods operations.

Logging operations on a large scale are being carried on by the Whalen Pulp and Paper Company, Ltd., on their limits near Quatsino, West Coast of Vancouver Island.

Hereafter all timber cut on Dominion lands must be scaled by an employee of the department. Under this ruling Alex. Garrett has been appointed scaler for the crown timber agency at New Westminster, B.C.

The many friends of W. P. Gundy, Vice-President and General Manager of the W. J. Gage and Co., Toronto, and Vice-President of the Kinleith Paper Mills, St. Catharines, are congratulating on being appointed a member of the War Purchasing Commission at Ottawa, in succession to Sir Edward Kemp. Mr. Gundy has held many important positions, not only in the paper trade but in public bodies in Toronto, being a former Chairman of the Board of Trade. He has been connected with W. J. Gage and Co. for the past thirty-six years. Last week Mr. Gundy celebrated his fifty-ninth birthday.

M. E. Nichols, who was at one time a member of the staff of the Toronto Telegram and later President and Manager of the Telegram, Winnipeg, from which post he went to Montreal to launch the Mail, has been appointed Director of Public Information at Ottawa, and will act in close co-operation with the War Committee of the Cabinet. Mr. Nichols is well qualified for his new post and was for many years connected with the Parliamentary press gallery.

MR. IMRIE CALLED ON CONTROLLER PRINGLE.

A new price for newsprint paper which will probably be three cents or more per pound will likely be in existence within the next week if it is not already announced before this appears in print. There are firm hopes and belief at Ottawa that no price under three cents per pound will be set by the paper Controller Robert A. Pringle, K.C. There have been some views expressed which show that a price of three and one quarter cents per pound or sixty-five dollars per ton f.o.b. the mill, is more than what the paper manufacturer is entitled to for all of his trade, combining domestic and export orders to the United States.

Since Mr. Pringle was appointed Paper Controller, the Publishers have been represented before him, for early last week Mr. J. M. Imrie, secretary of the Canadian Press Association was in the Paper Controller's office. What the outcome of the conference was has not been announced. Neither has announcement been made as to how the Canadian publishers are going to accept the figures indicating a raise in price as shown at the concluding session of the newsprint inquiry.

POWER CONTROLLER APPOINTED.

The control of electrical energy in Ontario, in which Province the newsprint mills of Abitibi Power and Paper, Fort Frances Paper, The Ontario Paper, John R. Booth and Spanish River are situated, is now under the jurisdiction of Sir Henry Drayton, chairman of the Board of Railway Commissioners who has been appointed by the Order-in-Council as "Controller of the production and distribution of electrical energy in the Province of Ontario."

The Order-in-Council making the appointment says that it will be the duty of the Controller to determine preferences and priorities in the supply of such electrical energy, to the end that a sufficient supply shall be furnished to factories and users engaged, directly or indirectly, in munition work or work for any of the Allied Governments and also for municipal and public utility requirements.

It is provided that in the event of a dispute between the user of electrical energy and any company the price at which the energy shall be supplied to the user shall be fixed by the Controller. It is also provided that as a great deal of energy is exported to the United States and used in connection with war requirements of both governments that a conference be arranged between the United States and the Canadian Authorities with a view of ensuring the closest co-operation between Canada and the United States in the generation and utilization of energy on both sides of the boundary.

FIRE AT KINLEITH PAPER MILL.

Fire from an unknown cause practically gutted a storehouse of the Kinleith Paper Mills, St. Catharines, early on Tuesday evening last. The building is a two storey affair, and in it was stored a quantity of oil and a large amount of old machinery, sash and lumber. The goods stored were good fodder for the fire, and when the firemen arrived on the scene, about 6.45 o'clock, they found the interior of the building a mass of flames.

For two hours the firemen worked hard before they succeeded in extinguishing the blaze. During the fire the flames spread to the joints of the concrete finishing building adjoining the storehouse, but this was quickly put out and little damage was sustained by the large amount of goods ready to ship. The storehouse is situated north of the main buildings of the plant and the workmen in the latter continued their occupations while the fire was raging in the storehouse.

According to a contributor to Papier-Zeitung, for the manufacture of copying papers, a thin and very tough paper preferably prepared from soda pulp, is used; hemp, linen, and cotton fibre papers are also used, but the soda pulp papers are best on account of their close texture, which tends to prevent penetration of the coloring matter. The colors used are mostly water soluble dyestuffs, viz., pure blue, azo red, eosine, and methyl violet; for black a mixture of nigrosine and the finest lampblack is used.

If the Huns were within shelling distance of your town, you would be glad to **give** a lot of money to buy them off and save your home and family from abuse. Why not **lend** that to the Government to help beat our enemies where they are?

The Markets

CANADIAN MARKETS.

Toronto, November 12. — The interest, which was aroused in the newsprint investigation has now been shifted to the inquiry into book papers and a preliminary hearing was held in Toronto last week, a full report of the proceedings of which will be found in another column. It is expected that Commissioner Pringle will announce his verdict in the matter of the figure for newsprint early next week and, in the meantime, he left for Washington, after the preliminary sitting in Toronto to confer with the Federal Trade Commission on several matters.

It seems to be a foregone conclusion that the quotation will not be under three cents. A graceful tribute was paid to Mr. Pringle by G. F. Henderson, of Ottawa, the counsel of one of the leading paper mills, during the citting in Toronto, when he stated that the newsprint manufacturers have complete confidence in the Commissioner and the auditor, Mr. Clarkson, and the thorough and impartial manner in which they had conducted proceedings and given every one a fair open hearing.

At the session in Toronto the Commissioner threw out the suggestion several times that he would like the book manufacturers and trade and class publishers to come together around a table and see if they could not arrive at some equitable basis of settlement rather than go on with the inquiry which would take many months. He was perfectly willing to delve as exhaustively into book papers as he had into newsprint and was not seeking to shirk his duty, but he thought if a spirit of fair play and justice was evidenced on both sides, an amicable adjustment might be reached. Whether an attempt will be made to settle matters is not yet known and, in the meantime, a series of questions as long as the moral law is being submitted to the book mills and the auditor. Mr. Clarkson will go on with an examination of the books.

Mr. R. S. Waldie stated that the mills were anxious to deal with their customers on fair broad-minded terms, recognizing what was the interest of the consumer, was also the interest of the manufacturers, and it was only by co-operation, good will and confidence that the trade of both producer and consumer could be preserved. The Canadian mills were looking for business and willing to meet the publishers in a friendly way.

It is interesting to note that the paper committee of the American Newspaper Publishers Association has recommended to the members of that association that they do not sign any contracts for the coming year except at a price around three cents, f.o.b. mill. This action has been taken on the increased production of paper, the introduction of newsprint from Newfoundland, the reduction in consumption, the large quantity of paper in storage, and the fact that newspaper circulations are not increasing materially at the present time, and the difference between exports and imports is gaining favorably.

There is a general impression in Canada, that, while there is much talk about the price of newsprint being fixed by the twentieth of this month, something will develop to stave off the decision until after the elections and that an Order-in-Council may be passed extending the time during which newsprint manufacturers may have to supply the press at two and a half cents until the end of the year.

The book and writing paper business is only fair and is not likely to improve while the inquiry is in process, as buyers will tend to hang back thinking there will perhaps be a reduction when final decision is made. Consumers will be diffident about stocking up if there is any indication of a decrease in price. Another reason why buyers of large lots are holding aloof is because unbleached sulphite has been steadily coming down in price and is now selling at seventy dollars a ton while a few months ago as high as one hundred and ten dollars was paid. To-day the price in Canada is lower than in any other country and the trend of the market is downwards.

It is stated that about the same number of men will be engaged in the woods as last season, but wages are going up constantly. One firm is offering men in Toronto from sixty to sixty-five dollars a month and board, the highest figure ever known, for cutting and skidding pulpwood in Northern Ontario, and intimates that by contract they can make five dollars per day at such work. Free fares to point of destination are also proferred as an extra inducement. The price of book sulphite, shortly after the war broke out, was forty-five dollars per ton, delivered, and considering the way wages, board, transportation and other items are ascending, the plants will not be able to make such a profit on their finished product as they have in the past.

The intimation of "state control" of pulp and paper mills, which has been made by Commissioner Pringle several times, if he finds that exorbitant profits are being exacted, is not taken very seriously by the manufacturers. The government has perplexities enough just now with elections, financing the war, raising victory loans and taking over unprofitable railways, without dipping into the pulp and paper business.

"State control sounds well in theory, but it might not work out so well in practice. Running a pulp or paper plant is not a business like conducing a corner store and millions of dollars are tied up in the enterprise. Let the government first control the food situation, the cold storage plants, the munition factories and the packing houses which have been the source of profiteering to a flagrant degree, rather than take hold of an industry which even specialists find it most difficult to conduct profitably at the present time with its increasing costs, labor shortage, delay in getting in raw materials and ever-growing expense of upkeep and accessories for machines," declared one manufacturer this week.

The groundwood situation is dull and few sales are being made. Paper box factories are not as busy as they expected to be and the threatened action of Food Commissioner Hanna to do away with cartoned cereals will injure the business to a very great degree. Board

mills already feel the effect of the situation to dispense with package goods. The rag and paper stock market is inactive at present and things are not expected to pick up much before the end of the year. Mills are not rushed and are, therefore, not buying. Jobbers report business as only fair and there has been some cutting on cheap bonds and book papers to reduce stocks. All purchasing in the paper business is now from hand to mouth. An interesting statement was made by a book paper manufacturer at the session of the Commission in Toronto, after the hearing had adjourned, and that was his plant was making more money when his product sold at about half the figure which it brings at present, because expenses and operation were much lower and any advance had not been in accordance with the increase in wages, sulphite, wires, felt, transportation and overhead charges.

The following prices prevail f.o.b. Toronto:

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.50
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.75
†Fibre	$7.35
†Manila, No. 1	$7.35
†Manila B	$5.25
Tag Manila	$6.50
Unglazed kraft	$8.75
Glazed kraft	$9.00
Tissues, bleached	$1.40 to $2.00
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c. to $1.15
Natural, greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

(xx)—Less ten per cent.

Pulp.

	F.O.B. Mill
Ground wood pulp	$35.00 to $38.00
Sulphite, easy bleaching	$70.00
Sulphite, news grade	$55.00 to $60.00
Sulphite (bleached)	$110.00 to $115.00
Sulphate	$80.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.75
No. 1 soft white shavings	$2.75
Mixed Shavings	80c
White Blanks	$1.65
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.25
No. 1 printed manila	$1.25
Folded news	70c
Over Issues	$1.00
Kraft	$3.00
No. 1 clean mixed papers	55c
No. 1 shirt cuttings	$7.75
No. 1 unbleached cotton cuttings	$7.75
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.75
Unbleached shoe clip	$6.25
White cotton hosiery cuttings	$8.50
Light Colored hosiery cuttings	$7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues	$2.50
Flock and satinettes	$2.10
Tailor rags	$2.15

NEW YORK MARKETS.

New York, Nov. 12.—Conditions in the chemical pulp market are still such that they favor the buyers. Most domestic mills keep well engaged on contracts and are having no great difficulty in disposing of the larger portion of their surplus product notwithstanding the fact that the heavy demand which customarily prevails at this season is lacking at present. Consumers are buying conservatively and absorbing only such quantities of sulphite or other pulp as they have direct need for. With foreign pulp eliminated to a more or less extent as a competitive factor, however, there is a resultant increasing demand for domestic grades. Importers have moderate stock of Scandinavian pulp on the docks, but the prices at which these supplies are held prohibit any real movement towards the paper mills, as American or Canadian fibre is being used in place of imported pulp. Under prevailing conditions, buyers will often accept deliveries of paper not fully up to standard without any question, so that the excuse of the better quality for the use of imported pulp is not as strong as it has been. This has been particularly demonstrated in the use of bleached sulphite and kraft pulps. The domestic product in these grades now more commonly sup-



Where do my profits come from?

He wants to know why his profits are not bigger, but he knows he must find out where they **come from** first.

Let's tell him.

From his office force? No. From his salesmen? No. From his advertising? No. From his board of directors? No. From speculation in raw material? No.

These are all big aids, but they are not the real simonpure, day-in-day-out source of PROFITS.

What then?

The working time of his employees. The time he buys and pays for and which is spent in transforming raw material into finished product—and the better the use of the time, broadly speaking, the bigger the output and the bigger the profit the goods will yield.

All right---how about leaks and losses in working time? Well if this man has 500 employees there are at least 12,000 possible leaks a week---one each for the 4 daily arrivals and departures per employee. That is, unless he uses an International Time Recorder as many thousands of successful firms do.

There's a cold-blooded, non-human machine that prints in unchangeable, deadly, accurate figures the time record of every employee **as made by himself.**

An International checks working time, which means safeguarding profits.

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General Manager
624 Birks Bldg., VANCOUVER: (opp. Vancouver Hotel)
WINNIPEG 247 McDermott Ave.
MONTREAL: Cartier Bldg. Cor. McGill & Notre Dame Sts.

plants the imported article than ever before. On the other hand, it is regarded as remarkable the way the importers are holding whatever supplies of Scandinavian fibre they have available on docks. Since the fire in Baltimore last week, when a large quantity of pulp was destroyed, inquiry from consumers has shown considerable quickening. Practically no pulp is now arriving from the other side, and the outlook is that very little will be forthcoming for some time, to say the least. As a result, it seems that the holders of what limited supplies are for sale here are determined to realize a profit in turning it over to paper manufacturers notwithstanding the fact that the prevailing prices on domestic pulps are almost less than half of those asked for imported fibre. The bulk of the supply now held in store in Baltimore, New York, Newport News, and other ports is unbleached sulphite and kraft pulp. For the former, the importers quote a minimum of 5 cents per pound, with some lots held at 5½ cents and higher. For kraft pulp, an average of 5¾ cents is asked, with virtually no offerings at below 5½ cents. The nominal figure for foreign bleached, is about 9¼ cents to 9½ cents; for easy bleaching, about 5¼ cents to about 6 cents. Domestic bleached can be obtained, it is said, for as low as 5¼ cents, up to 6 cents. Domestic unbleached ranges from 3 cents to 3½ cents; Mitscherlich is quoted at 5½ to 6 cents; domestic soda bleached, at from 4¼ to 5¼ cents. Interest is being shown in figures given out by the Federal Trade Commission, regarding the imports of chemical fibres for the manufacture of paper during the first eight months of the current year, showing a substantial increase over the corresponding period of 1916. These figures show that 269,954 tons of chemical pulp were imported up to the end of August this year, as compared with 242,930 tons during the first eight months of 1916, a gain of 27,024 tons. Of this total, 237,442 tons were unbleached sulphite, 120,581 tons of which were imported from Canada, and 32,412 tons bleached sulphite, of which 7,900 tons were of Canadian origin. The remainder, or 141,474 tons, which came from Scandinavia, represents a considerable falling off in imports from this direction.

While mechanical pulp remains inactive, and it is true that prices are acting as though they were on the decline, indications are that the market is due for substantial strengthening in the near future. Reports from numerous sections state that grinders are being forced to curtail their operations to a heavy extent owing to the difficulty in getting wood. This is caused not by any shortage, but by the lack of freight cars in which to transport the wood to the grinding plants. Sellers emphasize the fact that about all that is needed to send prices in the opposite direction from which they have been sagging for the past few weeks is the entrance of buyers into the market in more seasonal numbers. What will eventually happen to the foreign situation, none can tell, except that it is generally agreed that prospects are far from being in any way encouraging. At the present time, there are many rumors in the trade that stock has been sold as low as $34 a ton, at the pulp mill. A good idea of present figures can be obtained from the following: For the East, $35 to $38 per ton, f.o.b. pulp mill; for the West, $37 to $40 per ton. Newsprint manufacturers are the chief buyers for the present and these are taking merely such tonnages as they need to take care of immediate business.

The cotton rag market is still lacking in seasonal activity and business of limited proportions is reported by dealers. The rather consistent movement of roofing rags aids in keeping values on the better grades of stock fairly firm, but the dull demand from manufacturers naturally casts an easy tone over the market and quotations are upheld more by sentimental causes than by any stable condition. Consumers maintain that they have a sufficiency of rags in store, and because of the uncertainty existing in the paper industry, are unwilling to buy further ahead. As a result about the only sale of moment now being accomplished, are to those mills which are absorbing supplies here and there at cheap prices. Felt manufacturers as a rule are doing their best to keep out of the market. Those that are purchasing, are doing so in moderate volume and trade of fair breadth is passing in satinets. White rags are said to be in unusually light demand. Old whites, No. 1, are quoted at from 4 cents to 5 cents; street soiled whites, at up to 2¾ cents; thirds and blues, from a little over 2 cents up to 2¾ cents; black stockings, up to 2¼ cents. In new rags, paper manufacturers are most active in shirt cuttings, silesias, washables and bathrobe cuttings. It is said that the salable price for washables is about 5¼ cents. New shirt cuttings are quoted at, up to 9¼ cents; silesias, at 5¼ to 5½ cents; fancies, at 5¼ cents to 5¾ cents.

The waste paper market is rather quiet. Buying is said to be exceptionally light, and in many instances, brokers who have orders on their books, have been notified by manufacturers to stop shipments temporarily, which has, of course, affected the status of the market. Many consuming plants show practically no interest in paper stock, and the efforts of dealers or packers to induce them to buy meets with but little success. Whatever is being done, is in the cheaper qualities of stock, but it is said to be extremely difficult to move sizable tonnages of shavings, kraft, high grade manilas and similar grades. Mills consuming the latter kinds of waste paper are thought to be using wood pulp to a greater extent than they have been doing and are, therefore, not buying their usual quantities of paper stock. The price of mixed paper is now on such a level that manufacturers appear to be willing to take advantage of the opportunity to do a little stocking up. Folded news continues to be more or less neglected and few transactions of any account have been recorded in the grade. Some of the quotations heard, are as follows: No. 1 hard white shavings, up to 3 cents; colored shavings, up to 1½ cents; over-issue magazines, up to 1½ cents; ledgers and writings, up to 2 cents; krafts, up to 2½ cents; crumpled news, up to 75 cents per 100 pounds; bogus wrappers, up to 1 cent; over-issue news, up to over 1 cent; mixed papers at about 65 cents per hundred pounds.

The dearth of imported supplies is a bullish factor in the old rope market, yet the slow demand coming from consuming quarters keeps prices easy and places the market in a rather inactive position. Authoritative advices state that not enough rope has arrived within the past month from foreign sources to keep one paper mill supplied. Still, manufacturers display little or no interest in offerings of domestic stock and current business is confined almost wholly to deliveries on old orders. Stock is quoted at 6 cents and higher.

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In the paper market, conditions are still rather quiet. The holiday during the week was one of the offsetting factors. However, there has been no tendency noted for things to pick up. It is feared that the tendency toward economy, now very apparent, may have a fairly far-reaching effect.

An Expert Reviews the Paper Situation*

In the light of similar action with respect to other commodities, the appointment of a "Controller of Newsprint and Bookprint" would suggest an acute shortage in Canada of the commodities named. What are the facts?

Of the total output of newsprint in Canada today only 10 p.c. is required for the home market. The Department of Trade and Commerce reports that, in the twelve months ending March 31st last, Canadian shipments of newsprint to the United States were of a value of approximately $21,000,000 of wood pulp and like products of a value of approximately $29,000,000. The value of newsprint consumed annually in Canada is placed by trade authorities at only $3,000,000.

As a result of years of effort during which investors received a meagre return on their capital, if any at all, the pulp and paper industry has been built up to a point where is production, in exces of home requirements brings in approximately $50,000,000 annually from the United States alone. It is entitled to rank as Canada's most important export manufacturing industry. Presumably, at this of all times, it might expect to meet every encouragement towards further expansion. Why then the appointment of a controller, with its immediate suggestion of restriction, and in the case of restriction in these times, its suggestion of a national emergency?

We have the official admission of the gentleman in charge of the recent inquiry into the costs of newsprint manufacture that "the paper manufacturers have been making a present of $500,000 to the Canadian newspaper publishers." So much for the results of the haphazard attempt to fix newsprint prices a year ago. We deprecated it at the time as vicious in principle, and an unwarranted interference with the operation of the law of supply and demand. The unfairness which it worked to the manufacturers is evident in the opinion quoted from the commissioner who carried out the subsequent inquiry into mill costs.

So far from the attempt to fix prices being abandoned, we have now the naming of a controller, with power to fix prices and to regulate supplies with a view to the requirements not only of Canada but the United States. For the sake of $500,000 which was saved to Canadian publishers by getting their supplies below market cost, a situation has been forced which endangers the free and profitable development of an export trade to the United States worth $50,000,000 a year to Canada. Whatever action is taken with respect to a price for newsprint in Canada will form the basis of a price to be fixed in the United States. An industry which might reasonably be expected to go out into the world's markets with the full encouragement of the nation is asked to start off under the handicap of restrictive measures at home.

It is well to bear in mind that the agitation of Canadian publishers which brought about this situation was not based on any shortage of supplies. The 10% requirements of the home market were relatively small and the mills were prepared to fill them, irrespective of more profitable opportunities that might offer elsewhere.

If the price was to be higher than before the war, all other commodities have advanced in price, too. The publishers had the usual recourse in such circumstances—to advance the cost of what they sell, their subscription rates and their advertising rates. Some of them have done so. It has not been suggested that a Controller of Publishers be appointed; yet the public interest in whether the cost of newspaper is to be doubled is vastly larger than the public interest in whether a publisher is to make a profit satisfactory to himself. If the raw material, newsprint, is to be controlled, why not the finished article, the newspaper? The fixing of a price for wheat had its logical corrolary in a limiting of the profits on flour.

In the final analysis, no argument can be adduced to show why newsprint manufacturers should be asked to subsidize the publishers, not only at the expense of his profit in the domestic market, but at the expense of his opportunity for profit in foreign fields. A government subsidy of $500,000 to the publishers would be absurd enough in its way but at least it would leave the paper industry with an opportunity to add a few million dollars to Canada's export trade, and with confidence to go about its legitimate business in its own way.

Most of our readers are interested in securities of pulp and paper companies. We would suggest to them that there is no reason for uneasiness on their part as to the outcome of the unusual situation that has been developing in this industry. Our mills are the most efficient of their kind in the world. They have unexcelled advantages in raw materials—cheap wood and cheap power. They can now operate profitably at the worst of times under conditions which might bankrupt most industries in Canada. Further, while the law of supply and demand may be tampered with from time to time, it is too powerful not to reassert itself in the long run. As we see it, our pulp and paper companies have a long period of prosperity before them. Holders of their securities at present prices are in receipt of a good income, and will ultimately reap a large reward if they maintain their faith in the industry's future.

*From the Monthly Bulletin of Greenshields & Co., Montreal.

MISREPRESENTING CANADA.

The following despatch was printed in a Montreal paper. An artificial discrepancy in price, doubtless intended to arouse sympathy for the American publisher, is emphasized by making no mention of why the Canadian price is $2.50 nor of what it rightly should be. Such misrepresentations will not help matters.

"Endeavoring to fix a basic price for newsprint paper, formed the subject of a conference between the Federal Trade Committee and a delegation from the Canadian Government, headed by R. A. Pringle, K.C.

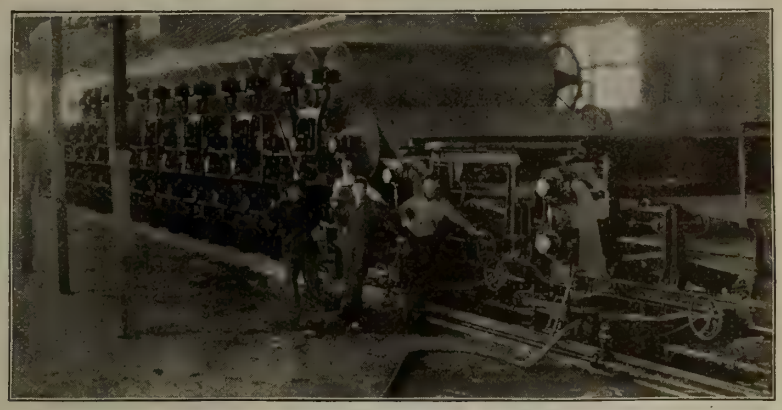
The price of paper in Canada was stated at $2.50 per hundred pounds; here, $3.25. G. C. Clarkson, of the Canadian delegation, will remain here to take up the details with the Federal Trade Commission."

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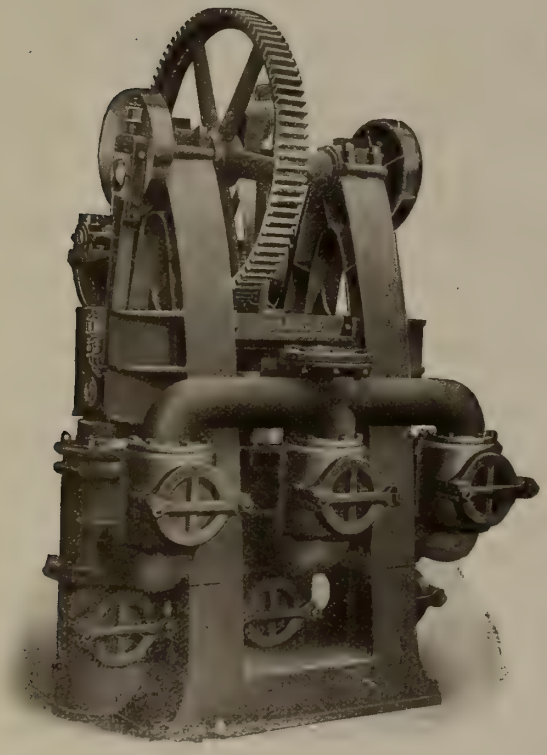
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EDITORIAL

CANADA'S MEMORIAL DAY.

There are two mighty factors in a nation's greatness; the memory of a noble past, and confidence in a glorious future. The clearness of the one lends firmness to the other. The older the people, the more the memories. The Jewish people were strong and noble when they faithfully kept in remembrance the great and good things of their past. The Englishman is full of memories. The Christian is full of memories. These are not personal memories, of course, but are "rememberings" of the great and good. Canada is a young country, and has but few memories. Confederation is one. Now there has come the cause of another. Canada in common with most of the civilized nations of the world is engaged in a life and death struggle to crush Prussian militarism. At the present time we are so closely at grips with the enemy and so taken up with the question of securing men, munitions, money and the other necessary supplies that we have not been able to give much thought to what might be regarded as the sentimental or the patriotic side of the struggle.

After three years of war our maimed, sick and broken soldiers are returning by the thousands, to fall victims to the Grim Reaper despite everything that can be done to prolong their lives. While it is unfortunately true that most of our brave dead sleep on the fields of France and Flanders, there is a rapidly growing number who are finding a resting place under their native sod.

Canada has no Memorial Day! What more fitting way to commemorate her entrance into the great struggle than the adoption of a Memorial Day on which the graves of our honored dead might be decorated and our thoughts turned towards the great cause to which they dedicated their lives? The United States honors its dead by an annual Memorial Day, and probably more patriotism has been aroused and a better knowledge of what the nation stands for has been achieved through these annual Memorial Day exercises than in any other way. To inaugurate such a service in Canada would be the merest tribute to men who have risked their all that freedom, justice and righteousness might prevail on the earth. In the years to come, Canada will be proud of the part played by her noble sons who so quickly sprang to arms on that fateful day in August, 1914, when the peace and security of the world were menaced by the war lords of Germany. No event in the history of the Dominion has played such an important part as our entrance into the Great War. As a result of the part we have played in that struggle our whole history for centuries will be influenced. What better or more worthy action could be taken then than to dedicate August 4th to the memory of the men who gave up their lives that this nation in common with others might breathe the air of freedom? As the soldiers return and join the Great Majority there will be graves to be decorated in every part of the Dominion. Those whose loved ones slumber under the soil of France can place a wreath on the grave of a soldier buried in the Dominion and thus renew afresh their affection to the far-off loved one. The Great War Veterans' Association might well adopt the scheme as their own.

A nation does not amount to much that has not a storied past. Those who sprang the most readily to arms and who fought the longest and the hardest were the people of the British Empire and of France, nations whose sons have inherited centuries of traditions. By offering themselves in defence of their native land our soldiers have more than succeeded in emulating the heroic deeds of their forefathers.

How sleep the brave who sink to rest,
By all their country's wishes blest!
When Spring, with dewy fingers cold,
Returns to deck their hallowed mold;
She there shall dress a sweeter sod
Than Fancy's feet have ever trod.

By fairy hands their knell is rung;
By forms unseen their dirge is sung;
There Honor comes, a pilgrim gray,
To bless the turf that wraps their clay;
And Freedom shall awhile repair,
To dwell a weeping hermit there!

Have you noticed the difference in the quality of paper used by the Government for different purposes? Of course, a postage stamp is all right once it is stuck, but it will tear almost any place except at the perforation. And it takes an axe to open the envelope containing a bulletin which sometimes is only a single sheet.

If you to Canada will lend,
No ransom to the Huns you'll send.

THE LATEST (AND MOST) OFFENSIVE.

Is the paper controller being forced back from the commendable stand he took during the newsprint inquiry? His own work showed that newsprint could not be sold with even a very modest profit at less than $57.33 a ton; that more than half a million dollars had been taken from the pockets of paper makers and put into the hands of newspaper publishers; that good honest Canadian firms were obliged to sell their product at a loss for the benefit of a small body with a big voice.

When the last session of the inquiry ended it was the eve of the day when the order to expire which made 2½ cents the price of newsprint in Canada. Three days grace were asked by the Commissioner for the setting of a new price. Instead of doing so, an extension of the old price was made till November 20th for the ostensible purpose of allowing the publishers to present their side of the case, in spite of the fact that weeks had elapsed between the fourth and fifth hearings and they never made a move. Of course, delay was their game, to postpone a decision. They wait till the referee calls "nine!" then get up and feebly wave their arms again. This time their stunt is to get into a discussion with the referee. They dispute certain items allowed by the Government's accountant.

It is as if a boxer complained of bones in his opponent's glove when he had a brick in his own. The publishers have now succeeded in getting the old arbitrary price set last spring continued for two months, so they can talk. By the time they have talked two months it will be a wonder if they have said anything. They bumped their heads on their own wall in this inquiry business and they know it. No wonder they are "sore-heads." Now we are not personally acquainted with many publishers, but those we do know are fine fellows. But we don't think much of those who will force from officials, by one means or another, an opportunity to steal more than $500,000 for their own benefit under guise of serving the public. Provision was made in the first order that they should pay it back. Will they do it?

Two months more to talk! And what can they say? Their argument is already answered. Sound economics and business principles demands a reasonable return on capital investment. The fact that the auditor disallowed some common stock in the face of strong argument shows that his fairness did not favor the manufacturer. The same is true of two dollars allowed for stumpage. Why did they not dispute this matter before? They wanted to delay the decision.

The decision is postponed, but what of the interim? The controller has and had, since November 3, the power to set a price, which could be revised at any time if it were found too high or too low. Here is where we are utterly at sea as to understanding why Mr. Pringle continued for two months an iniquity he himself admitted was unfair; When his own figures showed that the price of paper should be at least $57.33 a ton, why didn't he set that as an interim price while the publishers were talking and stop this abominable plundering?

England has set a price on foodstuffs, wholesale and retail. If this causes a loss to any one it is corrected out of the treasury and the whole people pay the loss. What a howl would go up from Canada (Mr. Press as chief mourner) if the people of the Dominion saw that $500,000 paid back to the paper makers from the treasury at Ottawa! There is a slicker way than that: Make the manufacturers who have a good trade with the neighbors pay it. What a way for men to do business! It should make an upstanding Canadian hang his head with shame. And now the plan seems to be to prevent charging the neighbors a price that will admit of paying such a loss. We all want full cooperation with friends, neighbors and allies, especially for the good of the people and the success of the battle for freedom, but we don't believe in crippling an industry that must play a big part in paying our debts, employing our men, and supporting our disabled soldiers, just for the benefit of a comparatively few publishers who are either unfortunate, inefficient, or plain greedy.

Circumstances, and perhaps greed on the part of some paper makers and jobbers, has caused hardship to befall some newspapers who were true public servants. If it is a case of taking an unfair advantage and not ordinary business prudence, we condemn the action as bitterly as anybody and would glady see a proper remedy applied, to the injury. But we do not countenance such action as this: A makes a suit for B worth $60, but B claims it was worth only $50 (knowing little or nothing of the cost of making it) and gets an order restraining A from charging more than $50. In the meantime C makes the same suit for D who lives across the line and D is glad to pay $65 or $70 for it. So to even things up, the court orders C to split his profits with A, while B chuckles up the sleeve of the $60 suit he got for $50. What rot!

CONSUMER'S DAY IS COMING—AGAIN.

The Fourth Estate, in an editorial comment on the Senate resolution favoring federal control of print paper and pulp mills, the appointment of a Canadian paper controller, the trial of newsprint manufacturers, and the setting of a new price in Canada, says:

"With all these forces working toward one end, there is bound to be something big happening in the newsprint field soon.

"And it appears certain that the break is going to be in favor of the long-suffering newspaper publisher."

If the publishers want make a game of the situation, in which each side has innings, why do they prevent the other side from scoring by inducing the officials to trip and block their opponents?

Tests of some Canadian Sand-Stones for Pulp Grinders

By L. HEBER COLE, Mines Branch,
(Bulletin No. 19).

(By permission of Dr. Eugene Haanel, Director, Mines Branch, Department of Mines, Ottawa.)

INTRODUCTORY.

The Great War has demonstrated to Canadians the pressing need of a more vigorous investigation and exploitation of the natural resources of the country, with a view to supplying the growing industries with raw materials and the factories with appliances, etc., commodities which have, heretofore, been largely imported. The need is all the greater when it is considered that, even after the war is over, it will be a number of years before it will be feasible to import goods from either Great Britain or the United States at anything like the freight rates and prices which existed prior to the war. In many cases it has already been found that Canada contains materials within her borders, which have been proved by examination and test, to be in every way the equal, in quality and adaptability of the imported product; and which, in many cases, can be produced at a considerably less cost than the original, pre-war cost of the imported article.

With a view to determining whether Canadian Sandstones would not be suitable for use as wood pulp grinders, the writer was instructed by the Director of the Mines Branch, Ottawa, to investigate certain sandstone areas in the Maritime Provinces and other parts of eastern Canada; to procure samples from such as appeared promising; to test the same; and to prepare a report on the results obtained. It was conceived that two purposes would be served by such an investigation: (1) to locate a Canadian source for supplying pulpstones to the pulp mills, to make up for the serious shortage caused by the impossibility of obtaining, at reasonable prices, stones from Great Britain and the United States; and (2) to suggest to the sandstone quarry owners, a possible market for their product, and thus encourage and assist a comparatively new branch of the industry in Canada.

The following report is the result of the investigation and tests.

PULPSTONES.

In order that intending producers of grinding stones may have some technical idea of the work required from a stone, and the stresses and strains to which it is subjected when in actual operation, the following brief description is given of the process of manufacturing wood pulp.

The mechanical process of producing cellulose fibres for paper making, consists,—after cutting the wood into short lengths or bolts, and removing the bark—of grinding the wood into a fine pulp fibre by means of a large rotating stone. To obtain as long, thin, and flexible a fibre as possible, the wood bolts are pressed against the curved face of the stone with their longitudinal axis parallel to the shaft turning the stone. The bolts are held against the stone by hydraulic pressure, applied by means of plungers. The wood bolts are fed to three pockets, hence there are at the same time, three grinding points on the stone. Machines of this type employ stones varying from 26″ to 34″ thick and 54″ diameter. The standard size is 27″ by 54″.

The stresses to which a stone in a machine of the type is subjected, can readily be seen. The centrifugal force of the rotating stone; the friction on the grinding face caused by the pressing of the bolts on the surface under heavy pressure; the pressure on the sides of the stone by the flanges which hold it to the shaft—including the driving force; and the expansion and contraction strains due to the uneven heating of the stone by the heavy friction; thus, the complicated nature of the stresses which a stone has to withstand can readily be imagined. With a magazine grinder—which employs a stone 54″ thick by 62″ diameter, the stresses are still further complicated, since only two pockets are employed, and these are directly opposite each other. In this case, an extra stress is developed, due to, the pressure of the bolts on opposite sides of the stone. At any moment of the stone's rotation, there is a tendency for the shape of the stone to be somewhat altered and assume — due to this lateral pressure on each side—the form of an ellipse, with the longer axis vertical. This causes the development of tension in certain parts of the stone; while other parts are subjected to compression. As the stone is rotating at a rapid rate, that part, which one moment is in compression, passes rapidly into tension, and vice versa. Consequently, any part of the stone is constantly alternating from one to the other, as well as being subjected to the strains and stresses already mentioned.

The speed at which the stone is rotated will vary in different mills, but will generally range from 200 to 225 R.P.M.; while the pressure in the cylinders will vary from 60 to 125 lbs. per square inch. The stones range in weight from 2 to 4 tons. From these figures it will already be seen to what enormous strains the stones are subjected.

The life of a good stone seems to be about one year, and in this time it will wear from 54″ down to 40″ diameter.

PROPERTIES OF A GOOD STONE.

There are several essential qualities which a sandstone must have in order to be accepted as a good pulpstone; i.e., texture, grinding qualities, and strength.

Texture.

In order to produce long, thin, and flexible fibre, the stone must tear the fibres apart, rather than cut, hence a sandstone in which the grains are slightly rounded on the edges, will give better results than one whose particles are ragged and angular. On the other hand, a sandstone with grains perfectly rounded, will tend rather to polish than to cut, and will produce pulp that is very greatly inferior both in length of fibre and thickness to that produced by a sandstone with sub-angular grains.

Moreover, the size of the grains have to be taken into consideration. If the grains are coarse, the stone will cut faster, and produce more pulp than where the grain is finer; but the pulp produced in the former case if of poorer quality and coarser texture than when

a finer grained stone is employed. Thus the size of grain, as well as its angularity, are both points to be considered.

Grinding Qualities.

In order that a stone may have good grinding qualities the structure of the material should be such, that the matrix or constituent bonding the grains together is softer than the sand grains. Being softer, the matrix will wear away faster, and the sand grains project, leaving the surface of the stone roughened. The stone should be of uniform composition and hardness throughout, otherwise, it will wear unevenly and thus reduce its effectiveness. If a stone is too hard, it is liable, apart from cutting and tearing the fibres, to polish smooth, and require frequently to have a fresh grinding face turned on it. On the other hand, if it is too soft, it will wear rapidly and produce less pulp than a stone of average hardness.

Strength.

As already explained, a pulpstone is subjected to considerable stresses and strains, therefore it should be of sufficient strength to withstand these strains, and have a considerable factor of safety.

In briefly summing up the qualities of a good pulpstone, it may be laid down that a sandstone used for this purpose, must be uniform in texture throughout; have grains of angular to semi-angular form cemented together by a softer matrix; have sufficient strength; must be of medium hardness; and the cutting grains must be of a size suitable for producing the grade of pulp required.

CANADIAN SANDSTONES.

In the field work in connection with an investigation of this nature there are several important points, apart from the characteristics just enumerated, which have to be taken into consideration when examining a possible locality for the quarrying of pulpstones. A stone may fulfill all the requirements of a good pulpstone, yet may be lacking in the following features, any one of which would bar it from being employed. The points may be enumerated briefly as follows:—

(1) A quarry must be situated convenient to either water or rail transportation.

(2) The beds must be of sufficient thickness and free from joint planes to enable the stones of the required size to be excavated with the least trouble and waste.

(3) The quarry must contain enough stone of the proper thickness and uniformity to warrant operations being carried out on a sufficiently large scale.

(4) The rock when freshly quarried must be of such a nature as to enable it to be easily chipped and turned into the proper dimensions and also harden on being exposed and seasoned for a reasonable length of time.

It can readily be seen that the localities which would fulfill all these requirements would naturally not be very numerous, and in the field work this proved to be the case. The investigation was confined to the eastern part of Ontario,and certain sections in the province of Quebec and the Maritime Provinces. A brief description is given of each of the localities from which samples were taken.

LOCALITIES VISITED AND SAMPLED.

ONTARIO

In the province of Ontario there are few occurrences of sandstone which would be at all suitable. The Potsdam sandstone which is the most abundant sandstone formation in the eastern part of the province was found to be either too hard or else too friable and in beds badly fractured. Only one locality was deemed worth sampling.

J. C. Higginson Quarry, Hawkesbury, Prescott County, Ont.

On the eastern outskirts of the town of Hawkesbury, Ont., near the C.N.R. Station, an outcrop of sandstone of the Chazy formation is being quarried for use as road material and building purposes. The quarry presents in places a face of 6 feet, the upper three feet being thinly bedded and badly shattered, but the lower bed is in some places fully three feet in thickness. According to Dr. Parks report[1] a well in the vicinity shows that the deposit is fully 50 feet in thickness. A sample from the quarry was taken and tested. (Sample No. 13).

QUEBEC.

In the province of Quebec, in the area lying southwest of Montreal, between the St. Lawrence river and the international boundary line, a number of outcrops of Potsdam sandstone were examined but no material suitable for pulpstones was encountered.

The Carboniferous system which contains numerous beds of sandstone, principally in the Permo-Carboniferous and Millstone Grit, is well developed in the Maritime Provinces and since the quarries already opened in these measures show beds of considerable thickness, it was in localities where these formations occur that the most time was spent. In all, about 25 localities were visited, but as many of these could not possibly produce stone suitable for pulpstone, only those from which samples were taken for testing will be described.

Read Stone Company, Sackville, N.B.

Stonehaven Quarries.

These quarries are situated on the south shore of Chaleur bay at Stonehaven, in the parish of New Brandon, Gloucester county. The beds are exposed for a depth of about 70 feet, the lower 15 feet of the excavation being below the high water level of the bay. This has necessitated the building of dams to keep out the water. This work entails heavy expenditure, and would probably be a material factor in the cost of excavating the stones. The lower beds from which the sample was taken have a total thickness, in places, of 15 feet, which, however, is divided into layers from 1 to 3 feet in thickness, so that it is doubtful if any great number of stones of 27" face could be obtained from this quarry. (Sample No. 10).

Adam Hill Quarry, Cassils, P.O., N.B.

This quarry is not in operation at the present time and the lower beds could not be examined owing to their being under water. The quarry is situated on the north bank of the northwest arm of Miramichi river, about 9 miles from Newcastle, N.B. The products are shipped down the river by barge to Newcastle, N.B.

The beds are not uniform in character throughout the quarry and vary from 6 inches to 4 feet in thickness. Some of the beds contain "bulls" and coarse streaks which would bar their use for pulpstones, but there are parts of certain beds which would yield

[1] Report on Building and Ornamental Stones of Canada. Vol. I, No. 100. By Dr. W. A. Parks. Published by Mines Branch, Dept. of Mines, Ottawa, 1912.

blocks of the required size. The sample for testing was taken from one of the larger and more uniform beds. (Sample No. 3).

The Miramichi Quarry Co., Ltd., Quarryville, N.B.

R. Geo. Hood, President and Managing Director.
Head Office,—10 Richmond Square, Montreal, Que.

The property owned by this company extends from the north shore of the Miramichi river, a little over a mile along the west side of Indiantown brook. The quarry is opened for a length of nearly 300 feet and has been worked back from the edge of the creek for a depth of nearly 200 feet. The total height of the face above the level of the creek is about 100 feet and the following is an average section:—

10-12 feet.	Stripping.
44 feet.	Layers of sandstone varying from 2 to 7 feet thick. Some of these beds are shattered but a considerable quantity of blocks of suitable size for pulpstones could be obtained from them.
11 feet.	Medium grained stone with joint planes 10 feet apart.
2 feet.	Badly shattered section with shale and coal seams.
10 feet.	Medium grained stone with joint planes 10 to 12 feet apart.
20 feet.	Covered with talus and broken rock.

The beds vary somewhat in texture, and tend to be coarser towards the bottom. Some of the beds show the presence of "bulls" which consist of the stone hardened by local crystallization; in some cases the partings are filled with mud or carbonaceous material, which also occasionally occurs in their veinlets through the beds. From the whole, however, with careful selection, a large tonnage of stone could be obtained of suitable dimensions.

This quarry is already equipped with the necessary apparatus for preparing pulpstones and has, moreover, been manufacturing these stones in a small way for the past 15 or 20 years. The stones from this quarry have been used in several of the Canadian pulp mills and have apparently given satisfaction for the class of work for which they were employed. The sample for testing was taken from the lowest bed exposed. (Sample No. 4).

Read Stone Company, Sackville, N.B.

Indiantown Quarry, Quarryville, N.B.

This quarry has been opened within the last couple of years, but already a face of 30 feet high is exposed. The property is situated on the east side of Indiantown brook, directly opposite the quarry of the Miramichi Quarry Co. Apparently the top beds exposed in the latter quarry, are missing in this quarry and consequently only the thicker beds are exposed. This stone is very similar in texture and composition to that which is found in the lower beds of the Miramichi quarry. The sample for testing was taken from the lowest beds. (Sample No. 5.)

Torryburn, N.B.

An outcrop of sandstone occurs at tide level, on the shore of Kennebecasis bay, to the west of Hasting's cove, and north of Torryburn station on the Canadian Government Railway line from St. John to Moncton. This outcrop rises to a height of about 20 feet at a distance of 50 yards from the shore. The rock is exposed a distance of about 300 feet along the shore, and the beds have an average dip of approximately 35° to the southwest.

No quarrying has been done on this outcrop, hence no idea can be obtained as to whether blocks of sufficient size for pulpstone could be quarried. The rock varies in character in different parts of the exposure; from a badly shattered stone spotted with iron stains, through a medium grained gritty stone fairly clean and uniform, to a compact, close-grained, and very brittle rock which is practically a quartzite. The outcrop extends about 200 yards back from the shore. Similar rock outcrops about ¼ to 1/3 of a mile inland. The sample for testing was taken from the medium grained gritty stone at the shore. (Sample No. 6.)

C. W. Dean Property, Adamsville, N.B.

This property was not visited by the writer, but the sample for testing was furnished by Mr. Dean, who refers to this occurrence as follows:—

The sample is a piece picked up from a slide which occurred last summer.

The bed referred to is of immense size; there are three layers totalling 20 feet high, also several layers not so thick; the total deposit measures at least 50 feet high and extends over the whole district.

The outcrop is on the branch of the Coal Branch river, which would afford an excellent dump for the waste rock and soil of which there is only about 4 feet.

There is no doubt as to getting stones of the required dimensions; I measured two blocks as follows:

40″ by 60″ by 120″.
40″ by 32″ by 70″.

From Mr. Dean's description it would appear that rock of sufficient size for pulpstones in a considerable quantity can be obtained from this locality. (Sample No. 12.)

Smith Quarry, (Dr. E. G. Smith), Shediac, N.B.

The Smith quarry is situated to the south of the Canadian Government Railway, about a mile west of Shediac station. The quarry is opened up for a distance of about 200 feet along the east bank of the Shediac river, and has been worked back from the river for a depth of 100 feet. The face at present is over 75 feet high. Only the lower beds are of sufficient thickness to furnish blocks of suitable size for the manufacturing of pulpstones. The rock, however, is very uniform throughout, and like all the other sandstones of the Maritime Provinces has the quality of working readily when green, and hardening remarkably on being seasoned. The sample for testing was taken from the lower beds. (Sample No. 7.)

Valentine Hickey Property, Stake Road P.O., N.S.

About one mile to the north of Stake Road, P.O. on the farm of Valentine Hickey there is an outcrop of sandstone about 3 feet thick dipping about 60° to the south. The stone as far as could be seen was very uniform in character, but little could be told concerning the deposit owing to only a small portion of the beds being exposed. A sample was taken for testing, (Sample No. 8).

Morristown Quarry, Antigonish, N.S.

The sample from this quarry was furnished for testing by Mr. A. R. Chambers of New Glasgow, N.S., and the property was not visited by the writer. This quarry is situated on the Bay of St. George near the Morristown wharf. (Sample No. 11.)

In the above mentioned localities in the Maritime Provinces, the freshly quarried rock is comparatively

soft, but hardens rapidly on exposure to the air. This greatly lessens the cost of production as it enables the blocks to be chipped and shaped with comparative ease.

(To be concluded.)

R. A. PRINGLE, K.C., PAPER CONTROLLER.

A square deal from a square man is the equity that the newsprint and paper trade of Canada hopes and believes it will get from the newly appointed Paper Controller Robert Abercrombie Pringle, K.C. Whether or not the trade gets three cents or more per pound of newsprint in or outside of Canada, or whether the sale prices of book, writing, ledger, or other grades of paper, or sulphite, are reduced or not, there is one thing that Mr. Pringle is going to see to, so far as his sense of fairness goes, and that is, that the paper manufacturers get their due or just compensation.

Mr. Pringle's job is not an easy one. It if ended with setting a price for newsprint in Canada as the Order-in-Council appointing him as a Commissioner provided, began and ended within the boundaries of Canada it would be a different thing. There are few if any persons connected with the paper trade of Canada who cannot see a certain distance before them. If they did not and occupied executive positions their mills would come to grief in a very short time.

The entrance of the United States into the European war as our Ally has put a new face on things. Perhaps Mr. Pringle feels in his own mind that three cents per pound for newsprint is due the manufacturer. Three cents for Canadian sales looks all right. But what about export sales, which furnishes eighty-nine per cent. of the market for the gross tonnage of newsprint produced in Canada?

Time since April last has worked quite a few odd changes. Nobody in America realizes it better than the paper manufacturers and the newspaper publishers. The situation so far as newsprint goes is a delicate and not to say a critical one. In face of this the paper trade of Canada has several reasons to place its faith in Mr. Pringle as being the right man for the right job, and can pretty well rest assured that "fairness" from an impartial and desinterested standpoint will be meted out to it.

During the progress of the newsprint inquiry Mr. Pringle on his expressed views more than once was in variance with the contentions of the Crown Counsel Mr. A. H. Stewart, K.C. One of the principal questions that Mr. Pringle, to the benefit of the manufacturers' caused, believed in, was allowing "something for stumpage" and that "woodlands or limits had a very real and actual value." Another favorable point was the highly commendable utterance of the Commissioner in allowing sixty cents per ton charge on the Laurentide figures for the salaries of former employees of the plant now serving overseas. "I don't think anybody will object that charge" said Mr. Pringle. Straws sometimes indicate the direction of the wind. If Mr. Pringle's statements are to be regarded as straws the breeze is in favor of the manufacturers, and twa and and one half cent per pound newsprint should be swept into eternity very soon.

Before the Order-in-Council, brought about by the complaint of the publishers, came out on April 16th 1917, few if any persons in the paper trade knew Mr. Pringle or recognized him at his par value. Long before that however he had cast his shadow on the skyline of Canadian public life.

Here are a few leading facts in the life of Canada's first paper Controller:

Robert Abercrombie Pringle, K.C., is the senior member of the well known firm of Pringle, Thompson, Burgess and Cote, Barristers, Ottawa. He was born at Cornwall, Ont., December 15th 1855, being the son of J. F. and Isabella Fraser Pringle. His early education was secured in the Public and High Schools and later



he attended Queen's University and Osgoode Hall. He was called to the bar in 1881, and was created a King's Counsel in 1906. He practised at Cornwall from 1883 to 1911. His present practise at Ottawa was established in 1911. He was elected to the House of Commons in 1900, representing the County of Stormont. He was re-elected in 1904 and defeated in 1908. In 1911 he declined the nomination.

Mr. Pringle is a member of the Rideau Club, Ottawa and the Royal Ottawa Gulf Club, and the Ottawa and Albany Club of Toronto. In politics he is a Conservative, in religion an Anglican. He resides at 232 Daly Avenue, Ottawa. Previous to being appointed to his new post as Paper Controller Mr. Pringle acted on several important Commissions, notably the investigation of the Southampton Railway, the Parliament Buildings Fire, etc.

ADJUSTABLE SPEED MOTORS.

The General Electric Co. has just issued Bulletin 41021 describing their R. F. type D. C. Motor. Maximum speed is 3 to 4 times the minimum. The intermittent horsepower rating runs from 2 to 50. Some frames are open, some enclosed and ventilated and some totally enclosed. Illustrations show styles of motors, motor parts and there is a table of ratings and dimensions.

"Elixir of Life" Found for Cheap Newsprint

By EVERETT ANDREW.

The two and one-half cent per pound rate for newsprint, f.o.b., the mill in carload lots continues to January 20th, 1918. This is the ruling of Controller Robert A. Pringle, K.C., who returned last week from Washington where he was in consultation with the Federal Trade Commission. On Monday this week a new Order-in-Council went through extending the two and one-half cent rate for sixty days so as the publishers could be heard. The Canadian newsprint probe which was considered officially closed on November 1st, while it in a sense is not going to be re-opened is going to be continued to give the publishers their show. The newspaper publishers are applying the "third degree." Everybody excepting the Canadian Newspaper publishers knows that the two and one-half cent per pound rate is not enough for newsprint. There are "Wigs in the green somewhere," but while the manufacturer may continue to suffer loss for the time being it would not be surprising if the present situation will, if he stands pat, ultimately work out to his advantage.

The latest Order-in-Council, while it is not acceptable to the Canadian manufacturers, may be the cause of setting certain forces into action which, it would not surprise the writer, result in the manufacturers demanding that an investigation or inquiry into the publishers business be made. The former Minister of Customs, so the representative of the Pulp and Paper Magazine is authoritatively informed, practically promised the paper manufacturers as much, months ago when the newsprint inquiry began. Since then nothing in the line of a publishers' investigation has been heard of. It rests with the manufacturers to-day to get together and demand an inquiry into the publishers' business affairs, methods, profits, and actual cash invested in business, and last but by no means least a complete list of everyone directly or indirectly financially interested in every publishing company and daily newspaper in Canada. They have just as much right to find out everything about the publishers' business as the publisher had to find out about theirs. It is time for a turn of the tide.

As regarding the continuance of the probe no definite date has been set nor is one likely to be set until after the election is over. The reason given the representative of the Pulp and Paper Magazine by the Paper Controller for the continuance of the probe was that the Canadian press had taken exception to some of the allowances made by the official auditor, Mr. Geoffrey Clarkson, the two principal points being an allowance of two dollars per cord for stumpage and the allowance made for capital actually invested.

In commenting on the new Order-in-Council one of the biggest Canadian paper manufacturers asked: "Why should the publishers be the favored class of Canada?" Another point mentioned was that eighty-eight members of the American Congress controlled or owned newspapers. How many members of the Canadian House of Commons or the Senate are directly or indirectly interested in newspaper publications of the Dominion?

Reviewing the whole situation in the face of the latest events it becomes apparent that the Canadian Press is prepared and intends to resort to "third degree" methods against the manufacturers. On the two past occasions, first when the newsprint manufacturers were called on to produce figures as to costs, etc., secondly, after an official auditor had gone over the mill books and proved the correctness of the manufacturers' first contention that two and one half cents per pound was not a fair price for newsprint — the manufacturers have won and proved on the Government's own figures that the average cost should be at least $57.33 per ton.

A verbal truce existed in effect for a few days after the supposed official conclusion of the probe. Next came the Order-in-Council extending the two and one-half cent rate to November 20th, when a price was to be set by the Controller. November 20th came and went, and the price continued, all because the newspaper publishers said they wanted to be heard and objected to certain methods employed by the Government's own auditor. The publishers make a request, and it is granted, thus making the third attempt to stifle or disprove what not only the manufacturers themselves have shown to be just, but what the government's auditor has supported. In face of what has happened in this third and final round the manufacturers should throw whatever sympathy they ever held for the publishers to the wind, and go in and score a knock-out clean. The manufacturers have had on merit all the best of the first two rounds. In this third and final they should clean up easily and settle the matter for once and all. Take no excuses, make no promises, go out for a decision and get it. If the publisher wants a hearing give it to him, but talk to him in such hard and cold-blooded language supported by actual facts that he will hide his face in shame and seek such hearings no more.

From what the correspondent of the Pulp and Paper Magazine can deduct at Ottawa it is obviously not a question of Mr. Pringle acting unfairly toward the manufacturing trade. There seems in the atmosphere something more than Mr. Pringle. Perhaps, it is the Government itself who is trying to appease the newspapers until after the election is over. As I asked before, how many members of Parliament or the Senate are directly or indirectly financially connected with Canadian newspapers?

When interviewed on his return from Washington, Mr. Pringle said there was very little to be given out. He announced that he had had a very satisfactory interview with the Federal Trade Commission and that he had every reason to believe that the principles governing the questions of cost would be agreed upon by himself and the Federal Trade Commission. If these principles were settled Mr. Pringle said there would be very little difficulty in the future in getting at the cost of manufacture, both in Canada and the United States.

Mr. Pringle said that the manufacturers had been urging very strenuously that the evidence justified the Controller in advancing the price to at least $60 per ton. The Press Association on the other hand has raised a number of questions in regard to the accountant's methods in arriving at cost, most particularly as to the return on investment.

The Paper Controller said he feels that rather than

fix a price on the evidence before him and do an injustice to either the manufacturers or the newspapers that it was more advisable to extend the two and one-half cent per pound rate, so as to give all parties ample opportunity of presenting their views and evidence.

According to Mr. Clarkson's statements the average cost of manufacturing newsprint in Canada in the month of June, which was the last month in which complete records were taken, and after allowing a reasonable return on capital which Mr. Clarkson considered was really invested in the different enterprises, was about $57 per ton.

"The manufacturers contend that costs have increased very substantially in the month of July, August, September, and November, and are still on the increase," said Mr. Pringle. The Controller referring to the contentions raised by the Press as to Mr. Clarkson's figures said "they have got to be considered."

One of the important of the several questions raised by the Press, so the Pulp and Paper Magazine understands, is in regard to the allowance of two dollars per cord for stumpage. This cost was put in by Mr. Clarkson at the direction of the Commissioner, who considered it would be a more equitable way of getting at the cost than by allowing interest on limits. A great deal of evidence was taken during the probe regarding the value of wood on the stump and the Commissioner came to the conclusion that $2 per cord was the minimum allowance.

The Order-in-Council which was signed Monday of this week, extending the price for sixty days, provides:

That present prices for newsprint for Canadian consumption be continued until January 20th;

That each manufacturer supply his share of newsprint required in Canada, or bear his share of the cost of so doing to mills supplying more than their just proportion;

That production figures and prices be furnished when asked for, on sales in Canada and for export;

That the order is subject to revision if the prices named are too high or too low.

WHAT NEXT?—A "PAPERLESS DAY"?

NO PAPER TODAY?
Is that what they say?
No checks, drafts nor notes—
No bills, blanks nor votes.
No letters from folks!
No need fo dictation—
No bond in the nation.
No paper Containers,
No legal Retainers,
No paper men fawn,
No waste baskets yawn!
No parcels wrapped up,
No "scraps" for the pup!
No blotters to flout,
No dolls to clip out,
No crisp breakfast flakes,
No Parchment wrapped steaks!
No wrappers for Bread,
No books for the Head.
No files to search through,
Why, there's nothing to do!

Paper is vitally essential to the moral, mental and physical well-being of any but aboriginal people.

And who wants to be an ab-o-rig-i-nee?—From the Parchment Prattler of the Kalamazoo Vegetable Parchment Company.

A NEW PAPER TESTING REAGENT.

By W. J. SCHEPP.

Some time ago the writer noticed the following article in a drug journal, the name of which he does not at present recall: "Detection of Wood Pulp in Paper."

"The Repertoire de Pharmacie republishes from the Bulletin de la Societe de Chemie Belge a reagent for the detection of wood pulp in paper. It consists of paranitroaniline, 20 cgm dissolved in 80 cm distilled water and sulfuric acid, sp. gr. 1.767: 20 milligrams. This has the advantage over the alcoholic solution of phloroglucin and hydrochloric acid that it may be kept for years. It is also preferable to anilin sulfate, which, although it is stable, gives with wood pulp a yellow color, which is not easily distinguished by artificial light. The paranitroaniline colors wood pulp orange to brick-red, and it can be seen under any mode of illumination. The reagent has the further advantage of yielding a color to unbleached cellulose."

The writer made up this reagent and tested different papers and pulps with the following results:

1 Mechanical wood pulp.....dull orange to orange
2 Unbleached sulfite pulp.....very similar to above
3 Bleached sulfite pulp.....yellow

The writer found that the distinction between the mechanical wood pulp and the unbleached sulfite pulp was not very marked and proved rather troublesome when testing unknown pulps.

The writer has discovered, however, a method whereby the detection is made plainer. He used the above reagent in conjunction with ammonium molybdate solution and obtained the following results:

1 Mechanical wood pulp.....bright reddish orange
2 Unbleached sulfite pulp.....
.....dull orange, faint; or faint brown
3 Bleached sulfite pulp.....colorless

By experiment it was found that when the ammonium molybdate is applied first and then the paranitroaniline, better results are obtained. Also, on waiting for one or two minutes, the reaction is complete and the distinction is then very sharp.

Excellent stain method for microscopical analysis. Might be used for quantitative analysis by digesting small pieces of paper in a bottle with glass beads, then place drop of liquid on cover-glass, add reagent and count the reddish-stained wood fibres.—The Chemist-Analyst.

TO FORM FORESTRY SECTIONS.

At the last annual meeting of the Canadian Pulp and Paper Association, the following resolution was passed:

"Resolved that there should be promoted, a new section of this Association somewhat similar to the Technical Section, to deal with the whole question of the protection of wood for the making of pulp and paper."

A meeting of representatives of firms interested in the forestry end will discuss the situation in Montreal on Friday of this week and plan the organization of a Forestry Section. Senator Edwards, Mr. R. H. Campbell, Director of Forestry, with Mr. Gustave C. Piche; and Mr. Ellwood Wilson, who has generously offered his services to the Association in an advisory capacity, will attend the meeting.

The Poetry of Paper

It is a source of unfailing delight to stand in a paper mill and just watch the machine run—providing we are not obliged to hustle the broke, and even that has some fascination. When the "old girl" is behaving herself it seems as if she were humming a tune, glad to be busy in the service of men.

But the poetry of paper begins farther back than the rythmic hum of the big Fourdrinier. It starts in the timber and is nowhere better expressed than by the woodsman's poet of Maine, in the swinging rythm of the following poem:

THE GHOST OF THE TREE.

as seen by Holman F. Day, and related in "Kin o' Ktaadn."

I have heard some of you woodsmen talk about the ha'nts and the swogans and the witherlicks and the side-hill loungers—says The Stranger. I know these are jokes, my friends, but do you know when I am up here among these trees that are doomed in these days to the grinders of the great paper mills, I feel a queer obsession.

I feel that each tree has a sort of soul,—a spirit in it, and one potent both for tremendous good and tremendous evil. You will understand, perhaps, when I explain that of these species, to my notion, is

THE GHOST OF THE TREE.

Strong as the weight of the avalanche,
Yet weak as brook-breathed vapor,
I must obey—but then I sway—
Behold me—I am paper!

I am ha'nt of the heart of the Tree, the ghost of the hemlock and spruce,
Phantom of fibre and wraith of the wood by the axe of the chopper turned loose.
Cased in the coffining bark long was I hidden and furled,
But now by the manual magic of men I carry the news of the world.

I am free—free—free—
I, the soul of the Tree,
Joy and sorrow and terror or smiles—seek for them all through me.
Fame and name and shame,
To me they are all the same,
I carry them all to the ends of the earth,
Horror and pleasure and mourning and mirth,
And to me neither credit nor blame.

I am Paper, I am Paper, pallid spirit of the spruce,
Summoned far from soughing forests, patient servant for your use.
They were sent who stormed the mountains on which, silent and serene,
Crowding massed the ranks of woodland, mighty Army of the Green.
First the woodelves saw with terror flash and flicker of the axe,
And they watched the steady heaving of the broad, red-shirted backs;
Then they heard the pulsing chopping as the axes chocked and chocked,
And they felt the forest's tremor as the toppling giants rocked.
Then as back and ever backward were the elves constrained to flee,
On the bark they knocked and whispered: "Wake, O Genii of the Tree!"

I am Paper, I am Paper! Have you praises or abuse
For the message I am bearing, look to them, who set me loose;
Look to them who sent me whirling through the boiling sluices' jaws,
And to them who held the tree trunks to the yelling teeth of saws.
Yes, to them who tossed the gobbets of the sodden, dripping wood
To the slavering, grating, grinder, grunting neath its iron hood.
For they free from solid fibre might and spirit of the tree
That in race o'er whirring steamdrums texture book and form in Me.
If I wrench your soul with anguish by the message that I bear,
Look to them who dulled my whiteness—those who spread the poison there.

I am Paper, I am Paper, standing ready for your call,
White and silent and unspotted; I am serf and slave to all.
Have you thought or inspiration? Have you word to send or save?
I am waiting, calm and patient, still your servant and your slave.
Write! What is it, threat or secret, bargain, pledge. or sale, or boast?
Sign! Ah, mortal, I have bound you! Mark you well the forest's ghost!
Here I stand and threat and mock you, shade of promise, debt, or fraud,
Work and pay or pray for mercy! You are servant, I am Lord.

I am ha'nt of the heart of the Tree, the ghost of the hemlock and spruce,
Phantom of fibre and wraith of the wood by the axe of the chopper set loose.
Bearing the news of the world, or message of cheer or of hope.
Binding to bondage of debt or of shame, or dragging a neck to the rope;
I, the soul of the Tree,
Hover from sea to sea—
Theirs the fault or theirs the praise who have helped to set me free.
Fame and name and shame;
To me they are all the same;
They who have dragged me out of the wood,
Be I for evil, be I for good.—
To them be the credit or blame.

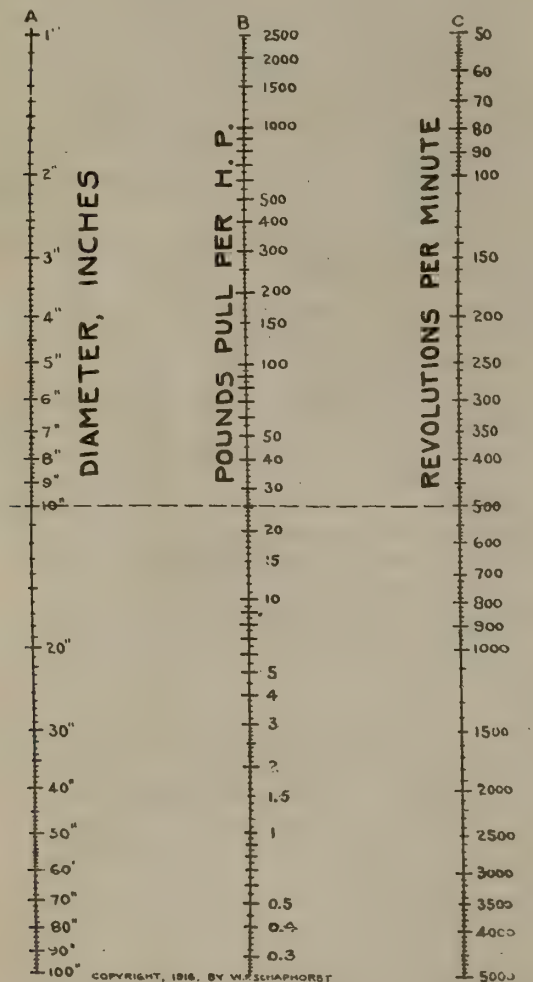
Grim as the weight of the avalanche,
Yet weak as brook-breathed vapor,
I must obey—but then I sway;
Behold me—I am Paper.

HOW STRONG MUST THE BELT BE?

By W. F. SCHAPHORST, M.E.

Paper mill designers, draftsmen, superintendents, etc., are often called upon to determine the problem of horse-power in connection with belt transmission, chain transmission, rope drives, etc., and it is sometimes a vexing mix-up. To assist in determining such values, I have therefore prepared this chart, which is the height of simplicity. All that is necessary is to lay a straight-edge across once and the problem is immediately solved. If you haven't a straight-edge, use a cord or black silk thread. When a thread is pulled taut, you know, there is nothing straighter.

For example, I want a chain for a 10-inch sprocket for a paper mill engine governor running at 500 revolutions per minute, and it is estimated that the chain should be strong enough to transmit one horse-power when operating at that speed. How strong must the chain be?



The dotted line drawn across the chart shows how it is done. Connect the 10-inch mark (column A) with the 500 (column C) and column B gives the answer immediately as 25.2 pounds, the tensile strength of the chain. In case a chain is wanted that will transmit 10 horse-power you would just multiply the answer by 10, which can be done mentally easily enough, and the answer then becomes 252 pounds as the necessary strength.

In the case of a belt drive, the chart can be used in the same way for determining effective pull—the difference in tension between the tight and slack sides. Or, with the belt running so slack that the initial tension is practically zero, the pull on the tight side is determined for pulling normal load.

For rope drives the effective pull is found in the same way. In other words, the effective pull on a 10-inch rope sheave running 500 r.p.m. must be 25.2 pounds in order to transmit one horse-power.

Knowing the effective pull, then, we can tell the manufacturer just how strong the chain, rope, belt or cable must be.

Whether the transmission medium is round, flat, square, or triangular makes no difference whatever to the chart. It must be "just so strong," and this chart gives that strength.

Generally, after figuring the exact pull, we multiply by a factor of safety in order to be "sure" that the belt, or whatever it is, won't break. The factor of safety is "up to you," or "up to the designer."

The range of this chart, it will be noted, is wide enough to care for any paper mill condition. The revolutions per minute run from 50 to 5,000. 5,000 r.p.m. is an unusually high speed. And the pulley diameters run from 1 to 100 inches. We occasionally have pulleys that are larger than 100 inches in diameter, but they are generally engine flywheels, and it is very seldom that computations have to be made involving the main drive-wheel. Hence the limit of the chart was established at 100 inches.

A. N. P. A. ISSUES PAPER MILL DIRECTORY.

The Paper Committee of the American Newsprint Publishers Association, have issued a directory of newsprint mills in a pamphlet form, bound in a substantial cover. This is available to all members of the American Newspaper Publishers Association for their own officers, as many copies as required, provided it is specified who each copy is for.

Others than members of the American Newspaper Publishers Association may obtain as many of these copies as desired, by remitting 25 cents for each copy to the Paper Committee, 903 World Bldg., New York City.

This Directory is an alphabetical list, showing the tonnage of all the paper mills in Canada and the United States making newsprint. It is thoroughly up to date and extremely accurate, gives the exact trim of every machine making print, its speed and production and a list of all the mills, so that a publisher on checking over his width of roll can easily figure which mills can supply him and make his paper by figuring that each machine should make at least within 6 inches of his trim and as near the trim as possible.

In addition to this, it contains a list of mills and jobbers where publishers may dispose of waste papers most advantageously.

The Directory has been gotten up very carefully, is thoroughly reliable and should prove extremely useful. All are urged to supply themselves with copies.

In the preface to the directory, the paper committee says:

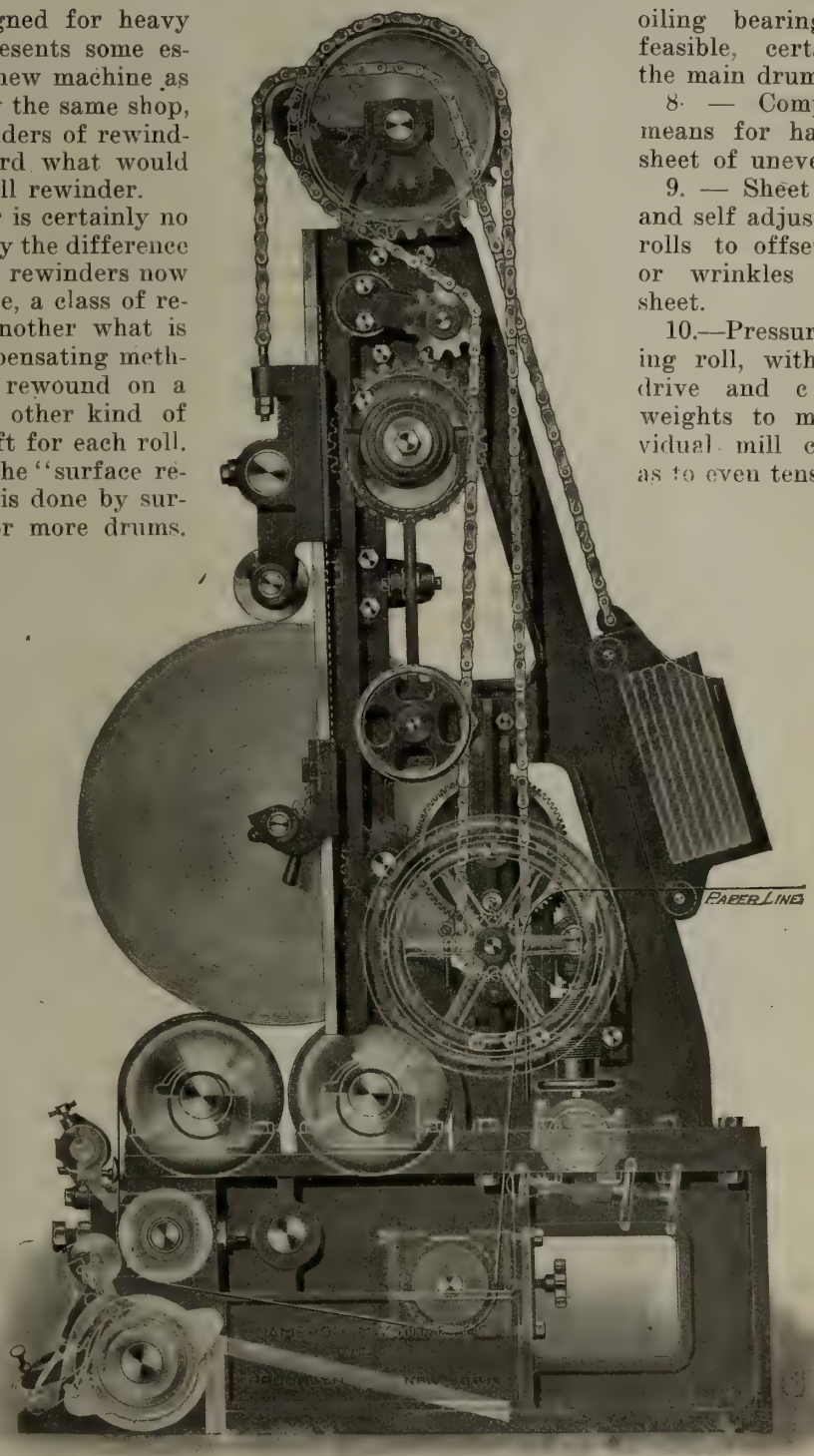
"We acknowledge the co-operation of the Newsprint Manufacturers Association, and particularly the courtesy of George F. Steele, formerly secretary, and Robert Houk, Jr., acting secretary, in checking this information and assisting us in making it as full and accurate as possible."

Liberty could stand a LOAN, to help her stand ALONE.

New Cameron Rewinder---A Heavy Duty Machine

The new Cameron Rewinder designed for heavy work in Paper and Board Mills presents some especially interesting features. This new machine as compared to other types produced by the same shop, or by other American or foreign builders of rewinders, shows consistent progress toward what would appear to be the "ideal" type of mill rewinder.

To produce the ideal mill rewinder is certainly no simple matter.This fact is witnessed by the difference existing between the various types of rewinders now on the market. There is, for instance, a class of rewinders all using in one way or another what is called the "centre rewind" or "compensating method", where the paper or board is rewound on a shaft driven by a slip belt, or some other kind of friction drive, a separate rewind shaft for each roll. Another class of rewinders employs the "surface rewind" method where the rewinding is done by surface contact of the roll with one or more drums. Then there is the "four drum" class of surface rewind machine where the rewound rolls are staggered from one pair of drums to the other.



The industry yet awaits the 100% perfect rewinder, or even one which keeps pace in its way with the rapid advancement made by designers and builders of paper making machines. The troubles due to inefficient rewinding machines in the average mill are apt to be greater than the total sum of the troubles incident to operating the paper machine and all other apparatus connected with it. New developments in the field of rewinding machines are worthy of notice and encouragement.

The question as to the 100% perfect rewinder is thus answered by Mr. Cameron. of the Cameron Machine Co.. "There ain't no such animal.

1.—Massive strength to withstand strains of continuous operation with a safety factor of at least three to one over heaviest service requirements

2.—Simplicity of design so that machine can be operated by a tender of no special skill.

3.—Speed at least 50% in excess of the paper machine, even in cases of high speed newsprint machines

4.—Accessibility of all working parts for quick repairs.

5.—Power control at each end of the rewinder, permitting slow even start and variable speed.

6.—Powerful friction brake for quick stop when necessary.

7.—Lubricating system extremely simple with ring oiling bearings where feasible, certainly on the main drums.

8. — Compensating means for handling a sheet of uneven gauge.

9. — Sheet spreader and self adjusting idler rolls to offset stretch or wrinkles in the sheet.

10.—Pressure, or riding roll, with friction drive and counter weights to meet individual mill conditions as to even tensioned rewound rolls.

11.—Rapid adjustment of slitters for change of width of roll or width of trim.
change of width of roll or width of trim.

12.—"Score Cut" method in preference to any other method of slitting.

A mill rewinder including all of the above essential features justly lay claim to the nearest approach to the 100% perfect rewinder."

Referring to the illustration, it will be seen that the

machine is certainly of rugged and simple design. A brief reference to the method of operating follows: refer to illustration and note the words "paper line." Trace the path of the paper through the machine. Then note the two hand wheels one just behind the other, the larger of which controls the lift and lower of the rewind shaft bearings. There will be seen a third hand wheel just above these two and a little to the left, which serves for canting one end or the other of rewind shaft to insure smooth and even travel of sheet when the paper may be of irregular gauge. On entering machine from the reels, the paper line passes first over a self adjusting idler roll to take up slack or stretch on one side or the other, then passes a "sheet spreader" to remove wrinkles, past the "sheet spreader" the web travels taut and flat to the second idler roll, which has a friction brake to place a light strain on the sheet previous to its passing to the cutter roll. Against this cutter roll the score cutters press to do the slitting. From the cutters the slit sections go past the "strip spreaders" on the way to the rewind drums.

When threading up, the cutters are about 4½" clear of the roll, leaving everything wide open for the sheet to pass from the reels clear up to the drums. The "strip spreaders" also swing out of work when the threading up takes place.

To start the rewind, the end of the sheet is thrown over the drums and the rewind shaft is laid in place. The free end of the sheet is then pulled forward over the rewinding shaft. The operator then employs the two hand wheels at the side of the machine already referred to, the smaller one for raising the shaft clear off the drum so that his helper (when the machine is a very wide one) can draw the sheet all snug and square over the drums and around the shaft and then the riding roll is brought down in contact by using the larger of the two hand wheels. The cutters are then thrown into work by a whirl of a wheel and power applied through the friction clutch, slowly and evenly at first and gradually building up to full speed.

The "Camachine" Type 18 is obviously designed for heavy service requirements in a paper mill, and is also adaptable to light duty — such as the production of rolls of small diameter and narrow width, without any changes in adjustment or special preparation. The machine gives the impression of a most carefully worked out design, backed by wide experience in the field of rewinders.

There are a number of important structural details and operating conveniences which are not fully described in this article and it is suggested that those interested communicate directly with the builders who will be very glad to show the new machine in course of construction and give the fullest information.

METHOD OF TESTING RELATIVE POROSITY OF PAPER.

By F. J. Seiter.

(From the Chemist-Analyst.)

The relative porosity of paper, especially waxed or water-proof paper, may be conveniently determined by means of the below described apparatus which is simple, inexpensive and easily constructed from common materials.

The apparatus is essentially a Graham dialyzer in which the semi-permeable membrane is replaced by the paper to be tested while the liquids on either side of the membrane are solutions of salts which form upon mixture a colored precipitate, e. g. ferric chloride and potassium ferrocyanide which form, upon mixture, Prussian Blue.

The apparatus was made as follows: A thick walled glass jar, three inches diameter, with a metal screw top, was scratched completely around, two inches from the top, with a file.

The mark was further deepened with the file and then at one spot the mark was made so deep that a glowing carbon pencil, or hot glass rod, applied to the spot caused a crack to form. This crack was carefully led around the jar along the deep file cut by means of the carbon pencil so that when the crack had been finished, a gentle pull caused the bottom of the jar to come off. The sharp edges of glass were smoothed down by means of a file moistened with turpentine containing 10 per cent. camphor.

A circular opening, two inches diameter, was cut in the metal screw top and rubber gaskets, similar to the ordinary fruit jar rings, were made to fit snugly inside the screw cover and wide enough to come just to the inner edge of the circular opening.

The paper to be tested was cut into disks of the same diameter as the outside diameter of the rubber gaskets which, in this case, was 2⅞ inches.

To make a test place a rubber gasket in the screw cover, upon this place a disk of the paper to be tested, upon the paper place another gasket and finally screw the glass cup into place firmly but carefully to avoid accidental rupture of the paper.

The glass cup thus prepared with its paper bottom is then placed upon a glass triangle in a slightly larger jar. Into the outer jar is poured enough solution of potassium ferrocyanide to bring the level of the liquid slightly above the level of the paper. Into the glass cup is poured ferric chloride solution to completely cover the paper and make the level inside and outside the same. It is advisable always to put the ferric chloride in the inner cup and not the outer jar as ferric chloride attacks the tin or aluminum screw cover. The apparatus is then covered with a watch glass, to keep out dust and prevent evaporation, and set aside for observation.

As the solutions gradually penetrate the paper from opposite sides and meet within the pores of the paper, the ferric chloride and potassium ferrocyanide react to form the familiar Prussian Blue precipitate. The time required for the first appearance of the blue color is an indication of the relative porosity of the paper being tested. Naturally, very porous papers react almost instantly while waterproofed papers may withstand the test for several days before the blue color appears.

The solutions of ferric chloride and potassium ferrocyanide were made up by dissolving 65 grams ferric chloride in a liter of distilled water and 127 grams potassium ferrocyanide in a liter of distilled water. These weights are based on the equation

$$4\ FeCl_3 \text{ plus } 3\ K_4Fe(CN)_6 \text{ equals } 12KCl \text{ plus } Fe_4(CN)_{18}$$

One-tenth of the molecular quantities, above required, in grams gives 65 grams ferric chloride and 127 grams potassium ferrocyanide.

Other solutions might well be used in place of the above but the blue color proved quite satisfactory as the disks could be thoroughly washed and preserved for future reference without any perceptible change for a year.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Paper Yarn.—Paper, **20,** (1917), No. 17, p. 21.—Paper yarns spun from parchment paper are used for weaving driving belts for light machines up to about 8 HP; in widths of 30 to 155 mm. and thickness of 5-7.3 mm. Treatment with chemicals: Treatment with 1 per cent tannin solution gives a soft, pliable feel and increases the strength by 49 per cent. Tannin solution fixed with gelatin by 25 per cent and reduces the loss of strength on wetting to only 15 per cent. A solution of aluminum acetate partially neutralized with sodium carbonate imparts a somewhat harsh feel but causes no cohesion of the threads. Subsequent treatment in soap solution produces a flexible damp feel and prevents the absorption of water, but does not appreciably improve the strength after immersion in water. - - E. K. Mansfield.

Cellulose. By H. S. Mork, Paper **21** (1917), No. 3, p. 14-19, 31. From J. Franklin Inst., Sept., 1917, The chemistry of cellulose and its important industrial application. The following subjects rediscussed: Cellulose solvents, hydration and hydrolysis, oxidation, esterification, viscose, cellulose acetate, comparison of different types of cellulose products, varnishes, films and cellulosic filaments. See complete abstract on p. 967.—E.K.M.

New Drive of the American Barking Drum. Paper Trade J. **65** (1917), No. 15, p. 38, also Pulp and Paper Mag. **15,** p. 1005. In former drums the carrying chains also served as driving chains which necessarily had to run over sprockets that gradually became worn. In the new design the carrying chains run over smooth-faced traction wheels only, placed on separate idler shafts; each strand of chain can run with its own individual speed which greatly reduces the strain, computed to be more than 20 per cent. All bearings are placed "high and dry" on top of the frame. This new drive will also operate the drum with the water so high that the logs will hit the water before hitting the angles of the drum, thus reducing bruising of the ends to a minimum.—E.K.M.

Method of Testing Relative Porosity of Paper. By F. J. Seiter, Paper **21** (1917), No. 2, p. 17. The apparatus is essentially a Graham dialyzer in which the semipermeable membrane is replaced by the paper to be tested while the liquids on either side of the membrane are solutions of salts which form upon mixture a colored precipitate, e.g., ferric chloride and potassium ferrocyanide which form upon mixture, prussian blue. The time required for the first appearance of the blue is an indication of the relative porosity of the paper being tested. Also Pulp and Paper, p. 1094, —E.K.M.

A Talk on Coated Paper. By Alexander Thompson, Paper **21** (1917), No. 1, p. 11-13, 32. Points that salesmen should know about the manufacture of coated paper.—E.K.M.

Dry Kiln Instruments and Their Uses. T. D. Perry, Am. Lumb., No. 2204 (1917), p. 38.—A description of instruments to determine the temperature and humidity of dry-kilns, and also to compute directly the moisture content of lumber. Illustrated.—H.N.L.

The Shrinkage of Wood. Hard. Record, **43** (1917), No. 10, p. 21.—Table of figures showing feet in 1,000 lost by shrinkage from green to absolutely dry condition, for all important woods. Based on data from U. S. Dept. Agr. Bull. 552,—"Seasoning of wood."—H.N.L.

Transcontinental Railroads Issue New Rules Cutting Down Underweights. West Coast Lumb., **32,** (1917), No. 382, p. 22.—Minimum rates are based on cubical contents of cars regardless of actual weights shipped. Table gives minimum weights based on cubical contents of cars for shingles and lumber.—H.N.L.

A Canadian Creosoting Plant. R. V. Look, Wood-Pres., **4,** (1917, No. 3, pp. 39-40.—Description of plant of Canada Creosoting Co., at Trenton, Ont.—H.N.L.

Waste of Hemlock Bark in B. C. J. H. Hamilton, Can. For. J., **13,** (1917), No. 9, pp. 1285-7.—H.N.L.

Best Methods of Burning Brush. H. S. Graves, Can. For. J., Vol. 13, (1917) pp. 1358-9. Reprinted from Am. For.—H.N.L.

Chain Drag Saw and Log Measuring Device. Can. Lumb., **37,** (1917), No. 20., pp. 29-30, illus.—Description of construction and use of saw.—H.N.L.

British Columbia Timber as an Investment.—R. A. Logan, West. Lumb., **14,** (1917), No. 10, pp. 56-8.—Description of B. C. timber. Illustrated.—H.N.L.

British Columbia's Pioneer Kraft Pulp Mill. West. Lumb., **14,** (1917), No. 10, pp. 61-2, illus.—Description of Rainy River plant.—H.N.L.

Use of Distillate or Gasoline Driven Machinery Strongly Advocated. F. Leckenby, West Coast Lumb., **33,** (1917), No. 385, p. 22, illus.—Possibilities of oil driven machinery in logging.—H.N.L.

Dying of Young Pines in Circles About Anthills. H. W. Haasis, J. of For., **15,** (1917), No. 6, pp. 763-9. Illustrated.—H.N.L.

Use of Powdered Coal. J. W. Santmyer, West Coast Lumb., **33,** (1917), No. 385, p. 51.—Description of the use of powdered coal and test run on boiler.—H.N.L.

Wood on the Wing. Bristow Adams, Am. For., **23,** (1917), No. 286, pp. 583-9.—Description of airplanes, and their construction, finely illustrated.—H.N.L.

Density of Stand and Rate of Growth of Arizona Yellow Pine as Influenced by Climatic Conditions. Forrest Shreve, J. of For., **15,** (1917), No. 6, pp. 695-707, diagrams.—H.N.L.

Forest Service Stumpage Appraisals. J. W. Girard, J. of For., **15,** (1917), No. 6, pp. 708-725.—Methods. —H.N.L.

Forest Succession and Rate of Growth in Sphagnum Bogs. G. B. Rigg, J. of For., **15,** (1917), No. 6, pp. 726-739.—Illustrated.—H.N.L.

Consumption of Water and Regaining of Pulp. Paper Trade J., **65,** (1917), No. 13, p. 40. (From Papier Ztg.)—Director Wieselgreen claims that in a rag paper mill making 5,000 Kg. rag paper pulp, 2,160 liters of water per 1 Kg. paper are required, and a printing paper machine operating at 135 meters per minute on 50 gr. per square meter paper, used 263 liters water and the entire mill used 393 liters water to 1 Kg paper. Tor Carlson determined the consumption of water and loss of fibres as follows: The average consumption of water per 1 Kg dry paper in wood grinding mills, 350 liters; chemical pulp mills, 250 to 300 liters; on paper machines, 225 liters; and the loss of fibres, in grinding mills, 5 to 6 per cent of the produced quantity; sulphate, 22 per cent; unbleached sulphite, 2.3 per cent; bleached sulphite, .4 per cent; printing paper, 11.3 to 14.8 per cent; sulphite paper, 3.7 to 6.4 per cent; rag paper, 2 per cent. In wood-free papers, 97 per cent of this loss can be reclaimed and 81 per cent for groundwood papers.—E.K.M.

UNITED STATES NOTES

The Hadley Paper Corporation, Hadley, N.Y., has just completed the initial run on a new box board machine. The machine which trims 94 inches, has just proved entirely satisfactory, it is reported.

Employees of the Crocker-Burbank Company's paper mills in Fitchburg, Mass., have just been granted an increase in wages, amounting to 15 cents per day for the female workers and 10 cents for the male workers. Abount 800 workers are involved.

Employees of the Diamond Mills Paper Co., Saugerties, N. Y., have been granted an increase in wages amounting to about $1.50 per week.

A new Maine paper concern with a capital of $1,200,000 has been incorporated under the name of the Great Eastern Paper Co. The executive office of president is held by Garret Schenck, while Charles W. Mullen is controlling the stock. The capital of the newly organized concern consists of $600,000 in stock and the remaining amount in bonds. The corporation owns over 300,000 acres in timber lands in the Province of Quebec, Canada. It also controls all water and water powers on the Madeleine River watershed. Other sites which are capable of furnishing 27,000 horsepower are owned by the organization. Garret Schenck, it will be remembered, is one of the big figures in the newsprint work, having been, since its organization, among the big factors in the Great Northern Paper Co.

The Arrowhead Mills, Inc., of Fulton, N.Y., has increased its capitalization from $250,000 to $1,000,000, thus increasing the number of shares from 2,500 to 10,000, and not disturbing the par value which is $100. The purpose of the increase is to take care of the large, modern paper mill now being constructed. The company now operates the sulphite plant on Battle Island, formerly owned and operated by the Battle Island Paper Company. When the paper mill is completed, it is said that it will be one of the finest in the State and will enable the Arrowhead Mills to utilize its own pulp.

The new power house for the Valley Paper Co., Holyoke, Mass., is nearly completed, and the boilers are now being installed. When in operation, the new plant will furnish steam and power for the entire mill. A new 175-foot chimney is also being erected.

A protest of E. Dietzgen & Co., involving the classification of imitation parchment paper is over-ruled in a decision handed down by the Board of United States General Appraisers. Duty was levied on this paper at the rate of 35 per cent. ad valorem under the provision therefor in the Tariff Act of 1913 for "all greaesproof and imitation parchment papers, not specifically provided for, in this section, by whatever name known." The importers contended for classifications under the provisions in paragraph 326 for "Drawing paper, with duty at the rate of 25 per cent. ad valorem.

Fire of unknown origin seriously damaged mill No. 3 of the Bardeen Paper Co., at Otsego, Mich., recently. The fire spread to other buildings of the company, but was confined to the structure in which it started. Damages was estimated at about $20,000.

The Monroe Corrugated Box Co., of Monroe, Mich., has been organized and has taken over the plant of the Deinzer Furniture Co., in that city. All contracts for machinery have been placed and it is hoped to have the new industry in operation by February 1.

At the annual meeting of the United Paperboard Co., Stuart Logan was elected a director to replace George J. Marott, who has just resigned. The company has also declared an initial dividend of ½ per cent. on the common stock, as well as the regular quarterly dividend on the preferred.

A new unit has just been put into operation at Zylonite, Mass., by the Berkshire Paper Co., thus adding considerably to its production.

Jack Townsend, of Boston, is now in charge of the Pemble Mills, at Troy, N. Y. This plant has recently been taken over by New York parties.

Friends of Judge Charles S. Moore, who was, up to the time of its dissolution, secretary of the Bureau of Book Paper Statistics, are awaiting anxiously to learn what his next move will be. The Judge has not yet made any definite statement. However, it is felt that, because of his unusual knowledge of conditions in the paper industry, he will make a valuable acquisition for any of the large manufacturers, regardless of what branch of the trade they are in.

One of the most important topics of discussion in the local trade during the week, was the announcement made by the Wayagamack Pulp and Paper Co., of Three Rivers, Quebec, Canada, that E. A. Flanagan, of New York, was no longer its selling agent and that, in the future, the business of the concern will be handled from the mill through John Mathers, of Montreal, just appointed sales manager. Mr. Mathers will make his headquarters at the mill. Mr. Flanagan has handled the product of the Wayagamck plant for the past six years and was known as one of the big factors in kraft pulp and paper in this city.

NEW SHIPPING LINE, NEW YORK-VALPARAISO

The United States Shipping Board has agreed to establish a new line of fast steamers for passengers and cargo direct to Valparaiso, doing the journey in eighteen days. This is to be a fortnightly service, facilitating passenger traffic to Argentina via the Tranandine Railway.

Official confirmation is contained in a telegram of congratulation from Mr. McAdoo to the Chilean Minister of Finance:—

"Washington, August 29, 1917.—His Excellency Senor Minister de Haciendo, Santiago, Chile. Congratulate Your Excellency and Chilean section declaration United States Shipping Board prompt establishment direct line passengers and cargo New York-Valparaiso. Service fortnightly. This happy arrangement marks important step compliance programme International High Commission co-operation native sections produce complete realization.—McAdoo."

A report has been circulated in Australia and elsewhere that on the Little Continent, spruce can be grown to a size suitable for pulpwood in fifteen years, and that the profit per acre for the fifteen years is estimated at $120. It looks to us that this story has more bark than root.

PULP AND PAPER NEWS

J. F. Ellis, President of Barber-Ellis, Limited, wholesale stationers and envelope manufacturers, Toronto, is a member of one of the busiest exemption tribunals in Toronto, in connection with the Military Service Act.

John Martin, of the John Martin Paper Co., Winnipeg, who has been on a business trip to the Middle West states, is spending a few days in Toronto, Montreal and other eastern centres, calling upon the trade. He reports that the prospects for increased business in the paper line in the west are bright.

A mass meeting of the employees of the Riordon Pulp and Paper Co. at Merritton was held during the past week, when an interesting and instructive address on safety work and its progress was delivered by A. P. Costigane, safety engineer of the Ontario Pulp and Paper Makers' Safety Association. Mr. Strand presided, in the absence of Supt. P. Byrne, who is chairman of the local committee, of which C. E. Carpenter is the Secretary. Mr. Costigane referred appreciatively to the prompt and efficient way in which any recommendations made in the interest of the work were carried out by the committee.

H. F. E. Kent, managing director of the Kinleith Paper Mills, St. Catharines, who for some years has been superintendent of the plant of W. J. Gage and Co., Toronto, has been made assistant general manager of the latter company. He will look after the work until recently attended to by W. P. Gundy, Vice-President and General Manager of W. J. Gage and Co., the latter having been appointed a member of the War Purchasing Commission, with headquarters at Ottawa.

W. W. Bevan, of Bevan and Co., Boston, manufacturers of seals, bon-bon boxes and paper specialties, called upon the trade in Toronto during last week.

A charter has been granted to the Union Box and Shook Mills, Limited, with headquarters in Pembroke, Ont., and a capital stock of $150,000. The company is empowered to manufacture and deal in lumber, boxes, shooks and other articles that may be made from wood or the waste products of wood. The incorporators are James R. Lockhart, Wm. F. Behan, and John H. Reeves of Pembroke, Ont.

Among those who have been very active in the work of selling Victory bonds in Toronto during the past few days and have a long list of subscriptions to the credit of the fund, are W. P. Gundy, of Gage and Co., and I. J. Weldon, of the Provincial Paper Mills Co. Many paper and paper-box firms took out large sums. As an incentive to their employees to purchase Victory bonds the Rudd Paper Box Co. offered to advance the necessary money for one year without interest.

E. P. Heaton, of Toronto, Provincial Fire Marshal, has returned from New Orleans, La., where he attended a convention of the Fire Marshals' Association of North America, and was elected a member of the Executive Committee.

It is expected that the paper machine, which is shut down owing to a fire in the beater room at the Barber mill at Georgetown, Ont., will resume operations early next month. Repairs to the beater department are being rapidly made.

A most successful convention, held under the auspices of the Industrial Accident Prevention Association in Toronto this week, was well attended. A number of representatives of pulp and paper mills were present. Miss Nesta Edwards, who is engaged in welfare work in the mills of the Kimberly-Clark Co., paper manufacturers of Neenah, Wis., gave a stirring address on "Service Worth its Value in Industry."

Several members of the Union were up before Mr. Justice Rose in Toronto last week on the charge of having conspired to limit the trade of Y. Gold in junk and waste paper. Gold said that the accused men, who belong to the Junk Sorters' Union, had persuaded wholesalers not to buy from him because he employed two men who came from the same town in Europe as he did. As a result he was unable to dispose of his goods, and some of the dealers sent back stuff already delivered. Another dealer said that he had difficulty in filling his contracts with the mills. The President of the Union declared that the strike against Gold was because he worked some of his men longer hours than the Union allowed. His Lordship found that while the four men accused had interfered with Gold's trade, their interference did not constitute an offence under the Criminal Code. It is said that a stated case will be asked for by the prosecution, and more will be heard of the trouble in the courts.

The Garden City Paper Mills, of St. Catharines, which were closed down a few days owing to a break of water wheel shaft, have resumed operations.

The many friends of Henning J. A. Helin, technical manager and director of the Wayagamack Pulp and Paper Co., Three Rivers, are congratulating him on the recent observance of his thirty-eighth birthday. Mr. Helin came to Canada a little over five years ago, and has demonstrated his ability and insight as an expert in his line.

The Abitibi mill broke its production record on Nov. 1st by making 238.64 tons.

New arrivals at Iroquois Falls include Miss Mabel Hillson, of Sudbury, to take up her work as stenographer in the main office; Mr. Norman McInnis, of Sturgeon Falls, as machine tender; Mr. A. J. Wilkins, who has taken a position in the Research Department; and a ten-pound boy at the home of Mr. and Mrs. C. G. Christeson on the first of November.

Abitibi has two more soldiers: Mr. F. C. Cockburn, office manager, has enlisted in the 67th Battalion of Artillery and reported for service on November 14th; Mr. Albert Bond, of the Paper Makers Department, left for Brooklyn, N.Y., a few days ago to join the American Army.

It is reported that a meeting of the wholesale paper dealers was held in Toronto one day this week to further the movement in the matter of forming an association for their mutual welfare and protection, and to correct certain trade abuses. There are many questions of importance which such a body could take up and deal with effectively and unitedly. The proposition to form an association has of late received warm support and encouragement.

The pulp mill of the Bathurst Lumber Co. was the scene of a shooting last week. Louis Salconi shot N. Juliano, who is now in hospital. Salconi is in jail.

A. L. Florence Co., Ottawa, the destruction of whose paper warehouse was reported last week, carried $49,000 insurance. The fire caused a total loss.

The fire at the Georgetown plant of the Provincial Paper Mills Co. did about $50,000 worth of damage.

Mr. F. B. Whittet, treasurer of the Riordon Pulp and Paper Co., is a member of the Montreal Employers' Committee, and is working hard for Canada's Victory Loan.

Mr. Robson Black, Secretary of the Canadian Forestry Association, Ottawa, has recently completed an itinerary of seven New Brunswick towns and cities during which he addressed well-attended public meetings on forest conservation, presenting the facts of the present timber supply and the need of eliminating fire by a reorganized forest service, and the official supervision of cutting operations so as to prevent waste. The meetings were held under the auspices of Boards of Trade, and similar organizations, and were illustrated by motion pictures.

Wm. Whyte, who handles the pulp and paper machinery for Canadian Fairbanks-Morse has been so busy selling Victory Bonds that he has not had time to call on the trade. His team is third in Montreal.

A charter has been granted to the Kander Paper Stock Co., Limited, with headquarters in Montreal and a capital stock of $35,000. The company is empowered to buy, sell and deal in all kinds of waste paper, paper mill supplies, cotton clippings, cotton waste and wiping rags, as well as grade paper.

Word has been received in Toronto that Capt. R. A. (Bud) Brown, son of Albert Brown, vice-president of Brown Bros., Limited, manufacturing stationers and paper dealers, has died of wounds in France. Capt. Brown received his commission in the 18th Highlanders and went overseas in August, 1915. A few months later he was sent to France and at Zillebeke, in June, 1916, he was wounded and returned home for two months to convalesce. He went back to France in October and at Vimy Ridge won the Military Cross. Capt. Brown was a popular and efficient officer and before enlisting was a second year student at Toronto University.

A. E. Harris, who has been purchasing agent for the Laurentide Co. has given up his position and gone to Virginia for a few months rest. His place has been filled by H. F. Bullard.

E. S. Bates has returned to Montreal from a trip to the mills on the St. Maurice where he took some good orders for Bates and Innes felts. He is visiting the Welland Canal district this week for the same purpose.

R. O. Sweezey is tramping around Port Arthur. He has 1*,000 square mills of forest in Ontario to investigate.

MAY COMPROMISE NEWSPRINT CASE.

Washington, November 19.

It is learned that the Government may compromise the newsprint case against the manufacturers. The matter is now in the hands of Assistant Attorney-General Todd, of the Department of Justice. He accorded an interview last week to counsel, for the newsprint manufacturers and received their statement in the case. That fact indicates that his mind is in a receptive mood, and induces the manufacturers to believe that compromise is not impossible.

Should the department accept the plea of nolle contendre made by the manufacturers, it is said, a way out of the trial now on would be opened by the manufacturers abolishing their newsprint association, and paying certain costs. Mr. Todd will make no statement as to his ultimate decision at present.

A number of the active heads of Canadian pulp and paper companies, including Geo. Chahoon, of Laurentide; Alex. Smith, of Abitibi, and Geo. H. Mead, of Spanish River, were among members of the Manufacturers' Association charged with combining in restraint of trade.

JOINS BATES & INNES FELT AGENCY.

Home again after doing his bit, Lieutenant J. H. Bates has been discharged from active service and has joined the selling agency conducted by his brother at Montreal, handling Bates & Innes machine felts, and supplies. Mr. Bates went to England in 1916 as Major in the 130th. Battalion. He reverted to a lieutenancy in order to join the 75th. Battalion in France, and was wounded in the attack on Lens on June 9th. last, shortly after Vimy Ridge.

Mr. Bates has considerable experience in felt manufacturing. In addition to his conection with Bates & Innes, he was formerly in charge of the felt department of Penman's Ltd. at St. Hyacinthe. This experience has given him a wealth of knowledge in the construction of Press felts that should materially assist the mills in the purchase of their requirements of there suppleis.

LEFT WAYAGAMACK; BOUGHT A MILL.

A. F. Cayford who was secretary, treasurer and manager of sales of Wayagamack Pulp and Paper Company, Ltd., for the past seven years, and whose energy and ability contributed largely to its success, has with E. A. Flanagan, purchased the controlling stock of the Hartje Paper Manufacturing Company, a $1,000,000 corporation with paper and sulphite mills at Steubenville, Ohio, with an equipment of three paper machines, sixty tons a day capacity; three sulphite digesters, thirty-five tons a day capacity.

New Wayagamack Selling Arrangement.

The Wayagamack Pulp and Paper Company, Three Rivers, Quebec, announces that it has severed its connection with E. A. Flanagan, Woolworth Building, New York. In future the business will be handled from the mill at Three Rivers, Quebec, Can. John Mather, of Montreal, has been appointed sales manager and will have his headquarters at the mill.

FOREST PRODUCTS PRODUCTS WANTS BACK NUMBERS.

The Pulp and Paper Magazine has received the following request from good friends of the industry. Can any of our readers give the help desired.

Gentlemen:

We are anxious to have our files of the Pulp and Paper Magazine complete and find that the following issues of volume 9 (1913) are missing:

Nos. 2, 3, 4, 5, 6, 7, 11, 13, 19, 22, 24.

We will be very much obliged if you will insert an advertisement in your magazine calling for these back numbers.

Yours very truly,

W. B. CAMPBELL, Asst. Superintendent,
Forest Products Laboratories of Canada, Montreal.

The Markets

CANADIAN MARKETS.

Toronto, November 19, 1917.—With the exception of newsprint, the market in all lines of paper continues rather dull. It is spotty and uncertain. Some weeks things pick up considerably and again they fall. The mills have not many orders ahead and there is a tendency to lower prices on a number of lines. The book plants are anxiously awaiting the questionaire, which it was expected would be received last week, but up to the time of writing had not come to hand, presumably owing to the absence of Commissioner Pringle in Washington. The present price of newsprint has been extended till January 20th.

Book mills are running only four and five days a week in some cases and do not look for matters to pick up materially yet a while. There is some price cutting on cheap bonds and writings on the part of the jobbers in order to create business and make things move.

In groundwood there is no change except that a few more inquiries are coming to hand and some inquirers are asking a basis of prices for the year 1918. It is doubtful if manufacturers will make contracts for so many months ahead as they are fearful of supplies of pulpwood and do not know what effect conscription will have in their plants. All mills complain of the difficulty of getting cars to make shipments and one large firm sent several hundred tons of sulphite to the other side by water route during the past few days. Contracts are now being made for sulphite for the coming year and there has been no change in prices, seventy dollars, f.o.b. mill, being obtained for easy bleaching pulp while bleached is bringing around one hundred and ten. With Scandinavian pulp off the U. S. market, American and Canadian mills should have a busy season. Domestic pulp is being more and more favored and, with the large additional tonnage coming on the scene there is no fear of a shortage. The extra production will likely all be taken care of without serious inconvenience to any one. The main trouble with pulp and paper mills just now is transportation and the shortage of labor. In some centres the exemption tribunals are very severe and the mills are entering appeals to retain skilled help, and will not know the outcome of their appeals for a few weeks yet.

There have been several changes in prices during the past few days. Board, with the exception of white patent coated, has come down another ten per cent. This has been brought about to meet American competition and prevent the paper box makers from having general conditions upset by certain firms importing board from the other side and going out and cutting the price on retainers. Board of all kinds is now, twenty per cent cheaper in Canada than it was two months ago, and the mills are fairly busy.

Then there has been a drop in the price of bleached tissues. The 20 x 30 is now selling at $1.25 and the 24 x 36 at $1.80. The former figures were $1.40 and $2.00. The demand is principally for the smaller size. There has also been a reduction of ten per cent on manila tag papers and it is rumored there may be a decline in kraft before very long. Quotations on glassine and parchmentine hold firm for the present.

There has been a considerable decrease in the figures for wrapping papers of all kinds and the new schedule went into effect last week. It is said that one mill has been slashing prices and, in order to stop the practice, the others have come down. The following is the new list for jobbers east of Port Arthur and in Quebec, the terms being thirty days.

	Carloads.	One ton or up.	Less than one ton.
Grey or rag brown	4.25	4.75	5.00
"B" manila	4.50	5.00	5.25
No. 1 manila	6.75	7.50	8.00
Fibre	6.75	7.50	8.00
Samson "B" fibre, kraft or corresponding brands	6.50	7.25	7.75

The whole paper situation is in chaotic state and the market anything but steady. There is a lot of hustling after orders but those, who profess to know, doubt if cut prices will stimulate conditions any. If the large consumers think that values are beginning to fall there will be a greater tendency than ever to hold aloof. Some printing houses have been very busy, those firms which had Victory Loan printing being rushed to the limit, night and day.

In the rag and paper stock market there is little or nothing doing and no demand whatever for white shavings. All prices quoted on many ranges are merely nominal and the only movement is in scrap paper and folded news and even this is not very pronounced. One dealer this week quoted prices to a leading book mill at what he thought was rock bottom, and asked for offers on the different lines. The bids made were lower in many instances than the dealer could get the stuff first hand. The mill also intimated that it was in the market for only three or four lines and this case is typical of all at present.

There has been a reduction of ten dollars per ton on kraft, both glazed and unglazed, and, in car load lots to pobbers, the figure is now $8 25 per ton instead of $8.75. The decreases on wrapping paper generally during the past week, in carlot lots, average ten dollars per ton on grey browns, fifteen dollars on "B" manila, and twelve dollars and a half on No. 1 manila and fibre.

The new plant of the Houpt Paper Mills at Camden East, is now turning out manila and unglazed kraft, the latter making its appearance on the market last week.

There is a strong possibility that the book paper manufacturers and the publishers of trade and class papers may come together in a few days and see if an amicable arrangement cannot be reached which will obviate the necessity of going on with the investigation by Mr. Pringle. The Commissioner, at the recent sitting in Toronto, threw out the suggestion several times that there were clever and able men on both sides and he thought they might meet and see if their differences,

which did not seem insurmountable could not be adjusted, and a fair, satisfactory price for book papers agreed upon.

It is learned that the first step in this direction is being taken by the manufacturers and negotiations are now proceeding for a conference. It is felt that a probe into book paper prices would be long and involved and then no definite basis could perhaps be arranged as there are so many qualities, varieties and weights. Since sulphite has come down materially, mills are disposed to treat consumers on a basis accordingly. It is feared that if the investigation proceeds many large consumers will hold back from replenishing stocks in the hope of a reduction in price being announced by the Commissioner. The mills are after all the business they can get just now and will certainly go half way in meeting the publishers in accordance with the suggestion of Mr. Pringle.

The following prices prevail f.o.b. Toronto.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.10
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, No. 1	$12.75
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.25
†Fibre	$6.75
†Manila, No. 1	$6.75
†Manila B	$4.50
Tag Manila	$6.50
Unglazed kraft	$8.25
Glazed kraft	$8.25
Tissues, bleached	$1.25 to $1.80
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural greaseproof	14c
Half bleached greaseproof	16c
Bleached greaseproof	18c
Genuine vegetable parchment	23c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

xx)—Less twenty per cent.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$35.00 to $38.00
Sulphite, easy bleaching	$70.00
Sulphite, news grade	$55.00 to $60.00
Sulphite, (bleached)	$110
Sulphate	$80.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.50
No. 1 soft white shavings	$2.50
Mixed Shavings	80c
White Blanks	$1.65
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.25
No. 1 print manila	$1.20
Folded news	70c
Over Issues	$1.00
Kraft	$3.00
No. 1 clean mixed papers	55c
No. 1 shirt cuttings	$7.50
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.25
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.50
Light Colored hosiery cuttings	$7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues (repacked)	$2.75
Flock and satinettes	$2.10
Tailor rags	$2.15

NEW YORK MARKETS.

New York, Nov. 19.

Those who have analyzed the chemical pulp market from every angle agree that the only hope for strength lies in the prospects of freight congestion considerably more acute than is true at the present time—and also the coal proposition. In other industries, consumers are anticipating their wants, fearing to be caught shorthanded because of the traffic situation. Although everything possible has been done to facilitate matters so that the manufacturers of the country would suffer as little inconvenience as possible, things are reported to be today in a deplorable state, with freight cars in large numbers waylaid in different parts, practically lost, so far as those for whom the goods they contain are concerned. It seems to be unquestioned that it will be the freight situation that will govern a good many things. Railroad embargoes are beginning to multiply and, before long, the question of shipping pulp will be a serious proposition—it is already, for that matter, in certain districts. Mills are warning their customers to anticipate these conditions and to prepare accordingly. They urge that despite what the market is, when a number of points of production become isolated because of embargoes, all kinds of prices will have to be paid for whatever spot lots will be available. Coal, too, is already hampering operations in some quarters

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and seems destined to continue but on a larger scale. It is undoubted that, aside from the congestion difficulties, every effort will be made to see that shipmhents of coal go first to the plants that are doing work for the government—and this, it is thought, may shut off, to some extent, a number of the pulp and paper mills. It is going to work a hardship without doubt, many are agreed. At the present time, a large number of the manufacturers are said to be operating on the part time schedule notwithstanding the fact that they have a sufficiency of orders to absorb almost their full production, because of their inability to get coal. This is held to be especially true in the East. It seems that the argument introduced some time ago, that, with a number of the mills now in the course of construction, nearing completion, the production of pulp will soon be materially increased and that this must necessarily result in a considerable surplus on the market — so much so that it will mean big shading over the present prices in order to get business. However, it is pointed out that, under conditions such as those now current, it will not make very much difference how many new mills are put into action. For, in the first place, the pulp wood proposition is serious and then again, the help situation and the other problems that are being met with difficulty by the old manufacturers, will hardly be overcome by those now starting into the game, it is said. It is reported that a new project is being launched in Jacksonville, Fla., for the erection of a pulp and paper plant with a capacity of 100 tons of kraft paper a day.

A general report regarding the situation that has just been received, states that for the present, the majority of the paper mills are operating on a part time schedule and are buying little pulp in the open market. Most of them are receiving their contract shipments regularly and seldom find it necessary to purchase additional supplies from outside sources. Under this condition, prices are naturally sagging in tendency, yet rule remarkably firm when all circumstances are taken into consideration. Importers of Scandinavian pulp and dealers in domestic fibre report a slow demand from consumers and little business of a substantial nature was reported as being put through. One dealer told of receiving quotations on domestic unbleached sulphite as low as $56 per ton and up to $80, depending of course on the quality of the fibre involved. This denotes the wide range of prices current. The bulk of business now passing is being transacted at an approximate figure of $60 a ton. Domestic bleached sulphite is quoted at 5¼ cents to 6 cents per pound. A fair call is reported for Mitscherlich unbleached pulp, for which sellers ask between 5¼ cents and 6 cents, depending on the quality and the tonnage involved. Domestic soda pulp is moving in fair volume at 4 cents to 4½ cents, with some lots being bought for export to South America.

The price of ground wood held at around $35 a ton at the mill and while some sales of moderate tonnage were put through during the week, the aggregate amount of business current continues abnormally light. Despite the slow demand from consuming centres, sellers are not pressing their offerings, largely because of the fact that they have no extensive quantities of pulp to dispose of. Many grinders are seriously affected by the coal shortage while practically all of them are having increasing difficulty in securing wood supplies. It is said that there is more than enough timber peeled and ready for shipment and that this four-foot wood sells at as low as $10 a cord, but the trouble lies in the lack of freight cars in which to bring the wood to grinding plants. The majority of the manufacturers, therefore, it is said, have their hands full in keeping their customers supplied with pulp.

The following prices are being quoted on ground wood pulp: for the East, $35, to $38 per ton, f. o. b. pulp mill; for the West, $37 to $40 per ton f. o. b. pulp mill.

Whether the paper market will come up to the expectations of the raw material men, remains to be seen. There are indications that those in the market may be disappointed. One of the chief factors that, it said may operate in this direction, is the general thrift which is now being urged to a greater extent than ever upon the country in general. President Wilson is personally urging that the business men and the people in general do their utmost to save and to be economical and it is though that this can result in but one thing — that the people will curtail the use of paper to a material extent. In wrapping paper, there has already been a big falling off in consumption due to the economic methods putinto effect by the large department stores and others throughout the country. Now, there are prospects that this will reach into every home and every store — that writing paper, tissue paper practically all of the papers will be used with more care. There are some in the trade who are inclined to disregard these facts — but they are, none the less, facing the manufacturers of this country. And there is also the fact that the second draft is now being started. There has been no definite announcement as to just how many men would be taken into the army at this time, but at least, a million it is expected. Judging from the recent dispatches from Washington, it would not be surprising to see the number go considerably over a million. In the paper market, at the present activity, is in newsprint. The others are rather quiet, time, practically the only line in which there is actual with comparatively little interest being shown.

Cotton rags run somewhat quiet. Manufacturers for the most part continue to display a lack of interest in offerings, and dealers report only a limited movement of stock. Satinets are the most active item in trading. yet it cannot be said that any unusual demand is emanating from the mills for these rags. Most manufacturers have their present needs covered and are buying principally against future requirements and therefore resort to much dickering with sellers before placing orders. The market value of roofing in large lots, nevertheless holds steady at about a little less than 2 cents. There is scarcely any demand of note for thirds and blues and white rags and what sales are being accomplished are invariably made at low prices. Dealers are getting some orders for repacked blues at an approximate figure of 2⅝ cents delivered at the mills.

BOUGHT BADISCHE DYESTUFFS.

Kuttroff, Pickhardt & Co., Inc., has been organized under the laws of New York to carry on the business of dealing in dyestuffs, colors and chemicals, at 128 Duane Street, New York. They have branches in Boston, Providence, Philadelphia and Chicago. This company has purchased from the Badische Company of New York its stock of dyestuffs, etc., and has taken over its staff and laboratories.

Dominion Timber Regulations

Licenses to cut timber on Dominion Lands in the Provinces of Manitoba, Saskatchewan and Alberta, the Northwest Territories, within twenty miles on either side of the main line of the Canadian Pacific Railway in the Province of British Columbia, and in the tract of three and one-half million acres located by the Government of the Dominion in the Peace River district in the Province of British Columbia, lying east of the Rocky Mountains and adjoining the Province of Alberta, shall be disposed of by public auction at the office of the Dominion Timber Agent for the District in which the berths are situated.

Before any parcel of timber is offered for sale it shall be surveyed by a duly qualified Dominion Land Surveyor into berths of an area not exceeding twenty-five square miles, and each of such berths shall then be thoroughly cruised by a duly qualified timber cruiser in the employ of the Dominion Government. The Minister shall then fix an upset price at which the berth shall be disposed of, and no berth shall be sold at less than the price so fixed.

Purchases to the amount of one thousand dollars or under shall be paid in cash at the time of sale. Purchases over one thousand dollars and not exceeding five thousand dollars shall be paid one-half in cash at the time of sale, and a note or notes shall be given for the remaining half of the purchase price, payable in three months, with interest at the rate of five per cent per annum. Purchases over five thousand dollars and not exceeding ten thousand dollars shall be paid one-third in cash at the time of sale, and notes shall be given for the remaining two-thirds of the purchase price, payable in three and six months, with interest at the rate of five per cent per annum. Purchases exceeding ten thousand dollars shall be paid one-fourth in cash at the time of sale, and notes shall be given for the remaining three-fourths of the purchase price, payable in three, six and nine months, with interest at the rate of five per cent per annum. Notes shall be made payable at a bank in the city or town in which the sale is held or at a bank in the city of Ottawa. Cash payments must be made at the time of sale in legal tender or by an accepted cheque on a chartered bank, or by a draft issued by a chartered bank, payable to the order of the Deputy Minister of the Interior. If default is made in any payment required by this section the sale shall be forfeited and void.

The purchaser must also pay the cost or the estimated cost of the survey of the berth before a license is issued.

The licensee shall pay an annual ground rent of five dollars per square mile except for land situated to the west of Yale, in the Province of British Columbia, in which case the yearly ground rent shall be five cents per acre.

The licensee shall pay the following dues on timber cut on his berth:—

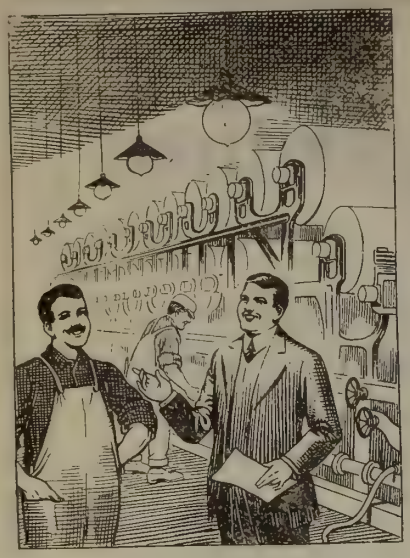
Sawn lumber , 50 cents per thousand feet board measure.
Lath, 15 cents per thousand.
Shingles, 15 cents per thousand.
Piling and cribbing, ½ cent per lineal foot.
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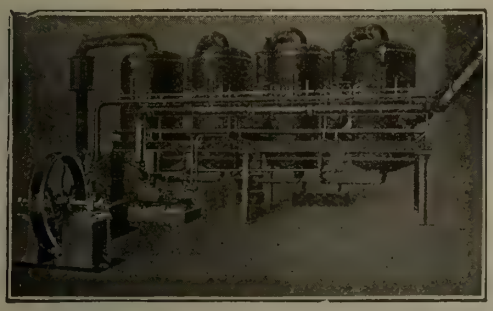
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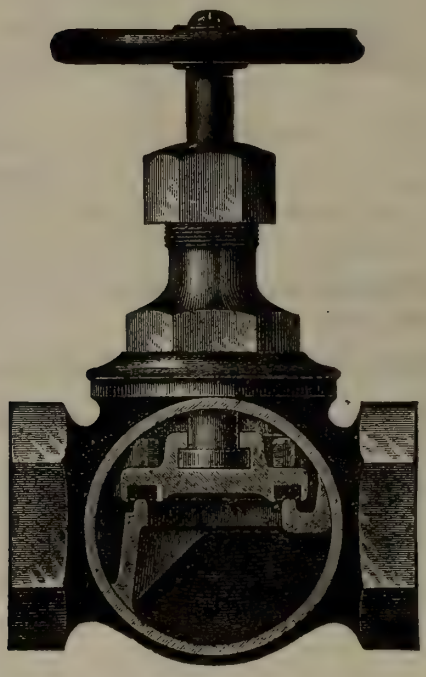
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EDITORIAL

THE NEW SECTION.

The Canadian Pulp and Paper Association is getting to be quite a family. There are now eight members—sh!—there will soon be another. At a special meeting of those interested in the problem of our forests last Friday, a committee was chosen to organize and name a Woodlands (or something like that) Section. The sections on newsprint, board, felt, and so on, are mostly composed of the men at the business end. The men in the operating departments of the mills have the Technical Section at whose meetings they exchange experiences and discuss their problems.

There has been no such opportunity provided for the men working at the most vital point in the industry, the woods end. The problems pertaining to the future supplies of raw material are simply immense. The pulp and paper industry is growing faster than any other that is based on a natural resource and is likely to assume before long, the very first place among our national manufacturing industries. There is already an export trade of fifty millions. The raw material for this enormous business is almost exclusively wood. Yet in spite of its importance the men who direct the tapping of the source have as yet no organization to bring them together for the discussion and solution of the overwhelmingly important problems they are facing.

The technical men who are the brains of the mill end meet and tell each other what they know about some of the fundamental operations of manufacturing or the principles involved in some of the chemical or mechanical processes in the mill. Such subjects as barking drums, purifying sulphur dioxide, by-products from soda-mills, sizing paper, etc., appear on the programs of the technical meetings.

Surely such vital matters as types of trees, yields per acre, methods of logging, new woods machinery, fire protection and reforestation are deserving of a similar organization for their solution. The need of a Woodlands Section has been evident for some time. The field is broader than would be expressed by Forestry. To be covered properly, it should include in some way, perhaps as associate members, or co-ordinate members, those who are not connected with the pulp and paper industry, but are woodsmen or users of the forest. Otherwise it would be hard to effect to the fullest, co-operative logging, driving, fire control, etc.

Politics and legislation are entirely different subjects, or at least they should be. Improper and ill-advised legislation has made proper utilization of our forests impossible in some cases. The situation is no doubt partly due to ignorance on the part of the Government and a body of men who can put forward and back up a few sound scientific reasons for a better practical solution of some of our forest problems would render Canada an excellent service.

Here is just one situation. A mill that a few years ago cut its supply of wood within hearing of the noon whistle now requires a year or two to get its wood from the ever-receding limits. The stripped hillsides along the river are not only useless, but a menace because of snow slides, land slides and freshets. Suppose every water course is stripped bare. The cost of lumbering and pulp making would be absolutely prohibitive. As Mr. Piche asks; why have we kept our mill costs down and let the cost of our wood go higher and higher? It is largely because the industry as a whole has not applied common sense to a problem that was not under its very nose and with a bell on it in the form of a monthly balance sheet.

The cost of former methods of handling the woodlands is now painfully apparent. For a long while the price of the product prohibited paying the premium on insurance of future supplies at old rates. Now it is a question of reproducing and providing for a continual supply or see the industry annihilated. And if the industry is prevented from honestly earning enough to provide a supply of raw material for the future it will most certainly die. And with the death of this industry will go the livelihood of thousands of Canadians and a source of ever-increasing revenue to the Dominion.

The hillsides near the mill grew spruce before, let spruce be grown again, and before the soil washes down to the sea or the birch and other hardwoods usurp the vegetable kingdom. Let us find uses for these forest tramps and put King Spruce back on his throne so the pulp and paper industry and the whole people of Canada may continue to benefit by his bounty. What better reason could there be for forming a Woodlands Section?

COMING CONVENTIONS.

That "coming events cast their shadows before" is borne out these days in the activity of the secretaries of our pulp and paper organizations. The annual meeting of the Canadian Pulp and Paper Association is set for February 1st, the last two days of January being taken by the Technical Section. The following week will be "paper week" in New York, when the American Pulp and Paper Association and the Technical Association will hold forth.

It may seem to some that February is a long way off, but those who know something of the immense amount of work necessary to arrange the programs and various details for such a gathering realize that the time is all too short.

Mr. Keenan, the able secretary of the Technical Association, has announced that the executive committee will meet February 5, and the general meetings will occur on Wednesday and Thursday, the 6th and 7th, beginning at 10 a.m., in the Waldorf Astoria Hotel. The technical men are to have their own banquet this year, although they may attend the one given by the general association. There will be reports of officers and a general lecture on Wednesday morning. In the afternoon the committee reports will be given simultaneously in separate rooms, so no one need be bored, and to ensure a more complete discussion. Reports will be continued Thursday morning.

On Thursday afternoon an important change in procedure will be made. It has been evident for some time that the association has grown to such a size that some problems could best be handled in a smaller meeting of men directly concerned with the question. Thus, acid-making has little interest for the pulp maker, while it takes a paper man to wax enthusiastic over the question of sizing. For this reason there will be two divisions of the association, so that the pulp men may discuss Acid-making under the guidance of R. B. Wolf and the paper men may thrash out the problem of Engine Sizing, with R. S. Hatch in the chair.

Mr. A. L. Dawe fills the double secretaryship of the Canadian Pulp and Paper Association, and of the Technical Section. His work is not easy. He is working, and the other officers are working, to make the coming meeting the best ever. This cannot be successfully accomplished unless each one does his part. The Technical Section is assured of success if each member **does** something. The more one does, the greater the benefit to the individual and to the organization. The members **can** do something or they would not be eligible to membership. What an enviable position our Technical Section would hold if members would complain at not being given something to do!

There are committees to serve and papers to be written and meetings to be attended and problems to be discussed. Some of us cannot do much, but each can do something and the willingness to do goes a long way toward getting things done.

When you are asked to do something for the industry that you are at all qualified for, say "Sure!" and "go to it."

REGARDING THE EMBARGO ON PULPWOOD.

A recent article in an American contemporary deplores the fact that there is an embargo on pulpwood from Crown lands in Canada, calling it a poor evidence of reciprocity. There should be no dissatisfaction over such a condition of things. A large amount of land is owned outright and the wood from it can be freely exported. More than 10 million cords were exported in 1916, and the amount was on the increase, being about equal to the maximum, reached a few years ago.

It is true that the proportion exported has decreased in relation to the amount manufactured in Canada. A good part of the wood converted, however, goes over the line in the form of pulp. The employment of Canadian labor is not the only reason for the embargo on Crown land wood. Canada is in the position of the farmer who has learned the economy of converting his hay into milk and his corn into hogs. Converting pulpwood where it is produced is only the sensible application of an economic principle. The closer we keep to obeying the law, the better it is all around. There is no duty on pulp or newsprint going into the United States, so nothing would be saved by sending the raw wood over there.

On the other hand, the writer of the article mentioned seems to forget the advantage to the United States in having the source of sulphur and the manufacture of nearly all the machinery used in our industry. This latter carries a heavy duty coming into Canada, but this does not seem to have any detrimental effect on American business. Let it be as a speaker remarked at the newsprint probe last month: "There doesn't seem to be a boundary line any more."

OPINIONS.

Everybody who thinks has an opinion. Articles are printed in the Pulp and Paper Magazine that would be speeches at a meeting. As speeches they would evoke a discussion; as magazine articles they should also have a discussion. Sometimes a reader disagrees with the author. He should say so. Or he may be able to add a bit of experience or information that will give an added punch. If you have anything to say about the subject of any of the articles in this magazine, write the editor a letter. Your name will be withheld if you wish.

The damage to the soil through forest fires in Canada is a severe annual burden upon the country. The United States estimates that forest fires annually do half a billion dollars injury to soil fertility.

Pulp and Paper Association Section on Woodlands

There is considerable common-sense in the Canadian Pulp and Paper Association, although at times it seems tardy in making use of it. When it became obvious that great benefit would come to the industry by employing chemists and engineers in the mills, technical men were employed. Many of these men worked for years with only themselves for company as far as a chance of intelligently discussing their problems was concerned. The need of something to take the place of the class-room discussion and the seminar was imperative, and so the Technical Section was organized. The good that this section has done is but an opening chapter to the future record of the good it will do.

The increasing cost of wood to the pulp mill, the realization of the fact that the supply is **not unlimited**, the lack of proper methods, appliances and markets for the complete utilization of the forest, and many other problems, such as brush disposal, fire protection, reforestation and proper legislation, have made it imperative to have a section organized to deal with these problems. A meeting was held in Montreal last Friday to lay the foundation for such a section, as called for in a resolution passed at the last annual meeting of the Canadian Pulp and Paper Association. In attendance were representatives of most of the pulp and paper companies conducting lumbering operations, including Carl Riordon, chairman, and Col. White, of the Riordon Pulp and Paper Co.; Arthur J. Price, of Price Bros.; J. Fred Booth, representing John R. Booth; Ellwood Wilson, of Laurentide Company; John Stadler, of Belgo-Canadian Pulp and Paper Co.; L. R. Wilson, of Abitibi Power and Paper Co.; Walter N. Kernan, of Donnacona Paper Co.; also as guests, Senator Edwards, A. B. Recknagel, Forester for the Empire State Forest Products Association; R. H. Campbell, Director of the Dominion Forestry Branch; G. C. Piche, Forester for the Province of Quebec; Clyde Leavitt, Forester for the Conservation Commission; Robson Black, Secretary of the Canadian Forestry Association; A. L. Dawe, Secretary of the Canadian Pulp and Paper Association; and J. N. Stephenson, Editor of the Pulp and Paper Magazine. After luncheon the meeting was called to order by

Mr. Carl Riordon.

Mr. Riodon's introductory remarks were brief. He spoke of the signal success of the Technical Section and how the idea grew that there should be a similar section for the men in the woods end of the business. This idea of bringing together the men who are responsible for the raw material has been growing. The problem of providing a permanent supply of wood at minimum cost is imperative. Mr. Riordon read the resolution adopted by the Canadian Pulp and Paper Association:

> "Resolved that there should be promoted, a new section of this Association somewhat similar to the Technical Section, to deal with the whole question of the protection of wood for the making of pulp and paper."

This summarized the situation, which Mr. Riordon said would be explained more in detail by

Mr. Ellwood Wilson.

Mr. Wilson reviewed the matter substantially as follows:

The war has shown that forests are of very great importance to nations, both for defence and offense, as shown by the use made of this timber wealth by Germany and France. The problem presented to the pulp and paper industry is a question of raw material. This is made immensely more difficult by the unreasonable and short-sighted attitude of the Government in so limiting the price of the product.

The cost of cutting is increasing. Lumbering operations now are back so far that the hauls are very long. We are using the same methods that were employed 25 and 50 years ago. New machines, such as gasoline log haulers, cutting machines, etc., have not been introduced. The ingenuity used in the mills must be applied to the woods end if the supply of timber is to be insured.

We must use the material we have to the best advantage. This involves the lumbering and utilization of the wood that wont float. The forest is reverting to hardwoods wherever they will grow and will absolutely shut out and prevent the growth of a future supply of conifers unless we find means of getting the hardwoods out and using them so as to give the conifers a chance.

Cooperative forest protection has practically eliminated fires; co-operative driving has been a marked success on the St. Maurice, but co-operation should be carried further. Co-operative logging on this river alone would save the labor of 600 men and the expense of $75,000 for sorting logs.

There will come a time when we shall have to do some of these things. The sensible way is to face the problem **now** and study and plan **in advance** of necessity. There is an imperative need of a section of the Canadian Pulp and Paper Association to work on and work out the problems of the woodlands.

Mr. Riordon then introduced a speaker imported for the occasion.

A. B. Recknagel,

Forester to the Association, next spoke on:

THE EMPIRE STATE FOREST PRODUCTS ASSOCIATION AND ITS WORK.

I esteem it a great privilege to be here with you to-day at a meeting which signalizes the establishment of a Forestry or Woodlands Section in the Canadian Pulp and Paper Association. In taking up this work it will probably interest you to learn of similar work undertaken by the Forest Products Association in New York State.

This Association is composed of the leading lumbermen and pulp and paper manufacturers in New York. They directly control an area of about 1,500,000 acres —nearly as much as the State itself owns. The consumption in raw material aggregates 2-3 billion feet, board measure, yearly.

The members a year ago decided to inaugurate the practice of forestry—that is of conservation management—on their holdings and to this end asked me to undertake the organization of the work, which I consented to do, having been granted leave of absence by Cornell University.

The first task which confronted me—and which must confront any Association that undertakes similar work

—was to find out **what land** the members own, **where** it is located, and of **what character** it is. This means an Inventory of Land. Next comes the Inventory of Developments, showing the character of improvements (sawmills, paper mills, logging, railroad, etc.); the annual consumption in raw material; the output of finished product; the number of men employed; the water power developed; the tons of coal consumed yearly; and similar data.

With these inventories as a basis one has a reasonably secure foundation on which to build the forestry work of the Association. And what is this work? It is, of course, very diversified (Dr. Schenck used to say: "Forestry is anything you do in the forest") and capable of wide expansion, that certain salient problems present themselves and the first of these is Forest Utilization. Forest Utilization is the mother of forestry—sometimes a careless mother, I admit, but always the "sine qua non" for forestry practice. The State of New York is not practicing forestry as long as it keeps its forest preserve closed to utilization; every lumbering operation is a forest operation—it may be bad forestry (exploitation) or it may be good forestry. If it is good forestry it starts with complete utilization of all the mature, ripe timber, proper disposal of brush, the safe-guarding from fire, and the assuring of reproduction.

Complete utilization involves a careful study of logging and market conditions and accurate cost data. Here the Forestry Section of an Association can be of great help in standardizing the available data and causing studies to be made bearing on the problems in hand.

For example: in the Adirondacks to-day the most pressing problem is that of utilizing the hardwoods. Unless the hardwoods are cut we get no softwood reproduction. Each hardwood operator has his own field in which he is expert; but he has not the time nor the inclination to view this problem objectively. Therefore we have inaugurated a Hardwood Utilization Study which will aim to bring together the facts as to present practice, suggestions for improvement in utilization and a study of wider markets for hardwoods.

This is only one example of how such a section can be useful to the members of the Association, other examples will readily occur to you from your own experience. Co-operation is essential in business to-day and it does not need a New Yorker to tell you Canadians that, who have outstripped us in progressiveness and the matter of pulling together.

I conceive that the relation which a Forestry Section bears to such an Association as yours, is essentially the same as that which the Woodlands Department bears to any individual company. The tasks which the Section performs are those which can be done best by collective effort.

In addition to the matter of studying and collating logging methods, logging costs and market possibilities to the end of securing a more complete and profitable utilization, there is the large field of silviculture.

When I came to study the different plans of operation practised by our members in their woods work, I found the utmost divergence in diameter limits used and in the general silvicultural practice. Here, surely, is need for standardization: a bringing together of facts, a discussing of methods and results for which the Forestry Section will serve admirably as a clearing house.

Then the matter of fire protection. I know that you have already made splendid progress in the matter of co-operative fire protective associations, but there is a new field developing in which the Forestry Section can be of help—Mutual Timber Land Fire Insurance. Such a company as that of which Mr. W. R. Brown is President fills a long-felt want. Obviously negotiations can best be conducted through the medium of the association—and that, right now, is one of my main lines of effort—to bring about the better protection of our members' timbers lands.

There are many economic problems which concern the Woodlands Department—that of taxation is particularly pressing with us to-day in New York and here again the association is working to secure proper legislation for the relief of its members who are planning to hold their land for repeated crops — a procedure endangered by our present general property tax.

This brings up, naturally, the subjects of legislation, publicity and education. In each of these fields concerted effort by means of a Forestry Section, will produce results that individuals can not hope to attain. With us in New York nine-tenths of the problem is to educate the public to a realization that lumbermen are not vandals, thieves, and pirates, but a necessary part of the economic machine. "Woodman spare that tree," must give place to "Woodman use that tree," and the public must learn that forests do not improve by disuse any more than a man's muscles grow stronger in idleness. We in New York are in constant danger of the enactment of burdensome, even confiscatory legislation. To avoid this, the forest interests must become articulate—which can best be done by the authoritative pronouncement of a responsible Forestry Section.

Last, there is the matter of research in the problems which particularly concern the association interests. Such research covers a wide variety of topics. By co-operating with the established government agencies the needs of each can best be correlated. In this way the Forestry Section becomes of direct service in the development of the science of forestry, directing research into the most fruitful channels and aiding in the accumulation of data which will be of benefit to every member.

The Empire State Forest Products Association is definitely embarked on a program such as that which I have just outlined. It is a tremendous encouragement to our association to see your association taking steps to create a Forestry Section. May I not pledge you our heartiest support and co-operation in this endeavor?

I thank you.

After Mr. Recknagel's address, the chairman called on

Mr. R. H. Campbell,
Director of the Forestry Branch of the Dominion of Canada.

Mr. Campbell put a lot of material into a few words, of which the following is a summary:

The pulp and paper industry is one of fundamental value to the Dominion. In the number of men it employs, and the wealth it brings in through exports it is a public necessity to back it up. It is therefore important that the Government should be interested in the future supply of raw material to the industry.

Canada's timber resources, unlike agriculture and fish, are not illimitable, as Senator Edwards recently pointed out very clearly in Parliament. The forest lives and grows according to certain definite rules.

To get results we must learn and follow the rules, as Europe has done. Over there, they were cutting timber faster than it grew, so when they realized it was a case of grow it or buy it, scientific forestry was introduced. Since then their forests have improved in every way.

We, too, can improve the condition and output of our forests. There is great need of a section of your association to work out this problem. It can't be done just theoretically or just from an office. It requires men who know conditions and who are in the forest.

Having heard a representative of the Dominion Government, Mr. Riordon called on the representative of the Provincial Government.

Mr. Gustave C. Piche,

Chief Forester for the Province of Quebec.

Mr. Piche read the following paper:

I am greatly obliged for your kind invitation to be your guest at this luncheon. I will have a pleasant memory of this event and of your cordial welcome.

Coming to the question of the day; I must say that I have always had a good deal of sympathy for the manufacturers of paper and pulp, and this for many reasons; first because I have worked several years before joining the civil service, with a pulp and paper concern; secondly, because I am a forester; and thirdly, because the paper makers represent one of the best classes of our business men.

If you will allow me, I will say a few words in regard to this: The pulp and paper companies have a greater interest in their timber holdings than any other forest owners. They depend more completely on their raw material than any one else. If the supply runs short the saw-mill man can easily tear down his mill, and build somewhere else; this cannot be done so easily with a pulp mill, and we have seen our friends of Wisconsin being compelled to come here for their wood. Very seldom you see a saw-mill being enlarged; whereas this is often the case with pulp and paper plants. The class of men employed by the former belongs to the ordinary class of laborers, a few experts are needed for the sawing and grading of the products; the lumber is generally sold through brokers, whereas with the pulp and paper men require a high grade class of men for their manufacturing. They employ engineers, chemists, technical experts for the researches who will improve their manufacturing processes so as to reduce the cost price of their products, and to find new bye-products for disposing of the waste materials. It is a continuous effort in the right direction to obtain greater results; a higher efficiency and a more complete utilization of the raw materials. Instead of waiting for the consumer to come for their goods, they seek all the markets of the world and our pulps and papers are found on every market of the world, whilst our Canadian lumber is often disguised under the name of American lumber. The pulp and paper men do not content themselves with their manufacture, but seek to improve the welfare of their employees; they are building model cities, furnishing their men with beautiful cottages and amusement halls, such as may be seen at Grand'Mere, etc. They have ideals and they contribute immensely to the advancement of civilization.

I have said enough good of the paper men to be justified now in saying something bad. I have always wondered why such a class of men were not taking more care of their forests, why should they bend their efforts only in one direction. It is very sensible to improve your fabrication, but why should you leave your forests, your source of raw material in a bad state; why not apply the same methods of scientific management that you employ successfully in your mill for the production of your timber supply; why leave your forest operations in the hands of your choppers, of your jobbers who have only a precarious interest, instead of employing technical men as you do in your mills. Is this not a lack of foresight, and—if you would be sincere—have not some of you found that the savings made in your mill by your improved methods have been more than wiped out by the increased cost of your wood? Why should the cost of your wood always be on the increasing scale whereas you have succeeded in halting your cost price in your mill, to an almost fixed basis, and then when the cost of labor and supplies follow the same trend on both cases? I know some will object that you are obliged to go further for your logs, that driving is becoming more and more expensive, but why did you not foresee this?

It is becoming a necessity, an imperious want that the paper men will devote some of their energy—of which they seem so much and at such a high potential—to the care and handling of their woodlands. It is obvious that a well defined program should be followed and the work must be systematized if results are desired.

The pulp and paper industry, being established for a long time can afford to manage its forests on a permanent basis, better than any other class of lumberman. Therefore there should not be any hesitation in considering the question from a broad point of view; and though the expenses may seem high in many cases they will often be an addition to the capital of the company just as when you replace a type of screening machine by a more efficient one. The question of depreciation of timber limits is another subject that should be considered broadly—and I am glad to note that at the last enquiry directed by Mr. Pringle this was agitated with good and telling effect for many who ignored it before.

I suppose that you expect me to draft a sort of a program. I feel the necessity of one, and however imperfect it may be, it will pave the way for discussion, for suggestions, and something may come out of it. Naturally the first effort to be made is to secure the proper man to put in charge of your timber lands; without any question this man should be a forester, a man with technical training, and I hope that my friends of the technical section will not dispute me in this matter. You do not go to any plain man for your chemical work, but employ a chemist; for your engineering work you employ a real engineer; why not employ a good forester for your forest work? Some will object that a practical man is needed. This question of practise has always been brought forth by the men who wanted to save their jobs when a better man appeared on the stage. A forester needs practice as much as the chemist, as the engineer, but he does not require to have grey hairs, he will not be any good then. He will be afraid of going into the woods, his rheumatism will prevent him from plodding all over the works. A forester if given a chance, if employed for the work for which he has trained himself will certainly do good.

The next move is to make an inventory of your timberlands. How can you work without this data? You keep a strict account of your stocks of sulphur, of coal, of china clay, of colors; why should you not do the

same with your forest? The operations to be conducted in an efficient manner must be directed by the head office according to a working plan and not be carried in a haphazard way as done now. The timber should be cut not only on one river, with the chances of jamming, but on different streams and on several grounds so as to equalize the cost price, instead of allowing it to jump every year. The improvements to be made in the way of portage roads, of depots, of river cleaning, of dams, should be known in advance and a fixed budget prepared every year for the carrying of this class of work.

Studies should be made of the rate of growth of the various species found on your timberlands; so as to know how they should be cut. Investigations of the old lumbered tracts should also be conducted so as to find what have been the results of the lumbering as it was done then. A good deal could be learned this way which would help greatly for drafting plans of lumbering on similar areas. We have begun this work in a few localities, but the province is too large and the interested should have the same studies made for their own benefit.

Reforestation is another subject that will require to be looked after. With the increasing cost of labor and supplies, it will become more and more necessary to have a larger yield of raw material per unit of surface; instead of culling on an average 2,000 feet per acre; it will be far more economical to cut in 30-40 years from now 5,000 to 10,000 feet per acre. I claim that most of the paper men are limit poor, as a mill producing 100 tons per day would only require a forest area of 200,000 acres, of 500 square miles, if same was managed to produce wood properly. What an enormous capital is carried uselessly by the companies on account of the fact that their holdings are too poor in timber. I calculate that by adding $1.00 more to the cost price of your wood you could reforest enough land each year to insure you a permanent supply for the future. Naturally the question of time will have to be considered here, but in your plan you can take care of this matter.

The utilization of the hardwoods is another subject that should be taken into consideration. It may be necessary to modify the present methods of lumbering in order to assure a more complete utilization of all the trees now found on the timber limits, but this problem requires an immediate study, and we should all unite to find the solution.

I do not want to say more for to-day on these matters as there is already enough for a long discussion. It is necessary that we start quickly and that we begin investigations. The forest service of the province is ready to co-operate with you to the fullest extent and we hope that our work will benefit the industry that means so much to our welfare, that it will open new regions of the province.

Mr. Piche's paper was followed by an exceedingly interesting talk by

Col. J. B. White.

Col. White, who is in charge of forestry work in France for the army was on that account unable to disclose details on some questions that were asked. He spoke chiefly on the excellence of the French forests, which have been cultivated for 200 or 300 years. One plot was measured and found to contain 100,000 board-feet to the acre. Yields of 30,000 to 45,000 feet were quite frequent. The remark that he hadn't been in Germany yet, but hoped to get there, brought a round of applause.

The point of Col. White's remarks was, that Canada has much land of a similar character to that of the wonderful French forests and climate not much more severe. If it is possible to get such yields over there, surely it is ridiculous for us to be satisfied with 2,000 or 3,000 feet to the acre.

Senator Edwards

was then introduced by Mr. Riordon as representing the lumber industry. He spoke as follows:

This subject of the proper handling of the forest is one that is near to my heart. You could not meet here with a greater object than to plan for the conservation of our forest resources. I have worked for years for this purpose but have grown a bit discouraged.

So long as the Governments puts a premium on the destruction of the forest, the lumbermen are helpless. They are suffering severely from the policy of taking away large areas of their limits for distribution to settlers, many of them "fake" settlers. The best limit systems are in Quebec and British Columbia; the system in Ontario is abominable. The incentive is entirely for the destruction of the forest.

The Senator referred to what seemed to him as false ideas on future trade, and to the overlapping work of commissions. There are some foolish ideas regarding our ability to figure in the export field. Canada is too expensive a country to live in and produce in. Some enthusiasts have grossly over-estimated Canada's resources—agriculture, mining, fish, and forestry. Some of the estimates are absurd. The pulp and paper industry, by conserving the forests could be made to live forever.

Agriculture is in the best position as an indigenous industry. Iron and coal are the most important of minerals. Other minerals are almost insignificant as wealth producers. Our coal is misplaced and we have no iron.

Water powers can be made great wealth producers. They are almost valueless under present conditions. They can only be developed with the growth of trade with the United States. Pulp and paper form one of the exportable products. Some others are over-developed and over-produced or carried on under artificial conditions.

The United States is way ahead of us in agriculture, forests and minerals. It behooves Canada to preserve and develop the resources we have. Much can be done to save and improve conditions. There is a big job ahead.

Our hardwood to-day is useless. It costs too much to get out our lumber to compete abroad. A firm in Louisiana can deliver timber to the mill for one-seventh of the cost up here. Some of us are putting in supplies for the 1918 season, and it takes often two years to get the logs to the mill. A very serious mistake is being made in trying to use forest land for agriculture. An average of fifty per cent of the area of Eastern Canada should be reforested.

This gathering is for the purpose of helping conserve our best resource. Any further co-operation that can be carried out should be effected. To-day the lumberman is working under the worst conditions possible.

Discussion.

Mr. Piche explained now, by having a forest survey in certain parts of Quebec, they were able to prevent

the settlers from occupying land that is distinctly and solely forest land. This is effected in some cases by reserving the land from settlement for ten years and thus the limit holder is protected.

Mr. Riordon introduced a suggestion that lumbermen should in some way be associated with the new section. This was warmly agreed to. The suggestion that Mr. Ellwood Wilson start as chairman of the section was received with applause.

Mr. Wilson showed that it should not be called the Forestry Section. The christening was left to the organization committee, consisting of Ellwood Wilson, Walter Kernan, and Angus McLean, of Bathurst.

Further discussion brought out the statement that the pulp and paper industry is doing a vast amount of work that should be done by the government and that his work cannot be carried on if the price of the product is artificially and despotically restricted. Replacement of limits for the future is impossible. Large amounts of the profits now go to roads, bridges, reforestation, etc. These efforts can only be maintained by getting fair prices.

REVIEW OF THE BOOK PAPER MARKET FOR OCTOBER.

The following report of the Federal Trade Commission was sent from Washington, dated November 21, 1917.

The partial statement of book paper production and stocks for October, 1917, issued November 6th, 1917, showed that stocks on hand at the mills increased from 34,654 tons at the beginning of the first week of the month to 35,038 tons at the end of the fourth week of the month, and that stocks held by manufacturers at delivery points increased during the month from 8,884 tons to 9,750 tons.

A small increase in the stocks of machine finish and coated, and a small decrease in the stocks of supercalendared book paper is indicated.

Reports from 181 concerns using book paper including publishers, printers and commercial users showed the following results for October:

	Tons.
Stocks on hand at beginning of month	52,119
Quantity received during month	24,343
Quantity used or sold during month	28,986
Stocks on hand at the end of the month	47,798

The figures indicate a decline in stocks in the hands of consumers of over 4,000 tons.

Book Paper Prices.

Eighteen new contracts for machine finish paper were made by manufacturers during October, aggregating 19,435 tons, the prices ranging from $4.90 to $7.50 per 100 lbs., less 3 per cent for cash in thirty days. Eighteen new contracts, aggregating 32,710 tons were also made for supercalendared book paper at prices ranging from $5.50 to $7.85 per 100 lbs., less 3 per cent for cash in thirty days. Only four contracts for coated paper were reported, aggregating 1,444 tons. The prices ranged from $7.50 to $8.50 per 100 lbs., less 3 per cent for cash in thirty days. The variation in the prices of each grade was due in part to differences in quality, form, method of packing, etc. Open market prices for the different grades of book paper sold in important quantities by the mills were about the same as the contract prices.

Jobbers' Prices.

Prices quoted by representative jobbers for deliveries from their warehouses were as follows:

	Ream Lots, per 100 lbs.	500 lb. Lots, per 100 lbs.	Ton Lots, per 100 lbs.
No. 1 Eastern M. F.	$7.50-$ 9.25	$7.50-$ 8.50	$6.75-$ 8.75
No. 1 Western M. F.	7.00- 8.50	6.50- 8.00	6.25- 8.00
No. 1 Eastern Super	7.75- 10.00	7.50- 8.75	7.00- 8.50
No. 1 Western Super	7.50- 11.00	7.25- 10.50	7.00- 10.25
No. 2 Coated Book	9.00- 12.00	9.00- 10.50	8.75- 11.00

The variation in prices was due in part to differences in quality, location, etc. In a considerable number of cases lower prices were quoted during the last week of the month than during the first week. Opinions of jobbers as to the future course of the market varied materially. Some reported that no increase in prices was likely to occur during the year, while others looked for an advance in prices in the near future.

Pulp Prices.

The bulk of the bleached sulphite purchased by book paper manufacturers during October, whether on contract or in the open market, cost from $90 to $120 a ton. Four old contracts were reported with prices less than $55.00 per ton. The bulk of the unbleached sulphite was purchased at prices ranging from $60 to $70 per ton. One old contract was reported as low as $42.00. The bulk of the soda pulp purchased cost from $80 to $90 per ton.

PRINGLE'S WASHINGTON TRIP PORTENDS GOOD.

The Paper Controller, up to Tuesday, had not been officially advised from Washington that the Federal Trade Commission had set a rate of three cents per pound for newsprint for the first four months of 1918, although it is strong felt at Ottawa the price of newsprint will be three cents per pound, f.o.b. the mill, in carload lots. The new Canadian price, when one is set, is almost certain to be between fifty-seven and sixty dollars per ton.

One important item, which means about three dollars being allowed per ton of newsprint for stumpage, has practically been established by Mr. Pringle's visit to Washington.

The Federal Trade Commission in arriving at an average rate of $2.50 per hundred pounds for newsprint allowed nothing to the Canadian mills for stumpage, capital invested in woodlands, or the value of woodlands held in fee. The reason was perfectly simple as in most cases stumpage was not shown on the books of most Canadian newsprint mills when the auditors of the Federal Trade Commission went over them. At the Canadian newsprint inquiry it was undeniably show that stumpage had to be considered and reckoned into the actual cost of producing newsprint. Whether Mr. Pringle has convinced the Federal Trade Commission that stumpage is a just charge, and "woodlands have a very real and actual value" is something at the date of writing that is officially unreported at Ottawa. It seems that the manufacturer has more than an even break of getting this charge allowed at the rate of two dollars per cord.

The Paper Controller this week issued a brand new questionaire to both the newsprint and all paper manufacturing mills in Canada. Details must be held over for publication next week.

W. P. GUNDY, A BIG MAN FOR A BIG PUBLIC POSITION.

By G. B VAN BLARICOM.

It is seldom that a higher public honor comes to a paper manufacturer in Canada than has just been bestowed on William Pearson Gundy, of Toronto, the new member of the War Purchasing Commission at Ottawa. His recent appointment is another evidence of the job seeking the man rather than the man getting after the job, which is altogether too common in this day of place hunting and self-interest. By training, disposition and instinct Mr. Gundy is eminently qualified for his new post. He has scores of warm friends in the paper trade and publishing world as well as business and social circles generally. In the ranks he has been no mere ornament and his interest in paper has



William Pearson Gundy.

always been thorough, practical and pointed. He has been Chairman of the Book Paper section of the Canadian Pulp and Paper Association, Chairman of the Ontario Pulp and Paper Makers' Safety Association and taken a personal pride in the management and efficiency of the Kinleith paper mill at St. Catharines.

It has been said that ministers' sons are the worst of boys, but in the career of Mr. Gundy he is a living example of the falsity of this assertion. He has always been a consistent Methodist and even in his youth had little or no time for frivolity or the devilment associated with the average lad. The scion of a Methodist clergyman, his father died when he was fifteen years of age and the subject of this reference had to go to work. His first job was with the late John Notman, Queen's Printer, Toronto, with whom he remained eight years. W. J. Gage was then running a small establishment down on Wellington street west, Toronto, and one day Mr. Gundy came in contact with him and was offered a situation on the road. That was just thirty-six years ago and from that on Mr. Gundy's rise in the service was steady. He climbed from one responsible post to another, until he became working head of the great enterprise which after the disastrous fire in Toronto some fourteen years ago was housed in the splendid building at 84 Spadina avenue.

Mr. Gundy is really the man who instituted the profit sharing plan among the employees of the big firm several years ago which has worked out so successfully to all concerned, and also the father of the system by which the heads of departments have been permitted to acquire stock in the company on favorable terms, thus giving them something more than a salary and providing a real, vital concern in the upbuild and expansion of the organization.

Mr. Gundy has always possessed public spirit and has given liberally of his time, talent and means to many worthy public undertakings. He has ever taken a lively concern in civic and national affairs and, during his regime as President of the Toronto Board of Trade, that body had a most successful and influential year. Its membership was greatly increased and its weight and power felt in many directions. Mr. Gundy has ever believed that which is worth undertaking is worth doing well and his insistence on thoroughness and efficiency are proverbial. His grasp of detail is remarkable and he has at all times been courteous, affable and approachable. He gives serious thought to any proposition presented to him and his patience, equanimity and steadiness under every circumstance have made him a safe man to be at the helm. He refuses to be stampeded but when convinced that such and such a course is right he goes ahead at all costs and generally his decisions have proved to be correct and sound. His integrity is above question, his fair-mindedness and judgment widely known and he represents a big Canadian business man of the highest type.

Reverting to his connection with the paper trade, when Mr. Gundy first became identified with the Gage Co., thirty years ago, the number of lines handled were numerous. There were fancy goods, stationery, school supplies and a general book business. As for the manufacturing end, which to-day plays so important a part, this was very small. Gradually one after another of the miscellaneous lines were dropped and concentration became the watchword of the firm. Now the business is almost confined to the manufacture of school books and stationery and, with the development of the manufacturing branch of the industry, the necessity of securing a regular, uniform supply of paper presented itself. The firm often wanted particular brands and this led to acquiring the mill at St. Catharines in 1905, which plant has been greatly extended from time to time. The Kinleith Paper Co. was formed with the officers of the Gage Company as the shareholders, and Mr. Gundy was given the general management which duties he faithfully discharged until a year or two ago when, owing to the multiplication of his work in other directions, Mr. H. F. E. Kent was made managing director.

The career of Mr. Gundy at Ottawa will be watched with every confidence and much interest by his legion of friends in the pulp and paper arena.

Tests of some Canadian Sand Stones for Pulp Grinders

By L. HEBER COLE, Mines Branch.
(Bulletin No. 19.)

(By permission of Dr. Eugene Haanel Director, Mines Branch, Department of Mines, Ottawa.)

(Continued from page 1088.)

METHOD OF MANUFACTURING PULPSTONES.

The preparation of a pulpstone for the market requires very little machinery. The block after being quarried in a sufficient size, is roughly chipped and chiselled with a few inches to spare on all dimensions. The whole through the centre for the shafting is then cut, and the stone placed on a 4 to 6 inch shafting. Belted to some driving power. The stone is firmly fastened to this shafting by means of large flanges, and revolved rapidly. Then, a large shaping chisel is pressed against the face turning it to the required size: an operation similar to wood-turning on a lathe. When finished, the stone is stored and allowed to "season", preferably for a year. When shipping, it is preferable to crate the stone to prevent the cutting face from being chipped and damaged.

TESTS TO WHICH SAMPLES WERE SUBJECTED.

In an investigation of this nature it is not practicable to obtain full size working specimens and watch their behaviour under actual working conditions. This method naturally would be the best way to determine whether a sandstone is suitable for pulpwood grinding. Much information of value, however, can be gained from tests made on small specimens in the laboratory, and from the results obtained one can readily determine whether a sandstone would be worth testing out on a full sized stone.

In order to obtain comparative results of value, seven pieces of imported pulpstones which had been used and had proved satisfactory, were obtained from three Canadian pulp companies, and these samples were submitted to the same tests as were the samples obtained from Canadian localities. By taking the average results from the imported stones and comparing the results obtained for the Canadian samples with this average, an idea as to the value of the Canadian material for this purpose can be obtained. The tests to which the samples were subjected were:—

Granulometric Analysis.

A small portion of each sample was carefully crushed by hand in an earthenware mortar, great care being exercised so as not to crush the sandstone grains, and yet not to leave any group of grains still cemented together. When the sample was broken down completely into its original individual grains, 100 grams was weighed out and screened through a set of Tyler standard Screens. The results obtained from this test give one an idea of the texture of the stone with regard to the size of grain. The test is carried out as follows:—

The 100 gram sample is placed in the coarsest screen, which is nested into the next size finer, and so on down to the 200 mesh, and retaining pan on bottom. The set of screens is then thoroughly shaken on a mechanical shaker: the material retained on each screen being collected, weighed, and noted. The sample in the first place being 100 grams, the weight recorded as retained on each screen is the percentage retained on that screen; and the cumulative per cent, or the percentage of all the material that would be retained on any given screen, if that screen alone were employed, can readily be determined. The screens for this test and the form used for tabulating the results are as follows: —

To gain an idea of the fineness of the grain of the stone, by way of comparison, and to be able to express this in one figure, the average fineness of the sample is calculated. This is determined as follows: the quantity is multiplied by the mesh of the screen passed through. The results thus obtained are totalled, and divided by 100, the final result being the average fineness. In other words, if all the grains of the sample were reduced to a uniform size, they would just pass through a screen whose mesh was equal to the average fineness of the sample.

Indicate the screen crushed through and also first retaining screen	SCREEN SCALE RATIO 1·414				WEIGHTS		
	Openings		Mesh	Diameter Wire. Inches	Sample weights	Per cent	Per cent Cumulative Weights
	Inches	Millimetres					
.....	1·050	26·67		·149	.....	.....	.....
.....	·742	18·85		·135	.....	.....	.....
.....	·525	13·33		·105	.....	.....	.....
.....	·371	9·423		·092	.....	.....	.....
.....	·263	6·680	3	·070	.....	.....	.....
.....	·185	4·699	4	·065	.....	.....	.....
.....	·131	3·327	6	·036	.....	.....	.....
.....	·093	2·362	8	·032	.....	.....	.....
.....	·065	1·651	10	·035	.....	.....	.....
.....	·046	1·168	14	·025	.....	.....	.....
.....	·0328	·833	20	·0172	.....	.....	.....
.....	·0232	·589	28	·0125	.....	.....	.....
.....	·0164	·417	35	·0122	.....	.....	.....
.....	·0116	·295	48	·0092	.....	.....	.....
.....	·0082	·208	65	·0072	.....	.....	.....
.....	·0058	·147	100	·0042	.....	.....	.....
.....	·0041	·104	150	·0026	.....	.....	.....
.....	·0029	·047	200	·0021	.....	.....	.....
Pass.....	·0029	·047	200	·0021	.....	.....	.....
				Totals.	.....	.....	.....

Hardness Test.

The hardness or abrasive quality of the samples was tested on a Dorry Hardness Machine. Cylinders 1 inch diameter were obtained by means of a diamond drill, from the sample blocks of sandstone. One end of each cylindrical test piece is pressed against a horizontally revolving plate, on which is spread standard quartz sand. The core and holder is weighted to 1,250 grams, and the machine allowed to run for 500 revolutions. The test piece is weighed before and after the test and the figures given in the table are the number of grams lost due to the grinding action of the quartz sand.

Toughness Test.

The strength of the sample to resist sudden strains, etc., was tested by impact. In this test, cylinders 1 inch diameter and 1 inch high were cut from the diamond drill cores, and tested on a Page Impact Machine. On this machine, the blow from a two kilogram hammer, dropping from heights increasing by 1 centimetre after each blow, is transmitted to the test cylinders by a steel plunger having a spherical end resting on the cylinder. The height of the last drop of the hammer expressed in centimetres is the figure taken as representing resistance to shock and is given in the table.

Microscopic Examination for Structure.

With a view to studying the texture and composition, each of the samples of the various stones were examined under a binocular microscope, and the results duly tabulated.

Microphotographs were also taken of the surfaces of the cylinders after the hardness test.

RESULTS OF TESTS.

Seventeen samples in all were examined, seven being imported pulpstones, and ten Canadian sandstones. The localities from which these samples were obtained were:—

1. English Pulpstone, Booth Lumber Co.
2. American Pulpstone, Booth Lumber Co.
3. Hill's Quarry, Northwest Miramichi river, N. B.
4. The Miramichi Quarry Co., Quarryville, N.B.
5. The Read Stone Co., Quarryville, N.B.
6. Torryburn Sandstone, near St. John, N.B.
7. Smith Quarry, Shediac, N.B.
8. Sandstone, Stake Road, P.O., N.S.
9. American Pulpstone, E. B. Eddy Co.
10. Read Stone Co., Stonehaven, N.B.
11. Morristown Quarry, Antigonish, N.S.
12. Dean Property, Adamsville, N.B.
13. Higginson Quarry, Hawkesbury, Ont.
14. English Pulpstone, E. B. Eddy Co.

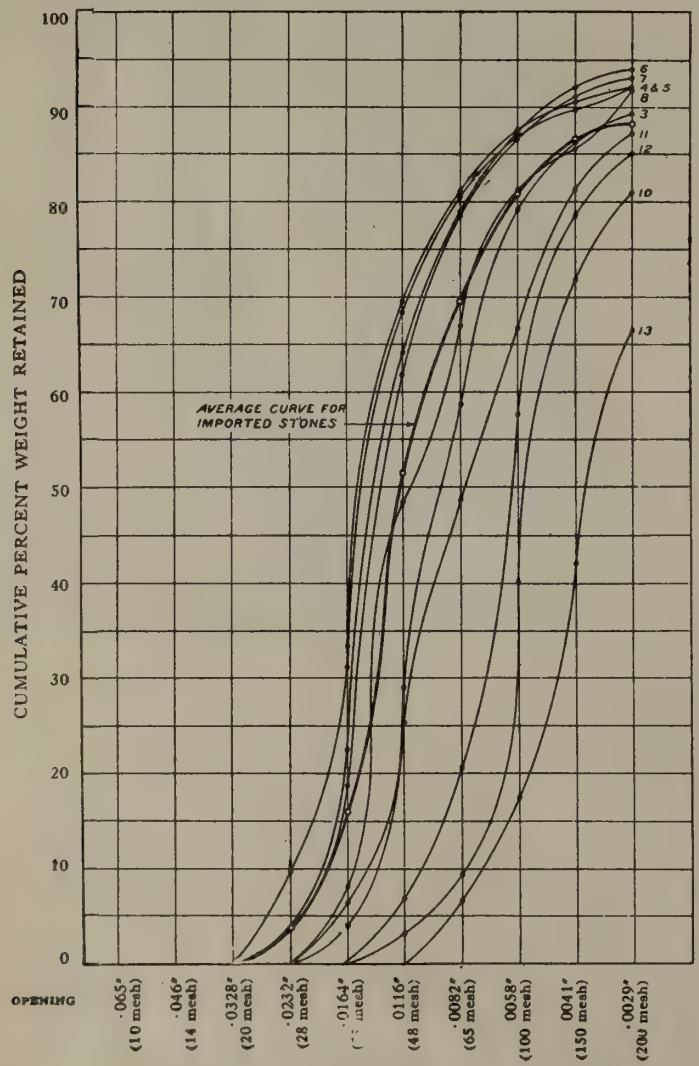


Fig. 4. Graphic comparison of screen analyses of Canadian sandstones, with average analysis of seven imported stones.

TABLE V

Microscopic Examination.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Colour.	Light-brownish-white.	Creamy-white.	Light-yellowish-green.	Yellowish-green to grey.	Yellowish-green to grey.	Pinkish-white.	Light-greenish.	Brownish-white.	Light-brown white.	Blue-grey.	Blue-grey.	Brownish-white.	Grey.	Brownish-white.	Brownish-white.	Light-greenish-white.	Creamy-white.
Character of grains.	Semi-angular and crystalline.	Semi-angular.	Angular to semi-angular.	Angular to semi-angular.	Angular to semi-angular.	Rounded.	Angular.	Semi-angular to rounded.	Rounded to semi-angular.	Semi-angular.	Angular to semi-angular.	Angular to semi-angular.	Angular.	Semi-angular.	Angular.	Semi-angular.	Semi-angular
Composition of grains.	Principally quartz and occasional hornblende.	Quartz occasional iron specks.	Quartz feldspar mica	Quartz feldspar mica flakes.	Quartz feldspar mica flakes.	Quartz occasional iron specks.	Quartz altered feldspar and chlorite.	Quartz feldspar occasional iron specks and mica.	Quartz occasional hornblende and iron specks.	Quartz occasional feldspar and mica.	Quartz and lime grains.	Quartz feldspar and mica.	Quartz occasional feldspar.	Quartz occasional feldspar and mica.	Quartz feldspar mica iron specks.	Quartz occasional feldspar and mica.	Quartz occasional mica.
Composition of matrix.	Calcareous.	Siliceous.	Argillaceous.	Argillaceous.	Argillaceous.	Siliceous.	Argillaceous slightly calcareous.	Siliceous slightly carbonaceous.	Siliceous.	Argillaceous about ½ of stone.	Calcareous ½ stone.	Argillaceous.	Argillaceous.	Siliceous.	Siliceous.	Siliceous.	Calcareous.

15. English Pulpstone, Laurentide Co.
17. American Pulpstone, Laurentide Co. (W. Virginia.)
16. American Pulpstone, Laurentide Co. (Empire, Ohio).

The results of the granulometric analyses, cumulative percentages, and average fineness are given in Tables I and II. From Table II, by taking all the results for the imported stones, and obtaining an average, figures were obtained from which the heavy curve in Fig. 4 was plotted . This curve, therefore, represents the average cumulative result of screen analysis of the seven imported samples. On the same diagram are plotted the curves of the ten Canadian samples for purposes of comparison.

Tables III and IV give the results obtained by the hardness and toughness tests. The average of the results of the imported stones are in each case noted for purposes of comparison. Table V gives in tabulated form the results of the microscopic examination of the samples. Plate VI shows the relative cutting qualities of the seventeen samples.

TABLE I.

Granulometric Analyses: Samples of Canadian Pulpstones and Imported Stones.

Retained on	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
10 mesh	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	—	—	—	—	—	·22	—	—	—	—	—	—	—	—	—	—	—
28	1·60	7·80	—	9·75	—	3·55	3·85	—	—	—	—	—	—	—	9·55	3·65	2·86
35	16·30	17·65	4·10	21·57	33·27	18·55	14·78	8·18	12·27	—	6·70	·07	—	1·50	14·83	14·56	9·04
48	42·35	34·87	24·83	36·86	36·49	40·90	42·97	40·65	38·96	3·20	18·65	6·60	—	22·30	27·20	40·85	43·15
65	14·28	15·05	30·13	12·43	11·55	15·85	17·05	18·39	16·77	6·39	23·55	14·14	6·57	29·96	16·27	12·14	18·55
100	7·67	8·00	20·18	6·32	6·36	8·24	7·97	14·35	11·30	30·65	17·85	37·00	10·85	19·80	17·55	9·25	10·01
150	4·35	4·10	6·97	2·98	2·85	4·75	4·55	4·20	5·25	31·85	14·95	21·16	24·58	8·80	5·90	5·25	4·24
200	1·85	1·75	3·29	2·57	1·87	2·05	1·95	6·20	2·45	9·10	5·75	6·20	24·49	3·22	2·02	2·58	1·85
Through 200 mesh	11·45	10·57	10·48	7·16	7·49	5·55	6·49	7·89	12·85	18·55	12·35	14·65	33·25	14·35	6·50	11·37	10·07
Total.....	99·85	99·79	99·98	99·64	99·88	99·66	99·61	99·86	99·85	99·74	99·80	99·82	99·74	99·93	99·82	99·65	99·77
Loss or gain.	—·15	—·21	—·02	—·36	—·12	—·34	—·39	—·14	—·15	—·26	—·20	—·18	—·26	—·07	—·18	—·35	—·23

TABLE II.

Cumulative Percentages of Canadian and Imported Pulpstones.

Retained on	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
10 mesh	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	—	—	—	—	—	·22	—	—	—	—	—	—	—	—	—	—	—
28	1·60	7·80	—	9·75	—	3·77	3·85	—	—	—	—	—	—	—	9·55	3·65	2·86
35	17·90	25·45	4·10	31·32	33·27	22·32	18·63	8·18	12·27	—	6·70	·07	—	1·50	24·38	18·21	11·90
48	60·25	60·32	28·93	68·18	69·76	63·22	61·60	48·83	51·23	3·20	25·35	6·67	—	23·80	51·58	59·06	55·05
65	74·53	75·37	59·06	80·61	81·31	79·07	78·65	67·22	68·00	9·59	48·96	20·81	6·57	53·76	67·85	71·20	73·60
100	82·20	83·37	79·24	86·93	87·67	87·31	86·62	81·57	79·30	40·24	66·75	57·81	17·42	73·56	85·40	80·45	83·61
150	86·55	87·47	86·21	89·91	90·52	92·06	91·17	85·77	84·55	72·09	81·76	78·97	42·00	82·36	91·30	85·70	87·85
200	88·40	89·22	89·50	92·48	92·39	94·11	93·12	91·97	87·00	81·19	87·45	85·17	66·49	85·58	93·32	88·28	89·70
Average fineness	61·67	59·13	70·30	52·35	52·48	52·36	54·02	64·04	67·19	106·88	79·71	93·04	138·19	77·85	56·85	63·03	60·92

TABLE III.

Hardness Test.

Loss in grams	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
500 revs. 1st	17·3	18·8	29·5	20·5	20·9	6·7	31·2	20·9	25·8	28·5	83·8	33·9	22·7	23·6	10·3	30·8	21·2
2nd	16·8	19·5	29·5	21·5	20·8	4·3	30·3	26·0	25·5	28·5	84·3	31·5	22·6	25·4	13·4	31·1	20·4
Average.....	17·1	19·1	29·5	21·0	20·8	5·5	30·8	23·5	25·6	28·5	84·0	32·7	22·6	24·5	11·9	30·9	20·8

Average hardness of Imported Stones = 21·4 grams.

TABLE IV.

Toughness Test.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1st	5	5	4	4	3	8	4	4	3	5	2	3	9	4	6	4	5
2nd	5	5	3	4	3	8	4	4	3	5	2	3	9	4	6	4	4
3rd	4	4	3	4	2	6	3	4	3	5	2	3	8	4	6	3	4
4th	4	4	3	—	—	6	—	—	—	—	—	—	—	—	—	—	—
Average.....	4·5	4·5	3	4	2·7	7	4	4	3	5	2	3	8·7	4	6	3.7	4·3

Average height of drop of Imported Stones = 4·3 cm.

Microphotographs of grinding faces of Canadian sandstones and imported pulpstones, showing relative grinding qualities. Magnification: 12 diameters. Oblique reflected light.

CONCLUSIONS.

In summing up the results to be drawn from the ata obtained in these tests certain tentative specifica- ons can be stated in a general way.

The tests carried out gave remarkably similar re- ults for all the seven imported stones; so that it may e reasonably assumed that a stone, giving test results pproximating to the average of imported stones, hould be a likely stone from which to make pulp- tones. It will be seen by closely studying the tables, nd noting the results, that several of the Canadian amples compare very favourably with the standard verage. With a little co-operation between the own- rs of prospective quarries, and consumers of pulp- ones, an industry in this product could soon be rmly established in Canada.

The results obtained in this investigation lead one to elieve that there are great possibilities for largely ex- nding the pulpstone industry in Canada, which now only of small proportion. Little encouragement as been given the producers of Canadian stones by he consumer, and when such stones have been pur- hased sufficient time has not been allowed to ensure ecuring stones which were properly seasoned. With roper encouragement and consideration from he pulpstone consumers the pulpstone industry hould show a marked improvement in the ext few years. The tests already conducted, oth in laboratory and in a commercial scale, nd to show that pulpstones having thereon the leg- nd "Made in Canada" can be placed on the Canadian nd the United States markets with every confidence hat they will prove equal to the best imported stones.

TO THE MANUFACTURER.

Great care should be taken in the selection of the locks for pulpstones. They should be absolutely free, s far as can be seen from a careful examination of he outside, from seams, cracks, or "bulls". Above ll, see to it that the finished stones are "seasoned" nder cover at the quarry, for at least a year, if pos- ble, before selling; and crate well for shipment.

TO THE COSTUMER.

Endeavour to purchase only seasoned stones. And hen Canadian stones are purchased, test them with n open mind as to how they behave under working onditions; in other words, give them every chance to rove their suitability by centering them with extreme are; running them light, until uniformly heated, and ake all the reasonable precautions usually followed in ood practice.

UGGESTED COURSE FOR FUTURE INVESTIGATION.

The results achieved in this investigation have hown the great opportunity there is for valuable ex- erimentation in connection with the mechanical grind- ng of wood pulp. The present practice is, to use a olid stone, of which, only about 14 to 16 inches of the ace is worn off in the grinding process; the greater ulk of the stone being then discarded. This is mani- estly a wasteful method. The possibility, therefore, f manufacturing an artificial stone suitable for this ork, seems to be worthy of study. The points to be scertained in an investigation along this line would e to obtain a cement sufficiently hard, and capable of withstanding the severe stresses and high temperature to which a pulpstone is subjected. If this were accomplished, the centre part of the stone could be made permanent, and only the outer grinding surface would have to be renewed.

BOOK PAPER PRODUCTION AND STOCKS FOR FIRST TWO WEEKS OF NOVEMBER.

Under date of November 20, the Federal Trade Commission issued the following:

Weekly reports from 47 book paper companies operating 73 mills show the following results of operations for the first two weeks of November, 1917:

	First week of November.		Second week of November.	
	Total Book Paper Tons.	Per'd'l Book Paper Tons.	Total Book Paper Tons.	Per'd'l Book Paper Tons.
Stocks on hand at mills at beginning of week	35,127	4,588	33,930	4,608
Quantity made during week	17,021	4,860	16,685	5,202
Quantity shpiped during week	17,967	5,200	16,224	5,145
Stocks on hand at mills at end of week	34,189	4,248	34,221	4,607

Note.—Periodical paper includes that known by manufacturers to be used for printing magazines and periodicals. The total figures include the periodical book paper.

The figures show a decline in stocks during the first week due to increased shipments especially of periodical paper and an increase in stocks during the second week.

Loss of Time.

The reports for the 242 machines operated show the following hours lost for the two weeks on account of lack of orders and other reasons:

	Down for lack of orders.		Down for other special reasons.	
	Number of Machines Down.	Hours Lost.	Number of Machines Down.	Hours Last.
First week	53	2,834	22	1,114
Second week	39	2,677	29	1,781

Note.—The hours lost for other special reasons include important repairs, lack of materials, car shortage, etc.

GETTING MAXIMUM PULLEY EFFICIENCY.

In reading the 37 page booklet on "Pulley Efficiency" just received from the American Pulley Co., Philadelphia, we were particularly interested in the figures for power consumed in fanning the air, which might be called "windage", and the large ultimate loss of power due to slipping of belts. Other features of pulleys and their application in transmitting power are very well discussed. The book is free to engineers in industrial plants to help them get better efficiency from their power plants.

UNITED STATES NOTES

New York, Nov. 26.—The Safepack Paper Mills, manufacturers of waterproof paper, have just moved into their new plant at Millis, Mass. Having enjoyed a growing business at Brockton, Mass., for a number of years, conditions required more adequate facilities so the Millis plant was purchased and remodeled to suit the requirements. Sixty thousand square feet of floor space are used for the storage of paper for waterproofing as well as the finished product and a battery of machines sufficient for a daily output of 100,000 yards. The company, which has established its new headquarters offices in Boston, is working almost entirely on government orders.

The Union Bag and Paper Corporation reports earnings for the quarter ended September 30 of $837,286, as compared with $844,447 during the previous quarter.

The Hawthorne Paper Co., of Kalamazoo, Mich., is erecting a new cutter room for its mill. The structure is on the west side of the main building and is two-stories high, 75 feet long, and 40 feet wide. The upper floor will be occupied by the cutter room while the lower floor will be utilized for storage purposes.

The American Food Pulp Corporation of 140 Nassau street, this city, has increased its capital stock from $25,000 to $50,000.

The Barrett Co. has acquired the plant of the All-Roofing Co., at East St. Louis, Ill., and will enlarge it and make it the central manufacturing plant for the Central West, of the company. The company which it has acquired is capitalized at $100,000 and has on hand contracts for the government approximating $1,000,000. Vice-President Thomas M. Rianhard and W. D. Harris, of New York, acted for the Barrett Co. in negotiating the deal.

Announcement has just been made by the Associated Paper Dealers in Paper Mill Supplies of New York, that they have decided to hold their annual banquet on February 6, 1918, at the Hotel McAlpin. It is customary for this organization to hold its annual banquet on the night previous to that on which the American Paper and Pulp Association holds its banquet at the Waldorf Astoria.

The old Wrapping Paper Manufacturers' Association has been dissolved and has been succeeded by the Wrapping Paper Manufacturers Service Bureau. The new organization, it is planned, will have a broad scope for its aims and will be operated in such a manner that it will conform to all of the requirements of the government, at the same time, affording numerous benefits to its members. All of the wrapping paper manufacturers will be eligible for membership in the new organization, for it is planned to operate on such a scale whereby it will be able to distribute knowledge throughout this branch of the industry. Economic questions of every sort will be thrashed out for the good of all concerned. The president of the new Service Bureau is William L. Edmonds, and the vice-president is Frank L. Moore. Practically all of the concerns that were affiliated with the old association are members of the new one.

The Printers and Publishers Paper Co., of Chicago, has been incorporated to manufacture and deal in paper, paper stock, strawboard, etc.

According to reports just given out, before the end of this month, 15,000 tons of newsprint will have arrived in this country from Newfoundland for the Publishers' Paper Co., Inc. It is understood that a shipment is en route at the present time, destined for this city. Another steamer, it is said, will soon be headed for New Orleans, La.

George A. Galliver has been elected vice-president and general manager of the American Writing Paper Co., and will have charge of the company's mills in Holyoke, Mass.

Among the important incorporations of the week was that of the National Aniline and Chemical Co., Jersey City, under the laws of the State of New Jersey, with a capital of $18,959,500. The incorporators are: I. F. Stone, W. W. McIlray, and W. Becker, all of New York. As is known, this concern is one of the strongest chemical and dye combinations in the world at the present time.

Word has been received from Norwich, Conn., that James J. Boyd, for some time manager of the Uncas mill, of the American Straw Board Co., at that place, has resigned. Mr. Boyd also handled the New England agency in sales, for the company.

The local trade has been interested in an announcement by Frank E. Dunaway that he will sever his connections with Steffanson and Co. at the end of the year. Mr. Dunaway is well known to the trade here, having seen service with several of the local pulp concerns.

Interest is being shown in the news that work has been started on the new mill for the National Paper Products Co., of San Francisco, at Stockton, Cal. As is known this concern is controlled by the Zellerbach company, which will gain an important addition when the new mill is completed. The plant will be erected at a cost of $1,000,00, and will make chip board, corrugated board, and other materials required for the production of paper cans, paper tubes, corrugated cases, etc. It is understood that a 70-ton paper machine, capable of producing a sheet of a width of 115 inches, trimmed, has been ordered and that other apparatus will be secured to make possible the production on a large scale of fibre cases. It is unquestionable that this is one of the largest enterprises in the industry that has ever been started on the Pacific coast.

The Taylor-Logan Company, Papermakers, of Holyoke, Mass., has a new vice-president and manager of sales, Raymond H. Wight, of Springfield. Mr. Wight is regarded as one of the best known men in New England paper making circles. Mr. Wight was head of the sales department of the American Writing Paper Co. since 1910.

Three sales managers of paper companies in Toronto, who have been before the exemption tribunal have had their claims to exemption from military service disallowed and have entered appeals against the decisions which will be heard next month.

PULP AND PAPER NEWS

R. S. Lazier, of the Lazier Paper Mills, Belleville, Ont., which are now turning out straw paper, was in Toronto last week on business. The company recently built a new concrete dam on the Moira river, which has greatly increased the water power of the plant.

I. H. Weldon, and S. F. Duncan, of the Provincial Paper Mills Co., Toronto, have returned from a visit to the plant of the Port Arthur Pulp and Paper Co., at Port Arthur, Ont., where splendid progress is being made toward the completion of the new sulphite plant. It is expected that one of the digesters will be in operation next month.

J. Frater Taylor will retire from the Presidency of the Algoma Steel Corporation, Sault Ste. Marie, Ont., at the end of the year and will be succeeded by W. C. Franz. Mr. Taylor, who is a former President of the Spanish River Pulp and Paper Co., will still retain his association with the Soo industries in an advisory capacity as Chairman of the Lake Superior Corporation.

Charles V. Syrett, manager of the Victoria Paper and Twine Co., Toronto, has returned after spending a few days in New York and other cities on business.

The corporate name of the Abitibi Timber Co., Limited, The organization has extensive holdings of pulpwood and other timbers in Northern Ontario.

Sergt. Wm. H. Bateson, who was superintendent of Hunter-Rose Co., Limited, printers and publishers, Toronto, before his enlistment for military service, was killed in action recently. He was a member of the 5th Field Ambulance and had been overseas since April, 1916.

The new electric power plant of Orillia, which is located at Swift Rapids, on the Severn river, has been formally opened. It succeeds the one at Ragged Rapids, which has done duty for many years. Being a mile and half further down the river, the change was necessitated by the construction of the Trent railway canal. The new dam has forty-five feet head of water while three electric generators installed will give a total of 5,400 horse-power. Orillia is now on the lookout for a pulp mill and other new industries.

The pulp and paper mills in the Thorold district are faced with a shortage of coal and one plant has only two days supply last week. Representatives of the industries paid hurried visits to the mines in order to speed up transportation.

Gummed Papers, Limited, of Brampton, have just installed a new, fast running, up-to-date machine for the manufacture of gummed stock and have also secured the services of Charles Hiltz as superintendent. He has had a wide experience in various mills in the United States. Gummed Papers are now turning out a better product and more of it than before Their lines consist of stay papers, gummed paper and cloth tape, cloth lined papers and water proof papers.

Dextrine Products, Limited, Brampton, Ont, report that their new plant is progressing nicely and they are getting a good deal of business for gums and pastes and hope, after the present contracts for Arabol gum, have run out, to secure much more business from the box makers Great quantities of Arabol gum are being imported into Canada for which most of the Canadian box makers have contracted until the first of the year. Dextrine Products say in regard to the duty on dextrine that it is impossible for a Canadian manufacturer to make dextrine itself as the duty on dextrine is only ten per cent plus the war tax, while the duty on starch, the raw material from which dextrine is made, amounts to about sixty per cent. The company are, therefore, not trying to make dextrine for the market but are making what they use themselves and are converting the balance of their product into pastes and gums on which the duty is much higher.

Practically every employee in the wholesale paper houses and the offices of the various paper and pulp mills in Toronto has subscribed for Victory Bonds. The companies in many cases have made liberal concessions in order to swell the amount which each individual could take. The various paper companies, wholesale houses and stationery firms contributed several pages of advertising in the Toronto dailies urging that every effort be put forth by the public to raise the allotment of seventy-five million dollars which sum, it is hoped, will be secured in Toronto.

C. A. Kilkerson, of the Spanish River Mills, has offered the use of his fine set of mechanical and electrical engineering books to other employees who wish to study these subjects.

The Spanish River News is printing some fine pictures, which show the excellent condition of the three mills of the company.

David Howlinson, better known in Espanola as Scottie Howlinson, died of wounds received in France on Sunday, 16th of September, 1917. He was well known and much thought of while in Espanola and his friends here will be sorry to hear of his death.

Rolph-Stone-Clark, Ltd., have sent out a very nice announcement of the consolidation of Rolph and Clark, Ltd., with Stone, Ltd., of Toronto.

Messrs. A. J. Odell and W. H. Kelly, of Montreal, have taken positions in the research department of the Abitibi Power and Paper Co.

Mr. Edward Norton of the paper makers department at the Iroquois Falls mill, and Margaret Devine, of Haileybury, were united in marriage at St. Mary's-the-Lake, North Bay, on November 2nd, by the Rev. J. A. Monahan. After a short honeymoon trip to eastern points Mr. and Mrs. Norton returned to take up their residence.

John McLennon, of the mechanical department at the Abitibi Power and Paper Co., has returned to his old home in Scotland.

C. W. Graham, who for many years has been in charge of the manufacturing end of Buntin, Gillies and Co., wholesale paper dealers and manufacturing stationers, Hamilton, has purchased the interest of David and James B. Gillies, who are retiring from the firm with which they have been identified for a long period.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Manufacture of Fuel from organic matters in Waste Sulphite Liquor; according to Strehlenert's Patent.—Svensk Pappers-Tidning No. 15, 1917. A contract has been closed between the Strehlenert Co. Fredriksstad Sweden and Enso Mill in Finland and Dubrowka Mill in Russia for the manufacture of fuel from Waste Sulphite liquor.—J. Hedalen.

Influence of Perennial Lupin on the Development of Forest Trees. K. Nawratil, in Centralblatt Gesanite Forstwesen **42,** (1916), 178-180, through Bull. Internat'l Inst. Agri. **8,** No. 7 (July 1917), 1008-9. Experiments begun in 1901 in Bohemia showed that spruce grew better on plots with lupin than without. Table. —J.N.S.

Paper-making in Southwestern France. Vice-Consul Asel D. Beeler, Bordeaux. U. S. Commerce Repts. through Trade & Com. Weekly Bull. **17** (1917), p. 1102. Twenty mills employed 1,500 workers on paper and board. The plants need modern machinery and water powers should be developed. Raw material can be brought from colonies.—J. N. S.

Research and Industry. By Arthur D. Little. Paper **20,** (1917). No. 26, p. 13-17,21. The relation of research to industrial development. The chemistry of cellulose.—E. K. M.

Federal, State, and Private Forest Fire Fighters Exchange Valuable Ideas. West Coast Lumb., **33,** (1917), No. 385, pp. 29-31.—Various types of apparatus and methods are discussed.—H.N.L.

Aspen as a Permanent Forest Type. J. M. Fetherolf, J. of For., **15,** (1917), No. 6, pp. 757-60.—H.N.L.

Establishing a Plantation of Conifers on the Prairies. A. H. Lougheed, Can. For. J., **13,** (1917), No. 9, pp. 1281-2.—What trees to plant and how to plant them. —H.N.L.

Experiments in Kiln-Drying Southern Pine Lumber. J. E. Imrie, S. Lumb., **85,** (1917), No. 1145, pp. 24-25.—Description of new kiln. Illustrated.—H.N.L.

Timber Resources of Northern Manitoba. J. A. Campbell, Can. For. J., **13,** (1917), No. 9, pp. 1305-6., also Pulp and Paper, **15,** p. 1007.—H.N.L.

Production of Alcohol from Sulphite Waste Liquor. Paper Trade J., Vol. 65, (1917), 13, p. 40. (From Pap. Ztg.) A discussion as to whether it is the cellulose of the wood or the organic non cellulose material, principally lignine, present in wood from which sugar is extracted.

The sulphite lye contains in all 1.4 percent sugar of which 4 per cent. is fermentable. Excessive temperatures and SO_2 prevent fermentation.—E. K. M.

Bleaching Ground Wood. Paper Trade J., **65,** (1917), No. 13, p. 40. (From Papier Ztg.) The bleaching of ground wood is performed by dropping a solution of sodium bisulphite on the web as it is collected on the roll of a wet machine. The bisulphite solution is allowed sufficient time to effect its bleaching and the peculiar taste which is occasionally imparted to filtering material of ground wood is thereby entirely or partially dispersed.—E. K. M.

The Station for Forestry Research in Denmark.— Bull. Internat'l Inst. of Agri., **8,** No. 7 (July 1917). 969-970. Management, organization, support, equipment, research subjects.—J. N. S.

PATENTS.

(From U. S. Patent Office Gazette.)

Paper. Edward Thomas, New York, N. Y. U. S. Pat. 1,243,180. A porous paper comprising a sizing deposited on its fibres without water materially altering its porosity. Shellac and wax are used for sizing and coating.

Static-Electricity Dissipator for Paper Webs or Sheets. Howard M. Barber, Stonington, Conn. U. S. Pat. 1,244,015. An electric printing press starter, a static electricity dissipator for the web comprising or moistener, an electromagnet controlled by the starter and means operated by the electromagnet for moving the moistener in to and out of contact with the web.

Paper Cup. George J. Bohlman, Medford, Mass., assignor to American Water Supply Co. of New England, Boston, Mass. U. S. Patent 1,245,313. The conical cup herein described composed of a blank of approximately quadrantal form having two tabs extended outwardly from one of its straight edges, and contiguously disposed, and having a line of severance between said tabs which is approximately radial to the center about which the blank is bent to form the cup, one of said tabs being adapted to be bent into conical form and to be arranged at the inside of the apex of the cup, and the other tab adapted to be bent into conical form and to be arranged at the outside of the apex of the cup.

Method of and Apparatus for Disintegrating and Decoloring Paper. Stewart Waring, Evanston, and Herbert A. Hauptli, Chicago, Ill. assignors to Sears, Roebuck & Co., Chicago, Ill., U. S. Patent 1,245,839. A process of desintegrating and deinking printed paper consisting in agitating a body of water containing a quantity of printed paper, saponifying the oily or fatty elements of the mixture, introducing air into the mixture during the agitating and saponifying operation, and removing the resulting foam.

Process of Manufacturing Paper Pulp. Tsuneya Marusawa, Fukuoka, Japan, U. S. Patent, 1,244,525. A process of manufacturing paper pulp characterized by the use as cooking liquor ammonium bisulfite or its mixture with sulfurous acid or a soluble sulfite, maintaining acidity of from 0.4 to 0.8 normal and effecting the cooking by two stages of preliminary heating and final heating.

Means for Securing Paper-Rolls to a Roll-Shaft. Charles C. Krohn, Hartford, Conn. U. S. Patent 1,244,865. Means for holding a roll of paper consisting of the combination of a shaft, means fastened on said shaft and adapted to project into one end of a roll of paper, a hollow rigid cone with a tapered interior and tapered exterior adapted to project into the other end of the roll of paper, and a hollow yielding cone with a tapered exterior and cylindrical interior adapted to be moved along the shaft and to be screwed into and to be contracted by engagement with the interior wall of the first mentioned cone for securing both cones to the shaft.

The Markets

CANADIAN MARKETS.

Toronto, November 26th. — There was certainly something doing in the market situation last week when there were reductions in the prices of wrappings, kraft, tag manila and board. This week there are no alterations in figures to be presented other than in the quotations for greaseproof and parchment papers which have dropped a cent all around. All other lines are holding firmly just now, but it would not create a surprise if there was a softening in the rate for book papers. Plants are not running to anything like capacity and one mill is reported to be turning out kraft wrappings. If there is a cut of a cent or so in book papers, this will probably result in coated papers, also undergoing a decrease.

The market on all grades of paper is draggy, and all firms are holding back. Trade with the wholesale paper houses is being disturbed to a considerable extent, as are numerous other lines of business, by the activity on behalf of the Victory Loan and the election excitement. It is not probable that things will get down to a normal basis until the beginning of the year, and what will happen then no one can foretell. There seems to be an impression in the air that, with the sagging prices for pulp of all kinds and the fresh quantities which are coming on the market, there will be a corresponding diminution in the figure for paper of all kinds, but the downward tendency will not be very great, it is thought.

Tissue and toilet plants are quite busy and have enough orders on hand to carry them well over into the new year. Next month the mills and warehouses will get ready for their annual inventories and when all is summed up, it is expected that, although there has been a decided falling off in orders since June, the results will be greater in the aggregate than were shown in 1916, which was a remarkably good year.

All interest in the newsprint arena is practically over until after the 20th of January next. The announcement from Ottawa last week that the two and a half cent rate has been continued until after the elections created no surprise and, in fact, was generally looked for by the knowing ones. There are many Liberal and Independent papers, which are giving a whole-hearted support to the Union Government and the administration was long-sighted enough not to take any action on the print paper question which would arouse their antipathy or invite unfavorable criticism. After the contest it will not matter so much and, if the large publishers are then aroused by the new and altogether likely increased figure which will go into effect, they can blaze away for little harm can result. In the meantime conscription, Victory Loan, and placing successful candidates in the field are about all the problems that the authorities at the Capital want on their hands. Paper investigations are a minor consideration to winning victories at the polls.

A conference was held last week between the book paper manufacturers and the members of the trade and class section of the Canadian Press Association with a view to arriving at an amicable understanding so that it would not be necessary for the investigation by Commissioner Pringle to proceed. No very great progress was made in the matter of an adjustment. One manufacturer states that the request of some of the publishers was most unreasonable and, under no circumstances, could their demands be met. However, it is probable that concessions may be made on both sides and the difference split on certain lines of paper. Another conference will be held this week, after each mill has seen its customers individually and ascertained what can be done. All hope of an agreeable basis has not yet been abandoned.

The mills are not anxious for the probe to go ahead, not that they have anything to hide or are fearful of the searchlight, but the great drawback with them is that the proceedings instituted would take weeks and weeks to complete. In the meantime, business would suffer as jobbers and others would be inclined to hold aloof, in the hope that the final decision would be in the nature of a reduction. In the case of newsprint that commodity is a national necessity but, in book papers, only one-tenth of the output of the ninety tons a day turned out in Canada is sold to publishers and the remainder goes into the hands of the jobbers, catalogue houses and others, who can ease up on orders if they are so disposed. The daily paper must make its appearance, but with book papers there is no such emergency.

Business with the trade and class publishers must be good as one well-known monthly will in a few weeks be issued weekly, another monthly will come out twice a month and another wide known publication, which has been printed on half tone news will use book paper as formerly, but the subscription price, of course, ascends accordingly.

The manufacturers of pulp and paper have troubles aplenty just now outside of the price question and government investigation. Coal is very scarce and the supply which many mills have on hand is very limited and creating grave anxiety. Transportation is very unsatisfactory and green hands on the various lines increase the delays while shipping facilities seem generally tied up. Little or no satisfaction can be secured from the roads and car loads shipments frequently get lost for days and even weeks. Then conscription is likely to take some of the better and more experienced help away and, until the appeals are disposed of, it will not be known how bare some plants have been bereft of labor.

The groundwood market continues dull and there is no change in the sulphite situation. It is reported by some authorities that prices will not go any lower as, with the growing scarcity of labor and the high wages offered to men to go to the bush, as much as sixty dollars per month and board being the figure presented by some firms, the tendency will be to increase the figure for the finished product.

In the rag and paper stock world there is no change and as far as twine is concerned there is a feeling that jute and cotton will go a great deal higher although there has been no jump in quotations during the past fortnight.

Not only in the paper mills, but in the office and selling ranks is conscription going to play an uncertain element. One leading firm stated this week that its sales manager, who happened to be a single man, was conscripted. The exemption tribunal would not listen to the plea that his place was necessary. In this particular instance the officer has been equipped with several years training and experience, and a new man is difficult to find. Changes in selling representatives often means poorer service, loss of business, errors and delays of various kinds. While every paper manufacturer is in favor of making united effort to win the war, and the trade has done as much as any other industry in sending men to the front, still, when legitimate operation and output are interfered and business interests suffer, a different complexion is placed upon matters. Certain small paper dealers have been given an extension of two or three months to sell their businesses and then get into khaki. The unfairness of the whole thing is seen in the fact that no one wants to buy a business during this period of uncertainty and disturbance and, when it is known that a dealer must sell within a certain time, what will he be able to realize for his stock? Any probable purchases knowing that the owner simply has got to dispose of his goods will wait until the last moment and then offer a mere bagatelle for his interests. A forced deal means heavy loss to the seller.

The movement to form a paper jobbers' association in Canada is taking shape and encouragement is being received by the promoters from many who have up to the present been indifferent. It is likely that something definite will be done in the organization line before many days. The new association will not be a price regulating body but one for mutual interest and support and the correction and elimination of certain trade abuses, which have been growing for many years.

The following prices prevail f.o.b. Toronto.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 3	$7.25
xBook papers (ton lots), No. 3	$7.50 to $8.25
xBook papers (carload), No. 2	$9.35
xBook paper (ton lots), No. 2	$9.50 to $10.10
xBook papers (carload), No. 1	$9.50
xBook paper (ton lots), No. 1	$9.75 to $10.50
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$11.75
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$13.00 to $15.00
†Grey Browns	$4.25
†Fibre	$6.75
†Manila, No. 1	$6.75
†Manila B	$4.50
Tag Manila	$6.25
Unglazed kraft	$8.25
Glazed kraft	$8.25
Tissues, bleached	$1.25 to $1.80
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Natural greaseproof	13c
Half bleached greaseproof	15c
Bleached greaseproof	16c
Genuine vegetable parchments	22c
Bleached white glassine	16c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

xx)—Less twenty per cent.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$33.00 to $36.00
Sulphite, easy bleaching	$65.00 to $70.00
Sulphite, news grade	$50.00 to $55.00
Sulphite, (bleached)	$110
Sulphate	$80.00

NEW YORK MARKETS.

New York, Nov. 26.—What seems to be considered the most gratifying feature of the chemical pulp trade at present is the steady growth of export business. Comparatively large tonnages of both bleached and unbleached sulphite, easy bleaching and soda pulp, of both domestic and Canadian origin are being regularly shipped to South American countries, Italy and England and even Japan. In fact, the foreign trade in pulp has lately expanded fully a hundred per cent over that of a year ago and indications are that it is destined for even greater development. It is said authoratitively that the demand from export sources is the most steadying factor in the market at present and that, if pulp manufacturers had not been afforded this outlet for a portion of their product, prices on sulphite and other grades of chemical pulp would have dropped far below current levels. It was learned to-day that a lot approximating 300 tons of easy bleaching has recently been exported to Japan. This pulp was of Scandinavian make and had been held on the docks in this country for a considerable length of time and, fortunately was shipped out just prior to the Baltimore fire. In general, the market continues somewhat quiet, with practically no perceptible changes in price or in demand. Trade factors assert that the lack of interest displayed by consumers merely is a reflection of the slow demand for paper and the difficulties under which paper mills are operating at present. That this situation will undoubtedly change for the better in the near future seems to be the unified opinion of domestic pulp producers and importers of Scandinavian fibre. With prices on paper reverting to more normal levels, indications are that the consumption will again assume



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usual proportions shortly and when the paper situation rights itself the demand for chemical pulp will automatically broaden. For the moment, however, buying is on a limited scale and paper makers generally claim to have their current requirements amply covered. The majority of domestic pulp plants are keeping well engaged in supplying contract customers and are managing to accomplish quite some business in the open market as well. It is understood that newsprint mills are absorbing fair tonnages of unbleached sulphite and other paper manufacturers are buying odd lots of pulp here and there, but there is a total lack of snap in the trading which by precedent should be an outstanding characteristic of the trade at this time. Reports were heard of some producers offering domestic unbleached sulphite at $50 a ton and lower, but local mill agents asserted that pulp of this grade of good quality could not be obtained in sizable lots at below $55. Bleached sulphite is moving here and there in a limited way at 5¼ to 6 cents per pound, depending on the quality and amount of pulp involved.

The fact that the newsprint mills are operating at capacity, is aiding in keeping the consumption of mechanical pulp close to normal. This class of paper makers are buying freely and in good tonnage, while demand from other sources rules inactive and of little importance. There is a fairly steady undertone prevalent in the market and quotations are being fairly well sustained. Another factor that has been somewhat instrumental in keeping up quotations has been the curtailment of production caused by the difficulty in getting pulpwood at grinding plants and the scarcity of fuel. These two are expected to be among the chief things that will buoy the market higher very soon.

The rag market is said to be devoid of any notable developments that might have an effect on demand or values. Manufacturers for the most part were noticeable by their absence insofar as any active buying was concerned and what few sales were put through were invariably made at the weaker level of quoted prices. Reports which have been received by local dealers warrant the belief that a much brighter future is ahead for the rag market. From various country regions come advices that the collection of rags has undergone unusual diminishment and, with conditions as they now exist, there seems little hope for improvement in this connection. There is virtually no incentive to rag collectors under prevailing circumstances. The prices offered are considered low, demand lax, and the consequence is that a large number of collectors are forsaking the rag industry for other lines of endeavor, when they are assured of definite and more substantial wages. One large local grader of rags stated that he just finished a test with 30 cars of mixed country rags and found that he was operating at a loss on all the mixed rags purchased at about 2½ cents a pound. An encouraging report was received from the Middle West to the effect that roofing rags are stronger by at least $1 a ton, while the reds and blues are bringing up to $3 a ton more than has beeen the case up to lately. Apparently mills in that section have been more fortunate than those in the East in securing supplies of fuel and are operating at a greater capacity than manufacturers in this part of the country. It has been learned on apparently good authority that the writing paper mills, particularly in New England, re experiencing more demand for their product than for some time past and that orders which they have booked for future deliveries of paper are very satisfying. Some dealers foresee in these reports, a certain improvement in demand for the better grades of rags. While it is a known fact that some of the manufacturers have good-sized supplies of rags on hand, there are no heavy accumulations at the mills and, once the consumption assumes more normal proportions, there seems every likelihood that buying will automatically increase.

There is still a pronounced lack of interest in old rope and business continued on a restricted scale during the week. Dealers say that manufacturers flatly refuse to buy except in small lots here and there for which they have immediate need. The large majority of consuming plants are out of the market altogether and are neglecting offerings regardless of the prices sellers ask. Quotations are still about in the neighborhood of 6 cents.

Waste papers have been comparatively dull. Market factors say they have not witnessed paper stock so inactive at this season for many years. Ordinary box board plants and paper mills are rushing through the last few deliveries of their product for the holiday trade and are taking large commitments of raw material. At present, however, the fuel situation has forced many plants to close down and those still operating are doing so only on part schedule. The result is that sellers of paper stock have few directions in which to seek orders and with a multitude of offerings leveled against a small number of manufacturers, the latter naturally are slashing prices on what limited amounts of stock they are purchasing. Folded news appears to be one of the weakest items in the trading and good flat stock in pressed bales are reported available at very low figures. Krafts are in but slight demand, while heavy book stock has changed hands at as low as 1¼ cents per pound.

The situation in that paper market in general is unchanged, activity being noted only in newsprint. It is apparent that buying is being done on a hand to mouth basis and this will continue for some time. On many lines, concessions can be obtained. The feeling appears to be that, in view of all sorts of taxes and different burdens, buyers would sooner wait and pay more if the market goes up than buy now for stock.

George Cahoon Fined.

The latest news on the newsprint situation is that the Newsprint Manufacturers Association has been dissolved. George Cahoon, president of the Laurentide Co., and Geo. H. Mead, president of the Spanish River Mills were fined for violating the Sherman Act An interim price of 3 cents in the United States for roll news, in carload lots, has been set for three months, ending April 1st. This decree is apparently the result of the recent visit of the Canadian Paper Controller, Mr. R. A. Pringle, to Washington. It is likely to hold for the period of the war, but can be changed if conditions warrant. The "2½ cent basis" announced by one mill has evidently been misinterpreted. It does not mean 2½ cent paper.

(The following quotations are nominal).

Imported bleached sulphite, ex-dock, N.Y.	8 to 9c
Domestic bleached, f.o.b. mill	5½ to 6c
Imported unbleached sulphite, ex-dock, N.Y.	5 to 5½c
Domestic unbleached sulphite, f.o.b. mill	2¾ to 3½c
Foreign easy bleaching, ex-dock, N.Y.	5¼ to 5¾c
Domestic soda bleached, f.o.b. pulp mill	4 to 4½c
Mitscherlich, unbleached	5¼ to 6c
Scandinavian kraft	5¼ to 5½c
Groundwood pulp, f.o.b. grinding plant	$35 to $36

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Do., in boxes, per box	75c
Flax Sewing Twine, 3 to 8-ply, per lb.	58c
Mattress Twine, per lb.	1.00
Hy. Jutes, 2, 3, 4, 5, 6, 8-ply, per lb.	17c to 21c
Fine Jutes, 2, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	20c to 25c
Unfinished Hemps, 3, 4, 5, 6, 8, 10, 12-ply per lb.	30c to 40c
Yucatan Twine, per lb.	27c to 30c
Finished heavy jutes, (sizes 201, 301, 401, 501) per lb.	22c to 25c
Fine finished jutes, (sizes 202, 204, 208), per lb.	35c to 40c

POETRY VS. FORESTRY.

Visitor—Wonderful old oak; I wonder what you would say to me if you could speak?

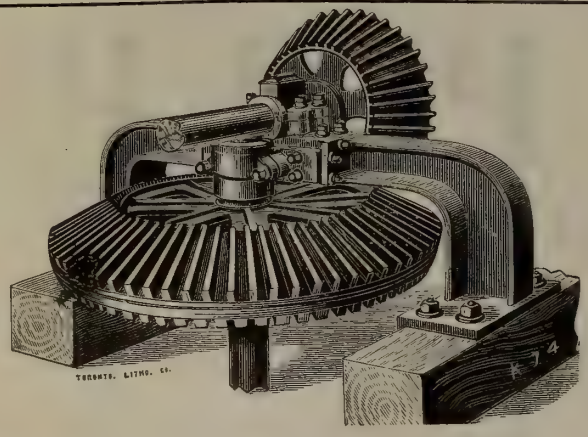
Gardener (visibly affected)—Well, my guess is: "I beg your pardon, Miss, but I am a beech."

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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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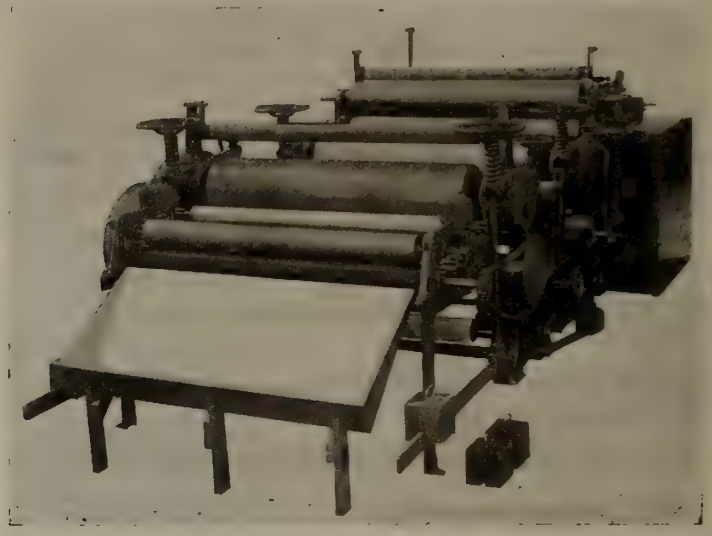
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EDITORIAL

THE OBSEQUIES.

Last week the Newsprint Manufacturers' Association passed away. There was no lament in the newspapers over the passing of an organization that has done much for the benefit of the whole pulp and paper industry. During its lifetime it had to contend against the united efforts of the most powerful body (possibly excepting the Government) in the United States. The administration of the affairs of the deceased seems to be in the hands of the Federal Trade Commission. The situation gives this body the trusteeship for a time of one of the most important industries on the continent; the newspaper publishing business depends on the paper mills, and the publishers admit that they are the most important and esential business in the country.

The press hails in headlines the probable saving of thirty or forty million dollars, or one cent a pound saved on what would have to be four-cent paper, and inconspicuously refers to the greatest and perhaps the only real benefit to the country at large; namely the life insurance afforded many small publishers. And this help is to come through a control of middlemen's prices.

Frank P. Glass, chairman of the Publishers' Paper Committee, says the foundation is now laid for permanent co-operation between the paper makers and their customers. The attitude taken appears much like squeezing a man out of business and then offering him a job. Perhaps this is an invitation to come to a friendly basis of understanding. We should like to see every paper maker on the best terms possible with his customers and believe it will eventually be so, but there is a lot of bitterness to be forgotten first. The resentment at being made the goat for the benefit of a few powerful pullers is surely pardonable. We have a strong suspicion that there are many more millionaires in the newspaper business than in the newsprint business. The paper maker will soon be asking the publisher for permission to make a living, as things are going.

The agreement is referred to as being a great step in the federal control of business during the war. What it really shows is that when the daily papers want anything for their own benefit they get it. They are well aware of their power and influence. If they can save money by fair means, they should do so, but it isn't right to choke an industry to get it under guise of a public necessity, when the public really needs relief in regard to food, fuel and clothing.

Another point that might seem strange to one unacquainted with newsprint legislation, that is, the "three months after the war" clause. How it must delight the pulp and paper makers of Europe, who will be directly benefitted by such a chance to slip in while the American paper maker is bound and gagged.

A GOOD JOB, WELL DONE.

The committee on organization, formed at the preliminary meeting last week, has drawn up by-laws for the Woodlands Section of the Canadian Pulp and Paper Association. There is no association in Canada, nor anywhere else, that could more appropriately create the necessary opportunity for men to gather and discuss the growing, harvesting and use of trees.

At the meeting of the Commission of Conservation last week, it was emphatically stated that Canada MUST take better care of her resources and conserve and develop for the good of our people, the farms, forests, fisheries, mines and water-powers of the Dominion. The seriousness of the situation, especially in regard to the forests, has been beclouded largely by the habit of North Americans to proclaim that what they have is the "biggest in the world." In many cases this is only true of their heads.

The time has now come, when instead of blowing about how much wood we have, real effort is being made to find out the facts of the case and base future boasts and predictions on knowledge. Senator Edwards put the matter quite tersely when he said, "If there is a country whose public men know nothing whatever about their own land, that country is Canada." The trouble is that too much dependence has been put on wild and exaggerated statements of ideas and assumptions without basis in fact.

At the meeting of the commission referred to, a certain gentleman was given close and respectful attention while he told of his observation and experience and his conclusions therefrom. Now his experience was long and his observation perhaps was careful, but without measurements and a record, there is no basis for intelligent action. The province of New Brunswick has made a fine beginning in the survey of forest lands. Quebec has done some work, and it has already been helpful in keeping pseudo-settlers off from non-agricultural land. Under the auspices of the Commission of Conservation and with cordial and invaluable assistance from the Laurentide Company, an investigation of the growth of wood on cut-over lands

has been started. Forest protective associations are doing a wonderful work in guarding our wealth in wood, and the great advantages of co-operative effort in matters pertaining to woodlands have been definitely and conclusively proved.

One good end has been accomplished in one place, and another desired object has been attained somewhere else, while several localities or groups may be struggling with difficulties that someone has already met and overcome. As yet there has been no satisfactory opportunity for gathering together the men, on whose brains and training and initiative the future productivity of the forest depends, to exchange ideas and experiences. There is an almost infinite number and variety of subjects to be taken up by a Woodlands Section. As we remarked last week, the perpetuation of the pulpwood supply in Canada is absolutely essential to the life of the pulp and paper industry here, and other parts of the Empire and of the world are, and will continue to be, very largely dependent on Canada for the products of the forest. We believe that the most important step yet taken toward the conservation, reproduction and proper utilization of the forest resources of the Dominion is the formation of the Woodlands Section of the Canadian Pulp and Paper Association.

The committe in charge of the organization, Ellwood Wilson of Laurentide Company, Walter N. Kernan of Donnacona Paper Company, and Angus B. McLean of Bathurst Lumber Company, are to be congratulated on the simple and comprehensive manner in which they conceive the situation, as shown in the following by-laws:—

Article 1—Name.—This organization shall be called "Woodlands Section of the Canadian Pulp and Paper Association."

Article 2—Objects.—The objects of the section shall be to stimulate interest in more economical and efficient methods of production and utilizaton of raw materals for pulp, paper and lumber industries; and to provide means for the interchange of ideas amongst its members, and to encourage investigation of woodlands problems.

Article 3—Membership.—There shall be two classes of members: (1) Members—entitled to vote; (2) Associate Members—not entitled to vote.

1.—Qualification for members.—Any person who occupies or has occupied an executive woodlands position in the pulp, paper and lumber industry; anyone occupying a subordinate position in the pulp and paper industry who has had a satisfactory technical education; anyone who, though not having had a technical education, has special qualifications and experience.

2.—Qualifications for Associate Members. — Any person who will support and assist the aims of the Woodlands Section, and who, by virtue of his qualifications, is likely to further the work of the Section. These members may attend all official meetings of the Section and have the right to take part in discussion.

Note.—Any Associate Member, who in the opinion of the Council satisfies the requirements of Class 1, may become a voting member.

Article 4.—Election of Members.—Each candidat for membership shall be proposed and seconded b members of the Woodlands Section, a majority whose votes shall be necessary for election. Th Council shall also decide as to which class of me bership the candidate is entitled.

Article 5.—Dues.—The annual dues for voting me bers shall be $3, and the annual dues for associa members, $2, payable at the beginning of the calend year. A member who has not paid at the end of th yera is suspended.

Article 6.—Officers and Council.—The officers sh be a Chairman and a Vice-Chairman elected for on year by the members of the Woodlands Section the annual meeting; a Secretary-Treasurer who sh be the regular Secretary of the Canadian Pulp an Paper Association.

The Chairman and Vice-Chairman with three cou cillors elected from the Woodlands Section shall co stitute the Council of the Woodlands Section. Th present Council shall serve for one year, at the en of which time three Councillors (in addition to Cha man and Vice-Chairman) shall be elected as follow One to retire at the end of one year, one to retire the end of two years, one to retire at the end of thr years. Retiring members of the Council (other tha Chairman and Vice-Chairman) are not eligible to re election as Councillors for one year, although th shall be eligible for the office of Chairman or Vic Chairman.

The Chairman, Vice-Chairman and Secretary-Trea urer shall perform the usual duties of these office The Council as a whole shall pass on membership, a tend to business between meetings and have gener charge and control of the affairs of the Woodland Section.

Article 7.—Meetings.—The Woodlands Section sha hold at least two meetings annually, if possible. Th annual meeting for the election of officers shall b held at the time of the annual meeting of the Ca adian Pulp and Paper Association. Two addition meetings may be held as determined by the Counci Upon the invitation of a member of the Council, non members may be admitted to the meetings of th Woodlands Section. Meetings are to be called i writing, and every member is to receive due notic of any meeting with a program of what is to tak place.

The proceedings of the Woodlands Section, upo the approval of the Council, may be inserted in th official journal of the Section.

Article 8.—Amendments.—The constitution may b amended by the members present at any regular mee ing of the Association by a two-thirds vote of th members present, provided that such amendment sha be submitted to the members in a printed or writte notice at least thirty days before such meeting.

The Egyptians forced the Israelites to make brick without straw. The Dominion Government want paper makers to produce paper without wood. Woods men are required to come out of the woods for mili tary examination, sometimes 50 miles. Perhaps send ing one doctor to the camp would not be compatibl with other restrictions to the industry.

Waste Sulphite Liquor and its Conversion into Alcohol

By DR. ERIK HAEGGLUND.

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Europeans have long practised the art of using waste material. Except for the meat packers, the inhabitants of this continent have made little progress in this direction. We haven't had to; being prosperous we are prodigal. Frugality will be a bigger factor in our future. The waste from sulphite pulp manufacture can be turned to account. The article which begins in this issue is the most comprehensive yet issued on the Manufacture of Alcohol from Waste Sulphite Liquor.—Editor.

INTRODUCTION.

The manufacture of alcohol from waste sulphite liquor stands in the foreground of interest in chemical technology at the present time. If up to now this branch of chemical industry has not attained the importance which was expected of it several years ago the cause may be traced to two sources, namely the difficulties in the manufacturing process on the one hand and the difficulty of finding an adequate market for the finished product on the other. As regards the first mentioned cause, since the essential conditions for the production of good commercial results are known these difficulties in the essential points will be overcome. This will be completely reported upon in this paper. As to the second point there is cause to hope that the obstacles will be removed in the near future. The solution of this question is of great national economic importance. A comprehensive discussion of the sulphite liquor alcohol question has been started by the Swedish Government so that we may conclude that the stagnation which has momentarily occurred in the development of this industry will be of short duration.

The idea prevails widely that under favorable conditions for alcohol this industry will prove profitable and economical only for such plants as produce easy bleaching pulp and that, on the contrary in the case of plants which manufacture "strong" or "hard" pulp as a specialty this industry cannot be carried on economically. On the basis of the investigations of the author this conclusion must be contested.

In order that these difficulties, which can be overcome in the operation of a sulphite liquor alcohol, may be properly understood and in order to be able to remedy them properly it is above all things necessary to know the composition of the sulphite liquor and to find the conditions under which the content of fermentable sugar in the liquor can be carried as high as possible.

It is therefore fitting that before we enter upon a detailed description of the manufacture of alcohol from waste sulphite liquor we devote our attention to the composition of the waste sulphite liquor and the details of the sulphite cooking process, especially the conditions governing the increased yield of fermentable sugars.

1. Composition of Spruce

We have learned of the chemical composition of spruce mainly through the work of Klason (1) and his co-workers.

Klason gives the average composition of spruce as follows:

Cellulose	about 53%
Carbohydrates	" 14
Lignin	" 29
Protein	" 0.7
Resin and Fat	" 3.3
	100.0%

This analysis of wood does not agree very well with the results of other investigators, for example, Griffin and Little (2) who have given the cellulose content as 66.3 per cent. or Schultze (3) who gives 58.1 per cent. cellulose and 41.9 per cent. lignin. The figures of the latter investigator fail in that they give no other carbohydrates than cellulose although without doubt such are actually present. As an explanation of this it must be added that opinions differ concerning the question as to whether the carbohydrates and sugars freed from the wood originate with the cellulose or the lignin. Griffin and Little have probably also included in the figure 66.3 per cent. the carbohydrates soluble in water or weak, dilute acids. It will be proved later than these carbohydrates for the most part do not come from the cellulose as products of hydrolysis.

The nitrogen content of spruce is of great interest in the fermentation of waste sulphite liquor. Accord-

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Note:—For the benefit of readers who may not be familiar with the metric system of weights and measures and with foreign money values the following equivalents may be used: for 1 kilogram (kg), 2.2 lbs.; 1 liter (l), .264 U. S. gals.; 1 metric ton, 2205 lbs.; 1 ounce, 28.35 grams; 1 kg. per sq. cm., 14.225 lbs. per sq. in. (practically 1 atmosphere); 1 Mark (German), 23.8 cents; 1 Crown (Norway and Sweden), 26.8 cents.

(1) Beitrage zur Kenntniss der chemische Zusammensetzung des Fichtenholzes. Berlin 1910.

(2) Schubert, Die Cellulosefabrikation, 1916, p. 5.

(3) Beilstein 1, p. 1078.

ing to the work of Gottlieb (4) the nitrogen content of spruce is 0.04 per cent. while Schroeder (5) and his co-workers give from 0.15 to 0.26 per cent. and Klason (6) gives 0.1 per cent.

Under these conditions one would expect a certain amount of nitrogen in waste sulphite liquor in the form of ammonium salts or amino acids. Nevertheless Frank (7) was unable to find any nitrogen while Stutzer (8) gives the amount of nitrogen per liter of waste sulphite liquor as 0.03 g.

The nitrogen content is therefore disputed. So much, however, is certain, that the amount of nitrogen in the liquor which can be assimilated by the yeast is insufficient for fermentation. As the author has found, the content of phosphoric acid or phosphoric acid salts which are unquestionably necessary for fermentation, is infinitesimal.

2. The Composition of Waste Sulphite Liquor.

In the production of sulphite pulp, as is known, a solution of calcium bisulphite is used, which under pressure at high temperature — up to 140°C — acts as a solvent on the so-called incrusting substances of wood. Regarding the composition of the calcium bisulphite solution — technically known as "liquor" — "free" and "combined" sulphurous acid are spoken of. By "combined" SO_2 is meant that portion of the sulphurous acid which is combined with the calcium as calcium sulphite, $CaSO_3$. The difference between the total and combined sulphurous acid is designated as "free SO_2". The composition of the liquor, that is, the amount of free and combined SO_2 will vary.

At present the effort is made to use a cooking liquor with a high free SO_2 content, therefore a composition similar to the following is pretty generally used, at least in plants which do not cook Mitscherlich pulp by the usual method.

2.5 to 3 per cent free SO_2 and
1.1 to 1.2 per cent combined SO_2

In cooking, 3½ to 4 times as much liquor, by weight, as bone dry wood is used.

In cooking, two important methods are used which differ from each other in the method of heating, that is, either with indirect or direct steam. Since the first method was recommended by Mitscherlich, one of the pioneers in the field of the sulphite industry, the process is sometimes called "Mitscherlich cooking", although the latter really means a cook in which a temperature recommended by Mitscherlich, that is a low temperature, is used. Cooking with direct steam has found wide acceptance especially in America and is called after its inventors the Ritter-Kellner Process.

In indirect cooking care is ordinarily taken that the temperature does not go above 135°C while in direct cooking the maximum temperature must in general be from 140 to 145°C. Depending on the strength of the liquor and the nature of the wood the cooking time is in the case of the first process, from 15 to 20 hours and with the Ritter-Kellner Process from 10 to 12 hours.

The composition of the waste sulphite liquor varies considerably. An analysis by Wichelhaus shows the following constituents:

Dry residue	82.8350 g per liter.
(a) organic	68.3440 " " "
(b) inorganic	14.4910 " " "
H_2SO_4	3.4340 " " "
Combined SO_2	5.8420 " " "
Free SO_2	2.5600 " " "
Cl	0.0240 " " "
SiO_2	0.0024 " " "
Fe_2O_3 and Al_2O_3	0.0102 " " "
CaO	7.1760 " " "
MgO	0.0040 " " "
Alkalies	0.1192 " " "

On the basis of his investigations on the composition of spruce Klason (9) has calculated the constituents formed in waste sulphite liquor per ton (metric) of bone dry pulp, assuming a yield of 45 per cent. pulp, as follows:

Lignin	644.0 kg.
Carbohydrates	311.0 "
Protein	15.5 "
Rosin and Fat	73.0 "
SO_2 combined with lignin	235.0 "
CaO combined with lignosulphonic acid	102.0 "
Total	1380.5 "

3. Sulphite Cooking and Sugar Formation.

The first investigations on sulphite cooking were conducted by Harpf (10). These investigations were concerned with the content of the liquor in SO_2, CaO and MgO as well as the amount of organic and inorganic matter during a typical so-called Mitscherlich cook, that is, cooking for a long period of time (about 80 hours) at a low temperature (Max. 125°C). It was concluded from the investigations that the SO_2 content decreases more rapidly than the corresponding Ca content (75 and 23 per cent. respectively). Klason (11) early referred to these facts and gave the correct explanation of the matter. Contrary to Mitscherlich and Frank (12) who supposed that SO_2 withdrew the oxygen from the "incrusting substances" and also contrary to Harpf, (13) who held the opinion that during the cooking an oxidation as well as a reduction by SO_2 took place, Klason showed, in agreement with Lindsey and Tollens, that during the cooking process the greater part of the sulphurous acid combined with the organic substances to form sulphonic acids. In fact Lindsey and Tollens (14) were able to separate a substance from the waste liquor whose composition apparently agreed in general with the formula

$$C_{26}H_{30}SO_{12}$$

and which, as mentioned above, was considered by Lindsey and Tollens (15) as a sulphonic acid of the organic residue $C_{26}H_{30}O_{10}$. However, Klason has shown, contrary to Lindsey and Tollens, that lignin

(4) Journ. prakt. Chem. (2) **28**, 385 (1883).
(5) According to Schwalbe, "Die Chemie der Cellulose", p. 439.
(6) Loc. Cit., p. 439. (Note 1.)
(7) Loc. Cit., p. 425.
(8) Papier Ztg. **35**, 3930 (1910).
(9) Papierfabrikant 7, Festheft, P. 27 (1909).
(10) Papier Ztg., 1891, p. 1845.
(11) Tekn. Tidskr. Afd. Kemi och Bergsvetenskap, 1893, p. 49.
(12) Papier Ztg., 1887. See also Frank in Kichner.
(13) Beitrage zur Kenntniss der chem. Vorgange beim Sulfitverfahren, Dissertation Bern, 1892.
(14) Lieb. Ann. **267**, 341 (1891).
(15) Cf. Pedersen, Papier Ztg., 1890, p. 422.

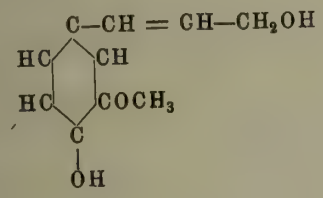
will combine with about 36 per cent. SO_2 instead of with 13 per cent. as Lindsey and Tollens found. Later (16) the same investigator also showed that coniferyl alcohol on heating with acid sulphites gives sulphonates, just as does lignin, which behave very similarly, chemically, to the sulphonates which are found in waste liquor. Klason (17) was able to obtain lignosulphonic acid as the barium salt of the composition

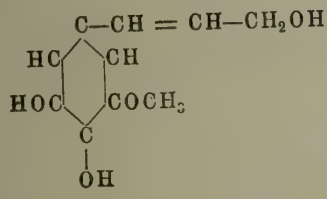
$$C_{40}H_{44}O_{17}S_2Ba.$$

From this it would follow that the composition of lignin would be aggregates of the unit $(C_{40}H_{42}O_{11})$.

On the basis of the striking similarity to coniferyl alcohol the assumption was also made that lignin is essentially a condensation product of coniferyl and oxyconiferyl alcohol.

Coniferyl alcohol according to Tiemann has the following constitution





and so according to Klason (18) oxyconiferyl alcohol with the accepted formula (the second one above).

must stand in the same relation to lignin as glucose to starch.

With regard to the formation of the sulphonic acid it is shown that two molecules of SO_2 are taken up by the lignin forming a true sulphonic acid so that a very stable compound results. Moreover, lignin can combine loosely with two additional molecules of SO_2, of which one is so loosely bound, that it can be partially titrated with iodine at ordinary temperature, while the second molecule which is combined somewhat more strongly, can be liberated quantitatively by evaporation and removal from the waste liquor with barium chloride. Klason assumes on grounds which we will not go into detail, that three ethylene groups enter into the lignin complex of which two cause the more stable addition of $2SO_2$ to the lignosulphonic acid while the remaining third binds the SO_2 somewhat more loosely. The fourth SO_2 molecule is sa weakly bound by an active carbonyl group (aldehyde or ketone group) that the sulphurous acid can be split off at ordinary temperature.

The sulphurous acid corresponds to two molecules of CaO.

(16) Svensk Kemisk Tidskrift, **9**, 133, (1897).

(17) Arkiv. for kemi, mineralogi och geologi 3. M. 5 u. 6.

(18) Tekn. Tidskr, Afd. Kemi och Bergereutenskap 1908.

The above explanation also throws light on the well known fact that waste liquor which is allowed to stand in the air, throws down a greater or less amount of sulphurous acid in the form of calcium sulphate.

These properties of waste sulphite liquor are referred to because they provide an explanation for some phenonema which occur in the naturalization of waste liquor and which will later be gone into detail.

The formation of sugar is of especial interest in the working up of waste liquor in alcohol. As has already been mentioned there are still differences of opinion concerning the origin of the sugars. It has long been known that cellulose can be converted into sugars in greater or lesser amounts by hydrolysis with concentrated as well as weak acids. Braconnot (19) in 1819 had observed that cellulose could be converted into sugar quantitatively with 90 per cent. H_2SO_4 and later Arnould (20) found that by the same method considerable amounts for fermentable sugars could also be obtained from wood. Later these experiments were confirmed by Flechsig (21) with concentrated H_2SO_4 and followed up and patented by Classen, (22) Ekstrom (23) and others. Hydrolysis of cellulose with concentrated hydrochloric acid has recently been accomplished by Willstaetter (24).

That cellulose or cellulose-containing substances can also be converted in sugar by dilute acid has been shown by the experiments of Melsens(25)who used 3 to 5 per cent. H_2SO_4 at high temperatures (up to 180°C), as well as by the investigations of Payen (26) who worked with 10 per cent. HCl. Later this matter was further worked out by Simonsen, (27) Koerner, (28) Even and Tomlinsen (29), and Neuman (30) using 0.4 to 0.8 per cent. H_2SO_4 at 7 atmospheres pressure and a working time of 10 to 30 minutes. At this point the detailed investigations of Ost (31) and his co-workers must be given prominence. These investigations first established the fact that cellulose can be quantitatively converted into sugar, a fact which was questioned by certain investigators, as well as that the product of hydrolysis is dextrose alone, a subject concerning which there was considerable difference of opinion.

The following question still remains. Does the sugar formed in the sulphite cooking processes come from the cellulose, the lignin or from the other carbohydrates? In order to answer this question we must first determine how cellulose behaves toward SO_2 and calcium bisulphite solutions at the temperature which

(19) Ann. de Chim. et Phys., **12**, 172 (1819); **25**.

(20) Compt. rend. **39**, 807 (1854).

(21) Zeitschr. f. physiol. Chem. **7**, 523 (1883).

(22) R. R-P. No. 118868, 118542 to 118544, 121889, 123911.

(23) D. R-P. No. 193112.

(24) Ber. d. deutsch. Chem. Ges **46**, 2401 (1913).

(25) Dingl. Polty. Journ. **138**, 426 (1855).

(26) Loc. Cit. **185**, 308 (186%).

(27) Zeitschr. f. angew Chem. **11**, 195,962, 1007 (1898).

(28) Diss. Dresden 1907. Zeitschr. f. angew. Chem. **21**, 2350 (1908).

(29) Chem.-Ztg. 1909. Rep. p. 659.

(30) Diss. Dresden 1910.

(31) Chem. Ztg. **34**, 461 (1910). Cf. Muhlmeister, Beitrage zur Hydrolyse u. Sulfolyse der Cellulose, Dess, Hannover (1913).

come into question. Concerning this there has been very little investigation. However, all that can be drawn from these investigations does not seem to point to the conclusion that cellulose is the sugar forming substance. Ekstrom (32), who supports the opinion that the sugar originates with the cellulose, has nevertheless been unable to produce a proof of it as the following experiments carried out by him show:

Experiment No. 1.

Cooking Time 6 hours at 140°C.

No.	Composition of liquor. Free SO_2 per cent	Ca O per cent	Sugar from the cellulose per ce nt.
1.	1.60	0.7	0.33
2.	2.66	0.64	0.41
3.	3.14	2.46	0.58

Experiment No. 2.

Cooking time 7 hours at 140°C.

No.	Composition of liquor Free SO_2 per cent	CaO per cent	Sugar from the cellulose per cent
1.	1.60	0.70	0.6
2.	3.14	2.46	0.9
3.	3.84	0.56	0.99

From the foregoing it follows that at the most one per cent. of the cellulose is converted into sugar*.

In reality under favorable conditions the fermentable sugars amount to about 14 per cent. of the cellulose and the question must be asked as to where the other 13 per cent. comes from (†).

Now Klason (33) has shown that about 10 per cent of the weight of the cellulose can be extracted from the wood with hot water as wood gum. Of this, 25 per cent. (5 per cent. of the cellulose) is made up of xylose which is unfermentable. The remainder, 15 per cent., is wholly sufficient for the material for the formation of the fermentable sugars in the sulphite liquor. One would expect an even greater yield of fermentable sugar than is obtained (14 per cent.). However, during the process of the cook a portion of the sugars formed are broken down forming various organic acids.

Another circumstance points to the conclusion that the sugars found in the liquor are from the carbohydrates of the spruce, soluble in water. Lindsey and Tollens (loc. cit.—Notes 4, 15) have already shown that fermentable sugars found in the liquor consist of mannose, galactose and dextrose. Krause (34) has examined two liquors prepared by different processes but of the same sugar content. The analyses are:

	Ritter-Kellner Per cent.	Mitscherlich Per cent.
Total sugars	1.47	1.48
Pentoses (Xylose)	0.41	0.47
Mannose	0.48	0.48
Galactose	0.01	0.01
Fructose	0.25	0.28
Dextrose	——	trace.

Klason (35) has found mannose and galactose in addition to xylose.

We have learned through the investigations of Ost and Wilkening (36) that cellulose gives only glucose (dextrose) on hydrolysis.

On these grounds it is well established that the sugar in the liquor in no wise comes from the cellulose portion of the wood. It should however be pointed out at this time that under special conditions which occasionnally occur in sulphite cooking, for instance, very high temperatures, sulphuric acid formation, cooking down low, etc., the cellulose may be attacked, in which case a portion will be broken by hydrolysis.

The amount of fermentable sugar in the liquor is very dependent upon the cooking. Up to the present time very little has been published concerning this and at present no reasons are known for the varying sugar contents. This is nevertheless of the greatest interest in the obtaining of alcohol. In this connection the author has carried out an extensive investigation concerning the formation of sugar in a large number of cooks. The results of this investigation will be given here.

If the formation of sugar is followed during the progress of a cook it is found that for the first six or eight hours only a very little sugar is dissolved. Of this amount only a small portion is fermentable. The larger proportion is made up of pentoses which are more easily dissolved than the fermentable sugars. On longer cooking the amount of sugar increases rapidly. The rapid increase in sugar formation is mainly dependent upon two factors. the raising of the temperature and the composition of the cooking liquor. In addition the water content of the wood has also considerable influence. Probably the penetration of the fresh liquor into the wood chips is influenced by their moisture content. It has been proved that the sugar formation is greater with wet than with dry wood.

The author has studied a large number of cooks in connection with sugar formation. In this investigation all the cooks in which all the conditions except

(32) Svensk. Kem. Tidskr. No. 7 (1909).

(*) It may be questioned whether even this amount comes from the cellulose. In the experiment sulphite cellulose was used. This is never wholly free from incrusting substances. According to recent investigations carried out by Richter (Wochenbl. f. Papierfabr. 45,2021 (1914), this may vary between 2 and 8 per cent. (also see Schwabe, Cellulose, p. 575ff). It cannot therefore be concluded that the sugar comes from the cellulose. The author has carried out some experiments to hydrolize pure cotton cellulose. The sugar obtained under the same conditions as in cooking sulphite cellulose never exceeded a higher yield than about 0.1 per cent. of the cellulose. With pure SO_2 solution of higher concentration Neuman (loc. cit.) was able to obtain a higher yield from cotton. In comparison with other acids however the yield wes very low.

(†) It must be pointed out here that so great an amount of the liquor is held back in the digester by the pulp that nearly half the sugars produced for the manufacture of alcohol are lost.

(33) Arkiv. for Kemi, minerologi och geologi **3**, No. 6 (1908).

(34) Chem. Industrie **29**, 217 (1903). Schwalbe, Cellulose, p. 419).

(35) Loc. cit.

(36) Loc. cit,

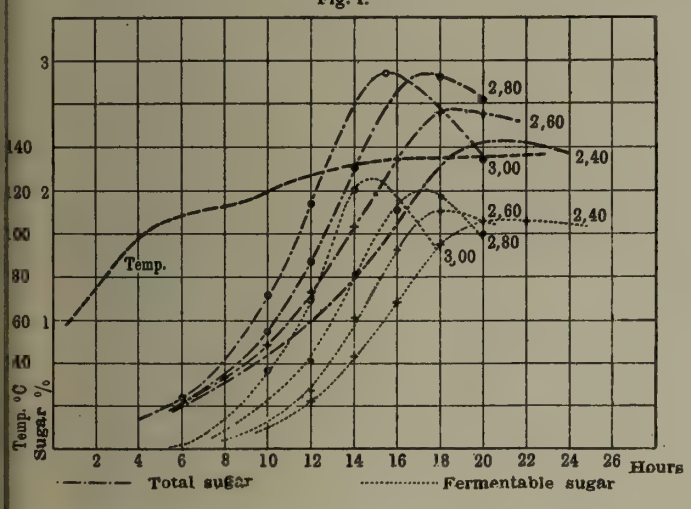
one, namely the concentration of the free SO_2, were kept the same were grouped together. Since in general practice the rise in temperetaure in the digester is constant, attention is directed to the influence of the cooking liquor on the formation of sugar.

In this investigation the concentration of the combined SO_2 was 1.15 per cent. while the free SO_2 amounted to from 3.00 to 2.40 per cent. The maximum temperature of the cook was 135°C and the heating of the digester was controlled in such a manner that at the end of four to five hours the temperature was 105°C. The rise and progress of the temperature during the cook is clearly seen from the curves in Fig. 1.

The determination of sugar was carried out according to Glassman's (37) method. A known amount of liquor was boiled with an alkaline mercury solution, the precipitated mercury filtered out, dissolved in nitric acid and titrated in the well known manner with ammonium sulphocyanate. I have shown graphically in Fig. 1 the progress of the sugar formation under four different conditions. Thus curves for the sugars determined by reduction as well as for the fermentable sugars were plotted. Each of these was determined by interpolation from the results of a large number of experiments which really differ only slightly from one another.

Upon studying these curves it can be seen that the higher the concentration of the free SO_2 the quicker the sugar goes into solution. With a liquor composition of 1.15 per cent. combined SO_2 and 3.00 per cent. free SO_2 the maximum sugar formation is reached at a

Fig. 1.



cooking time of 15 hours, while the highest yield of sugar with a liquor with 1.15 per cent. combined SO_2 and 2.40 per cent. free SO_2 is obtained ofter a cooking time of 18 to 24 hours*.

But another thing must be noted at this point: The higher the concentration of free SO_2 the sooner and quicker will be the sugar obtained be in turn decomposed. The final quantity of sugar is also dependent to a great degree upon when the cook is ended. From the figure it seems to follow that the fermentable sugars are more easily decomposed than the pentoses (xylose). Luckily it happens that in general with a higher free SO_2 content the digester "goes faster" that is, the cook ends earlier. Upon this basis the cook is often completed at the same time as the maximum amount of sugar is obtained.

That the formation of sugar decreases quickly with a higher free SO_2 content is in complete agreement with the claims of theory. The velocity of inversion or hydrolysis is dependent upon the amount of free hydrogen ions in the solution. The concentration of H-ions depends only upon the amount of "free" sulphurous acid. If with a constant total SO_2 content the combined SO_2, that is, the amount of lime, is increased, the velocity of sugar formation must decrease. This was observed by the author.

The above mentioned liquor composition favorable for the formation of sugar is also according to experience in practice, especially suitable for the production of good sulphite pulp. It has been a well known fact for some time that the cooking proceeds best when the free SO_2 content is about 70% of the total SO_2 (38).

(37) Ber. d. deutsch. Chem. Ges., **39**, 503 (1906).

(*) It must be pointed out here that the SO_2 should not be removed by partial relieving before the end of the cook.

(38) Compare Klason, Arkiv. for. kemi mineralogi och geologi **4**, No. 1 (1910).

THE MOST COMPREHENSIVE CATALOG.

The Chemical Engineering Catalog is of the greatest interest and importance to the Pulp and Paper industry. This is really a reference work on equipment and material, covering the needs of a great variety of industries in a standardized single volume, the catalogs of some 250 firms, all carefully arranged and cross indexed. It is published under the direction of a committee appointed by the American Institute of Chemical Engineers, the American Chemical Society and the Society of Chemical Industry. It contains 517 pages, 9 x 12 inches, fully illustrated, and is an excellent piece of book-making.

A valuable service of the publishers, is the free information bureau, which is maintained for the benefit of those find it dificult to know where to go for something they can't find in the line of apparatus, machinery, power equipment, chemicals and other factory supplies.

This catalog of catalogs is published by the Chemical Catalog Co., Inc. No. 1 Madison Ave. New York, and will be loaned, free of charge, for one year to any firm or individual having legitimate use for such a work. The present edition is 8500 copies. It is one of the most useful volumes that could be conceived of, as anyone who has tried to find an article in bunch of miscellaneous catalogs will readily understand.

The Pulp and Paper Magazine expects to find the catalog very useful in answering many questions that come in from our readers.

A PAPER CLASS FOR PRINTERS.

St. Bride's Foundation Printing Schools, says the World's Paper Trade Review, is to have a class which deals with paper, a matter of prime importance to all printers. In order, therefore, that the training of the apprentice may be as practical and as complete as possible, this new class will afford instruction in various phases of the subject such as buying, judging, testing, sizes, technical terms, stock-keeping and so on. If a printer hopes to be something more than a machine he requires to know all these facts about paper.

THE NEWSPRINT AGREEMENT.

By R. W. JOLLY.

The prosecution of the Newsprint Manufacturers Association and of its six members and a Chicago banker for alleged violation of the Sherman Anti-Trust Law, was practically concluded at a session of the United States District Court before Judge Mayer last week. An agreement with the Government was signed and approved by the court and a decree will be entered to carry out its purpose. By the terms of the agreement, the price of newsprint from January 1 to April 1, next, is not to exceed 3 cents a pound, and, after that, it will be fixed by the Federal Trade Commission, but with the proviso that the decision of the Commission shall be subject to revision on appeal to the United States Circuit Court. It has been reckoned that the newspaper publishers of the country will save between $30,000,000 and $40,000,000 next year through the new agreement.

"Far reaching," was the way in which the decision of the court was described by all parties concerned. One of the principal results of the prosecution was the fact that it was mutually agreed by the members of the Newsprint Manufacturers Association that their organization was to be dissolved. Following upon the action of the government in dissolving the Bureau of Statistics of the book paper manufacturers, this is thought to be indicative that a keen insight will be maintained into the operation of the various trade organizations not only in the paper industry, but also in other trades. Opinions have been expressed that, regardless of the exact status of the newsprint men and their organization, so great was the popular prejudice against them, propagated through the press of the entire nation, that they had comparatively little change. There was but one outlet, it is thought, to plead guilty and trust that, in this way, the court would show leniency. For, to have fought the case any further than it had gone, would not have altered the results, while it might have brought more severe consequences on those directly concerned. As it was, four of the defendants were fined $2,500 each, and one was fined $1,000.

VINCENT AND MORRIS OPEN MONTREAL OFFICE.

Vincent and Morris have recently opened an office at 248 St. James Street, Montreal, as consulting and commercial engineers specializing in Pulp and Paper work. They inform us that they are equipped to design and build special machinery of various types. Both members of the firm are well known to the trade. Mr. Vincent was connected with Messrs. Drummond McCall Company, and Canada Foundry Company, Limited. Mr. Morris was previously with the Canadian Allis Chalmers Co., Ltd., and later was the Canadian representative of Keystone Lubricant Company, Philadelphia.

PROPER PRINTING.

The Mortimer Company, Ottawa, have just issued a very attractive booklet entitled "Typography That Tempts Trade." Built around a story on the expressiveness and individuality of type, the booklet should help to elevate the tone of printed matter. Mention is also made of the proper selection of the paper so as to have a harmonious result. Typical advertisements are shown as set in good and in poor taste.

HE KNEW HIS BUSINESS.

In a wordy war between one of the largest purchasers of paper and a paper salesman, the latter "carried the day" and got an order of no mean proportions, by knowing his business. The dispute arose over the tremendous advance in price of paper.

The salesman stated that some apparently simple things have a way of becoming complex if you look beneath the surface. "Most people", he said, "if asked to tell the ingredients of comon paper, or how it is made, would talk about trees, rags and wood-pulp, and give a more or less correct dissertation on the process of manufacturing. Few people not engaged in manufacture of paper know that it is largely a chemical proposition, and that quality, color and finish depend on acids and aniline products; and that price of chemicals, the commonest and most needed included, has multiplied many times since German exports were cut off. Casein, alum and soda-ash, all necessary ingredients, have increased 300% to 600% in cost since outbreak of the war. Rosin, used for sizing in paper making, has more than doubled, and the same may be said of bleached sulfite and of satin white. Commno bleach increased 700%, and is almost unobtainable. Aniline colors, used to give the proper hue, formerly cost 40 cents a pound. They are now $20 a pound." These facts properly stated intheir proper place secured the order.—The Wall Street Journal.

FINLAND TRADES MOSTLY WITH RUSSIA.

During last year the amount of import from Russia came to 593.3 million marks of 61.7% and from other countries all together 368.5 million marks. Of the exports 470.7 million marks or 92.3% fell to Russia and to other countries only 26.7 million marks. Of the whole trade turnover the Russian share came to 72.9% as compared with only 28.1% in 1913.

Only an appreciable quantity of the whole of the country's export — 7.7%, has gone to the West European countries, whereas formerly they took 2-3 of the country's export. The reason for this is that it has been impossible to send Westwards the most important exports, such as timber, paper and farmproduce. In the great timber branch of trade, it is only the export of fire wood to Russia which shows a rise. The amount has been nearly three times what it was before the war, a circumstance which from a national economic stand point was hardly very desirable. The export of pulp and paper has also sunk somewhat in comparison with 1913 but has however owing to the high prices commanded by these articles, next to war industries, contributed most to the accumulation of roubles in Finland.—Mercator.

THOROLD'S INDUSTRIAL EVENING CLASSES.

The classes which are being held in the high and public schools, show some slight increase in numbers, but there is still much to be desired in this respect. The total number in regular attendance, however, shows a marked improvement over that of last year, which was about forty, whereas the present total is fifty-five. This number does not include the dressmaking class, which numbers about fifteen. This class is a new departure from last year, which has proved very successful.

Reversing Motor Drive for Platers

By W. T. EDGELL, General Electric Company.

The following article, describing a service test, shows the advantages of a direct connected motor over the belt shifting device. The test as represented by Fig. 3 was taken by the Taylor-Logan Company's engineer, Mr. Walter Hamilton. The entire test was over a 2½ hour period but it was not practical to show the entire curve so we have simply taken a piece of it as represented by the illustration. The entire test of 2½ hours shows that 66 books were turned out on the direct connected motor driven plater, and 64 books on the old type plater. However, this photographed production does not represent the entire superiority of the direct connected motor over the old belt shifting drive. The same crew was used when both were taken and the direct connected drive was so much faster that the crew was not large enough to keep the plater busy so the plater operator was idle a considerable time waiting for the girls to make up the books for him.

What Taylor-Logan proposed to do after the test demonstrated this fact was to increase the number of girls on each crew and fill in the blank spaces of the direct connected curve with books.

Another point in favor of the direct connected motor is that when the plater is not producing, the power consumption is zero, while with the belted equipment, the curve, Fig. 3, shows that it takes about 3 Kw. This is entirely a friction load and with several platers in the mill, this would amount to considerable in a year.

The reversing motor plater drive shown in Fig. 1 is one of four equipments installed in a New England paper mill. The equipment is very simple, rugged, compact, and economical.

The cut shows one of these reversing motors driving a heavy Norwood plater with 42″ face by 18″ diameter rolls revolving at about 17 R. P. M. The duty is fairly heavy, the rolls ordinarily making ten reversals per minute except on the corners where sometimes thirty reversals are made per minute. To do this work there is installed a 15 H.P., phase wound motor direct connected to the plater shaft through a rigid steel coupling. A small drum type controller which is convenient to the operator's right hand controls the magnetically operated switches on the control panel. Fig. 2 shows the panel. On this panel there are three contactors. Two of them are line contactors; the third is used to cut out a section of resistance after the motor has reversed. A simple mechanical relay actuates this contractor only after the motor has started to turn in the reverse direction. The installation is extremely simple and to operate it requires merely a slight movement of the operator's wrist.

Tests have been made that show the superiority of

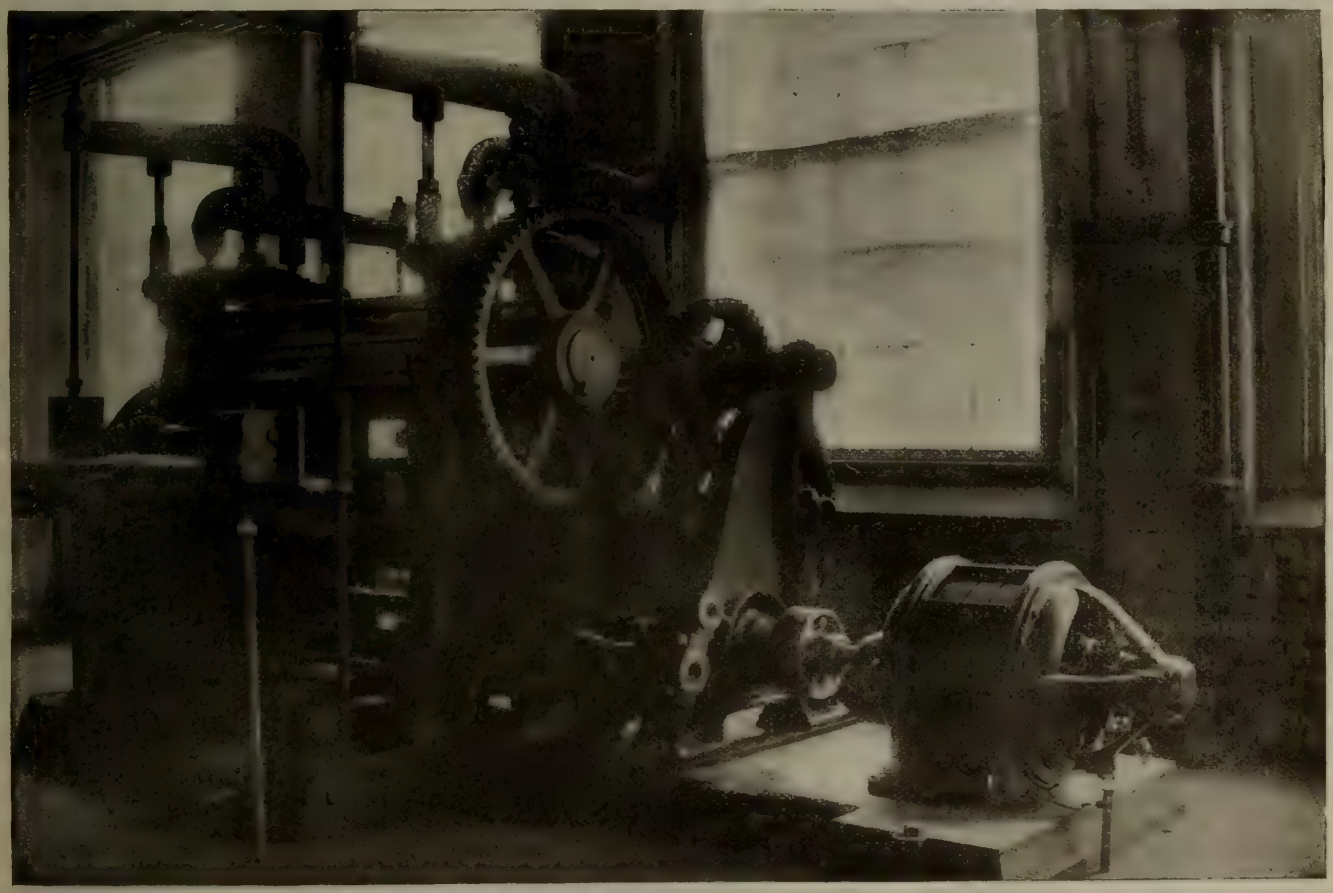


Fig. 1.—Reversing Motor drive on plater in Taylor- Logan mill, Holyoke, Mass.

the reversing drive over the old belt shifting equipments. The tests were made on 36″ Norwood platers having 17″ diameter rolls. Comparison is made between the performance record of a 15 H. P. direct connected reversing motor and the record of a 15 H. P. constant speed motor driving the plater through the ordinary belt transmission, the reversals being obtained by shifting the belt. The records were made during a 2½ hour run, during which time the plater was on papetrie, bond and vellum. A papetrie book consisted of 255-25″ x 31″ sheets, a bond book of 270-22 x 34″ sheets and a vellum book of 260-22″ x 32″ sheets. Fig. 3 is a section of the photographic record of the tests from which the following data was obtained.

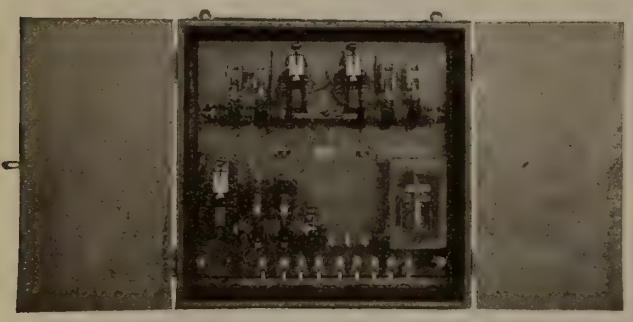


Fig. 2.—Magnetically operated switches on control panel.

	Reversing Motor	Belted Motor
Total number of books in 2½ hr. run	66	64
Bond	47	46
Papetrie	9	9
Vellum	10 small papt.	9
Total Kw. hours	21.14	24.5
% of time plater idle	53.2	36.6
Power used to drive machine when idle	0.	274 KW

It is evident, therefore, that with a given output the power bill is diminished by 13.7%. In the recorded tests the total work done by the direct connected motor was not permitted to exceed the work done by the belted motor. A simple calculation will show, however, that assuming 35.6% of the total time used up in unavoidable delays, it would still have been possible within 2½ hours to finish sixteen (16) more books on the reversing motor equipment than was possible with the belted equipment. This represents a production gain of 25%, or with the same power consumption production may be increased 18%.

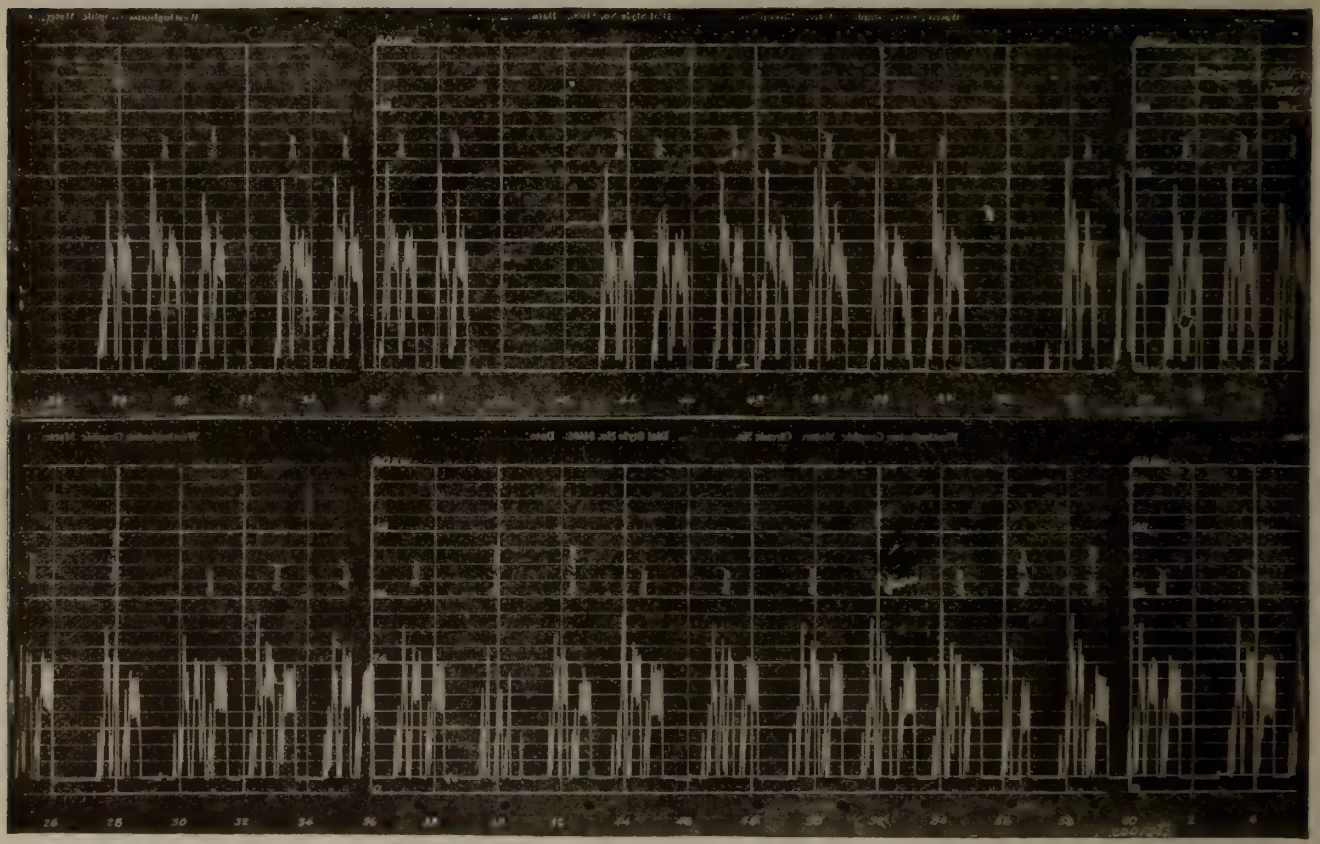


Fig. .—Part of curve record of the tests runs.

MELLON INSTITUTE NEGLECTS PAPER.

In the report of the Mellon Institute given in "Science", April 27, 1917, no researches on pulp or paper are listed in the 113 investigations which have been undertaken. The absence of pulp and paper problems in the work of this institute, which covers such a wide field of industries, is very striking.

IN NORWAY.

Farmand says: "There is no change in the market either for mechanical or chemical. Vestfoss Cellulosefabrik, the Sulphite Mill at Hafslund, and Ranheim Paper Mill are reported to have stopped work for the time being, the market situation and shipping difficulties being given as reason in each of the cases."

Determining the Strength of Pulps.[1]

Some time ago we set out in this laboratory to determine by the ball mill method the rate of the increase in strength of different pulps with the increase in the time of beating them.

In starting on this work it was found that several changes from the standard method as outlined by the committee were necessary. To determine the strength of pulp in an unbeaten condition, it was found that while certain grades could easily be cleared by hand, others, particularly those which had been dried on the dryers of a machine, were difficult to get entirely clear. Accordingly we built a clearing machine. This consisted of a small copper tank six inches in diameter and twelve inches high; inside of this was a smaller cylinder with neither top nor bottom and which acted as a midfeather. A two-bladed propeller on a small shaft was set inside of this and run at a very high speed, say 1,200 to 1,500 r.p.m. It was found that this machine cleared the pulp very well in about thirty minutes without slowing it to any appreciable extent.

Although we built this machine for the foregoing purpose, we found it was essential in our further investigation. This was due to the fact that with some pulps after they had been beaten in the ball mill for a certain length of time, say forty minutes, the sliding action of the stones tended to roll the pulp into small knots which could not be cleared by hand. The sheets made from pulp in this condition gave a very low test due to the fact that the rolls or knots added much to the weight of the sheet without adding anything to the strength, and also made the surface of the sheet so uneven as to make a fair test impossible. Consequently it was found necessary to clear these pulps and the clearing machine was found very effective for this work.

Another departure from the standard method was found necessary. Obviously sheets made from pulp beaten different lengths of time shrink to different sizes; also different pulps and different samples of the same pulp beaten for the standard time shrink to sizes which vary sometimes as much as 15 percent. Therefore, for the purpose of true comparison, we deemed it advisable to cut all the sheets to a given size before weighing and testing them, and adopted the size of 4 in. × 7 in.

Except that the mill used had a speed of 66 r.p.m., instead of the standard 60 r.p.m., the other details of the standard method were followed. The percent dry of the pulp as given by the manufacturer was assumed to be correct and found satisfactory. Cars were sampled in accordance with the method of taking samples to determine the dry weight.

A large part of our work was done on a domestic sulphite pulp which we will call Grade B. From the car sample usually six 100—gram samples were kneaded up with 1 liter of water each. One of these samples was cleared and made into sheets without beating. The other five samples were beaten in the ball mill, adding a second liter of water to each one, for ten, twenty, thirty and fifty minutes respectively. It was generally necessary to clear the forty and fifty-minute samples in the clearing machine and sometimes even the thirty-minute sample. The sheets were made on a 7 in. × 9 in. mould, pressed in a letter press for two minutes and dried on a rack at room temperature over night. The sheets were then pressed, trimmed, weighed and tested. The test on the unbeaten sample varied from 51 to 70 points. The increase in test for the first ten minutes beating usually amounted to about 30 points; for the second ten minutes the increase ran from 10 to 20 points; for the third ten minutes, 5 to 10 points; for the fourth ten minutes 0 to 10 points; and for the fifth ten minutes, from the forty minute to the fifty minute sample, usually decreased, sometimes as much as 10 to 12 points. Out of sixteen cars tested only four failed to decrease in strength an average of only 2 points each. The forty minutes tests on these sixteen cars varied from 103 to 136 points.

The unbeaten test of an imported pulp which we will call Grade A, was found to be much lower, about 30 to 35 points. The increase in strength was regular for each ten minute increment up to fifty minutes, giving an increase of 13 to 15 points for each added ten minutes of beating. The rate of increase decreased somewhat in the next ten minutes, and the pulp gave the highest test at sixty minutes beating. After sixty minutes further beating caused the strength to fall off rapidly

Grade R gave a test quite similar to that of Grade B. The unbeaten test was 63 which is fairly high. The increase in strength was quite rapid at first running up to practically the maximum in thirty minutes. This was about 100 points. The test at forty minutes was about the same, while at fifty minutes the test dropped off 10 points.

The test on Grade NY was almost identical with that on Grade B. The falling off in strength came after forty minutes beating.

A similar test run by the Department of Tests of the American Writing Paper Company on Grade C gave a falling off in strength only after ninety minutes beating and a high test of 129 points.

From these tests the following points are to be noted:

(1) The unbeaten test of a pulp is no indication of the maximum test after beating. For example, take two lots of Grade B pulp which both gave an unbeaten test of 51; the maximum test after forty minutes beating on one lot was 104, on the other lot 132. Further one lot giving the unusually high unbeaten test of 73 3 gave a maximum test of only 119. When the strength curves are plotted they are so different in form that no general conclusions can be drawn. These curves do show, however, that the strength of a lap pulp is developed more rapidly than the strength of a pulp dried on the dryers of a machine.

(2) If the maximum strength of any particular grade of sulphite pulp is wanted, it is first necessary to find out the beating time necessary to develop this maximum strength. With Grade B we found that the maximum strength was developed at forty minutes with Grade A at sixty minutes, etc.

(3) With all the grades of pulp tested a point was reached where further beating rapidly decreased the strength of the resulting sheets. Microscopic examination of the fibres pointed clearly to the reason

[1]Report of the Committee on Standard Methods of Testing Materials Used in the Manufacture of Paper, Raymond S. Hatch, chairman, read at Holyoke meeting of the Technical Association.

for this. As the time of increase in the beating progressed the number of fibres which were either broken or badly bruised increased quite regularly until the point of the maximum test was reached. After this point was reached further beating greatly increased the number of bruised or broken fibres. Now in bursting a sheet of paper two things may take place. The paper may break due to the pulling apart of the individual fibres, or it may break by the breaking of the fibres themselves. We have two factors then in the strength of any sheet—the strength of the cementing action of the fibres to one another, and the strength of the fibres themselves. When tested for bursting strength whichever of these two is the weaker will determine the test. When the sheets made from the unbeaten pulp are tested, the break is due almost entirely to the separation of the fibres one from the other. As we beat the pulp the strength due to the cementing action increases and the ultimate strength of the fibre probably decreases. At the maximum point of strength, the two strength factors should be practically balanced, so that a portion of the fibres are pulled apart, and the other portion broken. As we pass beyond this point in beating, the ultimate strength of the fibre has decreased to such an extent that it is the determining factor in the break, and the test is lowered. It may be noted in passing that the sheets which show a marked decrease from the maximum strength are usually found to be parchmentized.

Two samples of Grade A were taken from the same lot of pulp. One was soaked in water at room temperature for nine days. At the end of nine days the two lots were beaten and made up into sheets. We found that the pulp which had been soaked for nine days increased in strength—much more rapidly than the dry pulp, and at thirty minutes had reached almost the same strength as the dry pulp had at forty-five minutes. After thirty minutes however the rate of increase in strength of the soaked sample was not so great, and at the maximum point the sample which had been soaked tested only 4 percent higher than the dry sample. From this it would seem that the soaking for nine days in water at room temperature, changes the fibres so that they hydrate more rapidly, but also has the effect of weakening them somewhat so that the ratio of increase of strength falls off after thirty minutes beating, while in the case of the dried samples the same rate is continued up to fifty minutes beating.

Toward the latter part of our work we found that the strength test on our Grade B pulp took a sudden drop, which brought the test down from an average of about 109 to an average of about 85 for the maximum test beating time. The reason for this drop has yet to be explained. Coincident with this drop in strength we were running some experiments to determine what effect on the strength would result if this pulp, which runs ordinarily from 50 to 60 percent dry, were allowed to become air-dry before it was beaten. Much to the author's surprise the air-dried samples gave higher tests than the original pulp. He knows no explanation for this, but a speculation as to its case may not be out of place. The test on the wet pulp was unusually low and leads to the conclusion that the fibres had been mistreated in some way before they were received. If so they were probably in a condition such that a very short period of beating would develop the cementing factor of the fibre to a point such that the strength of the fibres themselves determined the test. Now the drying out of the pulp may have hardened the fibres so that they stood up better under the beating, and at the same time have not decreased the hydrating qualities beyond that would be needed for the maximum test.

In the mill where this work was done a careful record is kept of the strength of the paper as it is made. So an attempt was made to check up the tests of the pulp in the laboratory with the results in the mill. While these results did not check up as well as had been hoped, it was clear that high results in the laboratory gave high results in the mill, and conversely, low results in the laboratory showed low results in the mill. With further control of mill conditions it seems likely that the mill results will check well with the results as determined in the laboratory.

The committee desires to express its appreciation for the excellent work done by E. C. Tucker of the laboratory, who prepared the subject matter of this report and under whose direction the experiments were carried out.

Laboratory, Crocker-McElwain Company.
Holyoke, Massachusetts.
August 28, 1917.

R. S. HATCH.
Chairman.

ANOTHER CALL TO CONSERVATION.

Mr. William Little, the well known lumberman, had a letter in a recent copy of the Montreal Gazette in which he points out that there is a spruce pulpwood famine in sight. Mr. Little is in many respects one of the best known and best informed lumbermen in the country, and his conclusions should attract more than the usual amount of attention. He goes somewhat exhaustively into the reports of the Conservation Commission and also quotes such authorities as Senator Edwards and other well known lumbermen. The conclusions reached by Mr. Little are to the effect that instead of having an almost unlimited supply of timber suitable for pulpwood it is likely that fifteen years hence will see most of the wood east of the Rockies exhausted.

The scarcity of pulpwood is confirmed by the increase in prices at which it and groundwood are selling. Mr. Little points out that in 1914 Canadian pulp mills sold their output of woodpulp at $16.50 a ton, but have been getting $42.00 per ton and more. Spruce that was sold two years ago at from $5.00 to $6.00 per cord f.o.b. cars, has lately been selling at $15.00 per cord. The conclusions arrived at by Mr. Little are that we have insufficient wood to supply our own requirements, let alone the rest of the Empire and the Allied countries and that we should do everything possible to conserve our timber resources.

ACROSS THE CONTINENT AND BACK IN THREE HOURS.

Mr. De Sherbenin, of Velie, Blackwell and Buck, who has been calling on Canadian pulp and paper makers has the honor of being the first to telephone from New York to Vancouver. It took about three hours to complete the connection, through Salt Lake City and San Francisco. He actually talked only six minutes, but interruption extended the time to twenty. The charge for all this would have been about $40, but the telephone company refused to be paid for this first call.

Riordon's Own Victory Loan Parade at Hawkesbury

The quiet town of Hawkesbury was considerably startled by the excellence of the Victory Loan Parade, which was organized and carried through by the employees of the Riordon Pulp and Paper Company, Limited.

The canvassers of the town divided the town into two parts; one taking in the mill, and the other the rest of the town; and three large thermometers were placed on the Main Street, showing the daily progress of the rival factions, and of the combined effort.



The minimum asked from the town was $60,000, and as this mark was approached, excitement as to the result began to be shown. As the Riordon thermometer approached the $30,000 mark, keeping step by step level with the town, the employees decided that a parade would be a considerable stimulus.

Some 20 of the Riordon employees, who formed the Victory Loan Committee, put their shoulders to the wheel and the pictures show a few of the more prominent floats. The employees were especially proud of the "Tank" which is considered to be an almost exact replica of the one that rumbled down the streets of Montreal and Toronto.

There were altogether 20 floats in this parade, outside of automobiles, and the parade stretched for over half a mile. The company, realizing the importance of this Victory Loan Parade, arranged for the band of the "Engineers Training Depot," with 21 pieces, and also for several returned soldiers to come down from Ottawa.



After the parade, which took place in the afternoon; there was a torchlight procession in the evening, followed by fireworks. The whole parade was said to be



at least as good as that of Montreal, by people who had seen both.

All the mill floats were built by the men out of pulp, and although there was a great deal of work necessary everybody was interested, and every float was built and painted in four days.

As the employees of the mill alone actually subscribed for more than $40,000 of Victory Bonds, the parade seems to have served its purpose, in that respect at least, and the Riordon Victory Loan Committee are said to be of the opinion that, had more pulp been used in the parades that took place in the other cities, they would have shown a great improvement.



WILL TAKE OUT 75,000 CORDS OF PULPWOOD ANNUALLY.

The Mingo Pulp, Paper and Land Co., Limited, which was recently granted a charter and has its headquarters in Toronto, has elected officers. W. A. Brodie, of Toronto, is the President; Clarence R. Pope, of New York City, Vice-President and Managing Director, and S. E. Moore, Toronto, Secretary-Treasurer. The capital stock is one million dollars divided into two hundred thousand shares of five dollars each. The company own over twenty thousand acres of land in the townships of Borden, Chewett, McGee, Gamey, D'Arcy and Cochrane. The property lies to the northeast of Chapleau, and is traversed by the C. P. R. on the south, and the C. N. R. on the north. It is well watered, the Loon river and the Nemegosenda river flowing north into Trout or Nemegosenda Lake. At the entrance of the latter stream into the lake there are rapids of one hundred feet fall affording three thousand horse-power. The land is covered with spruce, poplar, cedar and tamarac, and all slopes to the various streams.

In conversation with Mr. Pope, he stated to your correspondent that the company has no indebtedness and no stock to put on the market. They intend taking out seventy-five thousand cords of pulpwood a year and will establish a large rossing plant of the most modern type at Devon. It is the intention of the Mingo organization to dispose of the wood to the pulp and paper mills in Wisconsin. It is estimated that one-eighth of the townships owned by the company are taken up by lakes and streams and that, after all the burned portions of timber are taken out, the balance of the townships will produce an average of fifteen cords per acre of spruce, and poplar wood of four inches and upwards in diameter while the jack pine, tamarac and cedar will give, at least, forty ties per acre.

Mr. Pope states that the company have three million cords of pulpwood on their holdings. This can be cut and brought to Devon at an average cost of five dollars per cord, and taken a hundred and fifty miles northwest on cars by C. P. R. and Algoma Central to Michipicoten Harbor, then towed across Lake Superior to Appleton. It is estimated that cutting, rossing, freight rates, towing, and overhead expenses will bring the cost of the pulpwood, delivered to Wisconsin points, to eleven dollars per cord and the figure at which the high wood will be sold will net a very handsome profit. The property of the company has also valuable mineral rights, including rich veins of iron pyrites containing a very high percentage of sulphur which, it is proposed to develop. Mr. Pope is spending considerable time in Toronto in connection with the big enterprises which the Mingo Co. have in hand.

BIG POWER PLANT MAKING FINE PROGRESS.

The connecting link between the Upper St. Mary's River and the new three million dollar power canal at the St. Mary's River at Sault Ste. Marie, Ont., has been broken and the water which will flow for a greatly increased supply of power for Sault Ste. Marie, has been let into the new canal. It is expected that the first unit of the new power house will be generating power by the middle of January. It is understood that the Lake Superior Paper Co. will take a large portion of the power. Units will be placed in commission until the whole thirty-four units have been put in operation. The entire work will be completed by June next.

Questionaire Puts Big Task on Pulp and Book Men

The questonaire, which has been sent out by R. A. Pringle, newsprint and bookprint commissioner, to the book mills of Canada with the suggestion that all the questions be answered and returned to him as soon as possible, December 5th being the tentative date, is a formidable document containing no less than forty-five queries, embracing some sixteen pages of legal size sheets.

The pulp and paper mills, which have received the questionaire will do their best to give as complete replies as possible to the numerous interrogations but, as one manufacturer expressed it, "to fill in data and figures for everything that is mentioned would require an expert auditor and staff weeks and weeks and then many of the points covered would not be responded to satisfactorily. In the first place, there are no records kept by the companies relating to several of the questions raised and in other particulars regarding cost no man can answer the queries except in a broad, general way."

The answers to the questions asked will create a wealth of knowledge regarding the operations of all Canadian paper mills (newsprint as well as otherwise) and will trace and expose actual Canadian paper making history from 1914 to June 30th, 1917. In short, if the paper manufacturers faithfully and truthfully answer all the questions asked and furnish the figures required, the whole paper mill operations in Canada for the period are going to be laid absolutely bare.

The list of questions are beyond doubt the most important that have been issued from any governmental official since the inquiries regarding newsprint or book, writing, and other grades of paper commenced. Time nor space will not permit deliberation on them. Generally every business secret, event, happening, understanding, agreement, prospectus, minutes of meetings, cost prices, payments, dividends, etc., down to whatever went on at the mill up to June 30th this year has got to be explained and accounted for. It seems that the Canadian paper manufacturer is being put to a confessional vow.

The continuation of the book paper inquiry which it was thought would be held on December 8th, has been indefinitely postponed. No date has been set for its continuance or for the hearing of the manufacturers and publishers concerned in the newsprint probe. There is not likely to be a session of either inquiry for the next two or three weeks. The reason the book inquiry was not continued was on account of the manufacturers not being ready to "go on." The lengthy lists requesting information from all the paper mills of the Dominion will take some time to complete, and it is improbable that any session of the probe will be attempted before the information requested is in the hands of the Paper Controller.

The official lists of questions, furnished the Pulp and Paper Magazine are as follows:—

QUESTIONS SUBMITTED TO MANUFACTURERS OF PULP.

1.—Name of company.

2.—When incorporated.

3.—Under what laws.

4.—Have any prospectuses been issued by the present company or by underwriters, purchasers of securities, agents, or others relating in any manner to the affairs of the company? If so, please attach copies of such prospectuses.

5.—Capital stock: (a) Common, subscribed and paid up; (b) Preferred, subscribed and paid up and terms.

6.—If any capital stock paid up by transfer of assets, submit copies of agreement and of allotment resolutions.

7.—Bonded indebtedness, if any, full particulars.

8.—Net earnings before making provision for depreciation of plant and before payment of dividends, interest on bonded indebtedness and on bankers or other loans or war profits tax during each of the years 1914, 1915, and 1916 and the first six months of 1917.

9.—Full particulars of depreciation provision for each period.

10.—Dividends and bonuses paid during each of the years 1914, 1915, 1916, and the first six months of 1917, whether in cash or stock or otherwise.

(a) On Common.

(b) On Preferred.

11.—Particulars of Bond interest and of other interest for each period.

12.—Copies of all reports of the President and Board of Directors to the shareholders during each of the years 1914, 1915, 1916 and the first six months of 1917, and of managers, or other responsible executive officers to president, board of directors, and shareholders for each period.

13.—Detailed copies of balance sheets manufacturing and trading accounts, and profit and loss statements for each of the years 1914, 1915, 1916, and the first six months of 1917, as prepared for the management and as prepared for the shareholders. Balance sheets to include classified statement of present expenditure showing land, buildings, machinery, general equipment, water power, etc., and depreciation allowed thereon.

14.—Copies of minutes of directors, shareholders, and of executive committee from January 1, 1914, to June 30, 1917.

15.—Give full particulars of any and all businesses or parts thereof acquired by the company at the time of incorporation and organization and subsequent thereto with copies of agreements relating to such acquisitions. And state the consideration granted in each case.

16.—Give full particulars of shares, or other securities other corporations acquired since incorporation of the company, either by or on behalf of the company, and of loans or other assistance granted to any other company, partnership or enterprise during same term, and of all dividends, interest, or income received therefrom in the years 1914, 1915, 1916 and first six months of 1917.

17.—Location of plant or plants, owned, leased or operated by company.

18.—Location of plants owned, leased or operated by company, in which stock or other investment is held.

19.—Quantities of pulp (wood pulp; sulphite, easy bleaching, news grade, and bleached; sulphate; soda) manufactured during each of the years 1914, 1915, 1916, and the first six months of 1917.

20.—Average cost of production per ton, excluding and including selling and general administration expenses in each of the years 1914, 1915, 1916, and the first six months of 1917, and in each month from January, 1916, to June, 1917, inclusive (outwards freights on finished product to be excluded.—**Editor's note:** The blank form in the questionaire calls for maximum, minimum and average price on ground wood; easy bleaching, bleached, and news-grade sulphite; and sulphate, but not soda, for 22 periods. This note is repeated later in parenthesis.

20.—Average cost of production per ton, excluding and intion charges and of any abnormal charges included in those "costs of production" for each year and for the half year stated and statements of the book value of the buildings. machinery, and general equipment and other plant depreciations as at the beginning and close of each such period.

21a.—Statements of the charge per cord for wood, whether by way of stumpage or otherwise, included in the "costs of production" of sulphite, soda and wood pulp for each year and for the last half year stated—divided into two parts, viz.: the cost of the wood at the source of supply and the cost of cutting and hauling and delivery to mill.

22.—When the pulp wood is cleared from limits or parcels of standing timber owned, leased or operated under license or in any other way by or on behalf of the company, give full particulars of the limits or parcels, the price paid therefor, and any other terms on which they are operated together with copies of all estimates made of the quantity of pulp wood and other timber thereon, and statements of the quantities cut therefrom for each year and for the half year stated.

23.—The maximum, minimum and average selling prices of pulp for use in Canada per ton f.o.b. mill in car load lots in each of the years, 1914, 1915, 1916 and first 6 months of 1917, and in each month from January, 1916, to June, 1917.—(Tabulated in 22 period items, as above, for each kind. ground wood; sulphite, easy bleaching, news grade and bleached; and sulphate.)

24.—The maximum, minimum and average selling prices of pulp for export per ton, f.o.b. mill in carload lots in each of the years 1914, 1915, 1916, and the first six months of 1917, and in each month from January 1916 to June 1917 inclusive. (Tabulated as for 23.)

25.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal, or otherwise, or any understanding, between your company and any other company, or companies or individuals in regard to selling prices? If so, what was that agreement?

26.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal or otherwise, between your company and any other company or companies as to terms or discounts? If so, what was that agreement?

27.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal or otherwise, between your company and any other company or companies as to terms or discounts, as to division of territory or trade customers, or as to quantity of value of output or sale? If so, what was that agreement?

28.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal, or otherwise, between your company and any other company or companies in making either sales or purchases?

29.—Do you sell all or any portion of your pulp through jobbing houses or sales agencies? If so, give the names of such jobbing houses or sales agencies and the special discounts or terms to jobbers and the compensation to agents.

30.—Give lists of directors, officers and stockholders for each year of the period named.

31.—Copies of annual reports filed with Government secretary.

32.—Are you a member of any association having for its object the promotion of the interest in any manner of the pulp manufacturers? If so, file all correspondence and documents of every kind relating to such an association.

33.—Give the increased percentage of cost also the increased percentage in selling prices for the years ending in 1914, 1915, and 1916, together with the average percentage of increase for each of the above years and for the first six months ending in June of the year 1917.

34.—Give the amount of the tonnage of products in schedule A or if the figures of the actual tonnage are not available, then an estimate of the tonnage together with the value of all the raw products on hand as of the first of September, 1917, and of the half year ending in June of each of the years 1914, 1915 and 1916. If figures are not available for September and of the half years ending in June in the years 1914, 1915, and 1916, then supply figures as of the half year ending in June 1917, and of the years ending on the 31st day of December in each of the years 1914, 1915, and 1916.

SCHEDULE A:

Groundwood Pulp.
Sulphite Easy Bleaching.
Sulphite news grade.
Sulphite Bleached.
Sulphate.
Wood.
Other principal raw materials.

35.—What is the capacity of your plant (tonnage per diem).

36.—What was your total output (in tons) for the years 1914, 1915, 1916, and the first six months of 1917?

37.—Have you at any time in the years 1914, 1915, 1916, or the first six months of 1917 prepared a statement or in any other way conveyed information to any other companies, company or individual, as to the amount of pulp on hand, output, number of sales or recent sales, prices of pulp, sold or prices asked? Has any company or individual conveyed this information to your firm at any time during the said periods?

QUESTIONS SUBMITTED TO BOOK PAPER MANUFACTURERS.

1—18, inclusive, are the same as for manufacturers of pulp.

19.—Does the company manufacture its own sulphite pulp? If not, enumerate contracts for sulphite pulp that were made or were in effect during each of the years 1914, 1915, 1916 and the first six months of 1917, giving in each case the period covered by the contract, the amount of sulphite contracted for, the price per ton of sulphite, and the name of the mill supplying the sulphite; and copies of the contracts, orders or other arrangements under which it was purchased.

20.—Does the company manufacture its own soda pulp? If not, enumerate, etc., as for sulphite pulp.

21.—Does the company manufacture its own wood pulp? If not, enumerate, etc., as for sulphite pulp.

22.—Enumerate the principal constituent elements in each of the grades of paper specified below that is made by the company and show in percentages the proportions of each element in a ton of paper based on the average for the first six months of 1917:—Half-tone news, machine finish book No. 1, 2, 3 and 4; super-calendered book No. 1, 2 and 3; coated book No. 1, 2 and 3.

23.—Quantities of paper and pulp, if any, manufactured during each of the years, 1914, 1915 and 1916, and during the first six months of 1917; tabulated under the following headings: Half-tone news; machine finish book No. 1, 2, 3, and 4; super-calendered book No. 1, 2, and 3; coated book, No. 1, 2, and 3; sulphite pulp; soda pulp; and wood pulp.

24.—Average cost of production per ton, excluding and including selling and general administration expenses in each of the years 1914, 1915, 1916, and the first six months of 1917 and in each month from January, 1916, to June, 1917, inclusive (outwards freights on finished product to be excluded).—Tabulate in 22 periods: half-tone news; machine finish book, No. 1, 2, and 3; super-calendered book, No. 1 2, and 3.

Tabulate in 22 periods: coated book, No. 1, 2, and 3; pulp, sulphite; soda; wood.

25.—Statements of the amount and the rate of depreciation charges and of any obnormal charges included in these "costs of production" for each year and for the half year stated and statements of the book value of the buildings, machinery, and general equipment and other plant depreciations as at the beginning and close of each such period.

26.—Statements of the charge per cord for wood, whether by way of stumpage or otherwise, included in the "costs of production" of sulphite, soda and wood pulp for each year and for the last half year stated—divided into two parts, viz.: the cost of the wood at the source of supply and the cost of cutting and hauling and delivery to mill.

27.—When the pulp wood is cleared from limits or parcels of standing timber, owned, leased or operated under license or in any other way by or on behalf of the company, give full particulars of the limits or parcels, the price paid therefor, and any other terms on which they are operated together with copies of all estimates made of the quantity of pulp wood and other timber thereon, and statements of the quantities cut therefrom for each year and for the half year stated.

28.—Maximum, minimum and average selling prices of half-tone news per ton f.o.b. mill in car load lots in each of the years 1914, 1915, 1916 and first six months of 1917 and in each month from January 1916 to June 1917, inclusive (according to tabular form, giving 22 period items, as above).

29.—Maximum, minimum and average selling prices of machine finish book (No. 1, No. 2, No. 3, and No. 4) per ton f.o.b. mill in carload lots in each of the years 1914, 1915, 1916, and first six months of 1917, and in each month from January 1916 to June 1917, inclusive (according to tabular form, showing 22 period items, as above).

30.—Maximum, minimum, and average selling prices of super-calendered book (No. 1, No. 2 and No. 3) per ton, f.o.b. mill in carload lots in each of the years 1914, 1915, 1916, and first six months of 1917, and in each month from January 1916, to June 1917, inclusive (accordng to tabular form, giving 22 period items, as above).

31.—Maximum, minimum and average selling prices of coated book (No. 1, No. 2, and No. 3) per ton, f.o.b. mill in car load lots in each of the years 1914, 1915, 1916 and first six months of 1917 and in each month from January 1916, to June 1917, inclusive (accordng to tabular form. calling for 22 period items, as above).

32.—Average profit per ton in each of the years 1914, 1915, 1916 and first six months of 1917, and in each month from January 1916, to June 1917, inclusive (tabulated in 22 period items each, as above, classified under half-tone news; M.F. Book No. 1, No. 2, No. 3 and No. 4; S.C. Book No. 1, No. 2 and No. 3; Coated Book No. 1, No. 2 and No. 3).

33.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal or otherwise, or any understanding, between your company and any other company, or companies, or individuals, in regard to selling prices? If so, what was that agreement?

34.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal or otherwise, between your company and any other company or companies as to terms or discounts? If so, what was that agreement?

35.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal, or otherwise, between your company and any other company or companies as to terms or discounts, as to division of territory or trade customers, or as to quantity of value of output or sale? If so, what was that agreement?

36.—Has there been at any time since January 1, 1914, any agreement or undertaking, verbal or otherwise, between your company and any other company or companies that would in any way limit the competition between such companies in making either sales or purchases?

37.—Do you sell all or any portion of your papers through jobbing houses or sales agencies? If so, give the names of such jobbing houses or sales agencies, and the special discounts or terms to jobbers and the compensation agents.

38.—Give lists of directors, officers and stockholders for each year of the period named.

39.—Copies of annual reports filed with Government Secretary.

40.—Are you a member of any assocation having for its object the promotion of the interest in any manner of the paper manufacturers? If so, file all correspondence and documents of every kind relating to such an association.

41.—Give the increased percentage of cost, also the increased percentage in selling prices for the years ending in 1914, 1915, and 1916 together with the average percentage of increase for each of the above years and for the first six months ending in June of the year 1917.

42.—Give the tonnage, or if this is not available, an estimate of the tonnage, together with the value of all paper stock on hand as of the first of September, 1917, and of the half year ending in June of each of the years 1914, 1915, and 1916. If figures are not available for September and of the half years ending in June in the years 1914, 1915 and 1916, then supply figures as of the half year ending in June 1917, and of the years ending on the 31st day of December in each of the years 1914, 1915 and 1916.

43.—What is the capacity of your plant? (Tonnage per diem.)

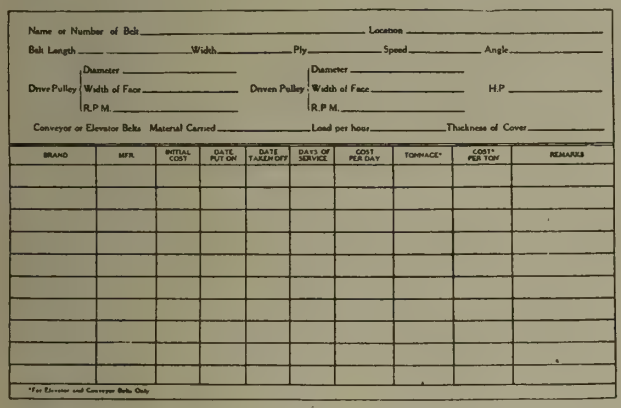
44.—What was your total output (in tons) for the years 1914, 1915, 1916, and the first six months of 1917?

45.—Have you at any time in the years 1914, 1915, 1916, or the first six months of 1917 prepared a statement or in any other way conveyed information to any other company, companies or individual as to the amount of paper stock on hand, output, number of sales or recent sales, prices of paper sold or prices asked? Has any company or individual conveyed this information to your firm at any time during the said periods?

BELT RECORDS ARE IMPORTANT.

No mill cost system is complete nowadays without an accurately kept belt record. Such a record not only enables a superintendent to tell, at a moment's notice, just what his belts are costing him, but it forms an invaluable aid in buying new belting equipment.

Wise mill men have found that it pays to consider **performance** as well as **price** when they purchase a new belt. The best test of performance, of course, is the one that is made in the mill in which the belt is to be used. With the aid of an accurate belt record, the superintendent or purchasing agent can determine what style of belt he should install for any particular drive. He has something more than reputation or price to guide him in his purchases.



Name or Number of Belt _____ Location _____

Belt Length _____ Width _____ Ply _____ Speed _____ Angle _____

Drive Pulley: Diameter _____ Width of Face _____ R.P.M. _____

Driven Pulley: Diameter _____ Width of Face _____ R.P.M. _____ H.P. _____

Conveyor or Elevator Belts Material Carried _____ Load per hour _____ Thickness of Cover _____

BRAND	MFR.	INITIAL COST	DATE PUT ON	DATE TAKEN OFF	DAYS OF SERVICE	COST PER DAY	TONNAGE*	COST* PER TON	REMARKS

*For Elevator and Conveyor Belts Only

To help mill men keep an accurate record of the service given by belts on different drives, the Goodyear Tire & Rubber Co. of Canada, Limited, is issuing a neatly bound belt record book, which will be sent free on request. This book contains no advertising matter; it consists wholly of ruled forms, of which the cut here is a reduced facsimile.

It will be seen that each form contains blank spaces for filling in name of belt, length, speed, location, etc., thus providing the means of keeping accurate costs on Conveyor, Elevator and Transmission belts, regardless of make. If the forms are filled out carefully, the cost of each belt can be figured down to a ton a day basis and a scientific check can be kept on each drive in the mill.

The Goodyear Belt Record Book may be obtained by writing to the Mechanical Rubber Goods Department, Goodyear Tire and Rubber Co., of Canada, Limited, Toronto, Ont.

NEWSPRINT PRODUCTION IN OCTOBER.

In the report of the secretary of the Newsprint Manufacturers Association on production, shipments and stocks of newsprint paper for the month of October, 1917, one remarks the fact that, while the actual tonnage produced was in excess of the September, 1917, production, owing to the larger number of operating days, the daily average was considerably less. Shipments, which were in excess of the quantity produced, were on a greater scale than during the previous month.

The decreased production in October was due largely to the necessity of making repairs. A considerable amount of time was lost in all sections of the United States and Canada on this account. Labor difficulties and low water affected the Western United States territory. One mill was down all month on account of fire. The increase in stocks was caused almost entirely by the car shortage in Canada.

Production in October, 1917, was less than during the same month last year; shipments were of approximately the same volume; and stocks show a decline of 16½ per cent. Production, in comparison with maximum, was lower last month than during any month this year, although higher than during the same month last year.

Comparing the production of the thirty-six companies that reported last month with the production obtained by the same companies in October, 1916, an increase of 3,000 tons is shown, and an increase of 5,000 tons in shipments. Stocks held by these thirty-six companies in September, 1917, show a decrease of slightly over 10,000 tons.

POSTAL RULES ON PARCELS TO PRISONERS.

In co-ordination with the new scheme instituted by the British Government all parcels from Canada to Officer Prisoners of War interned in Germany or Austria-Hungary containing foodstuffs, on and after January 1918, **can only** be accepted for onward transmission by the Postal Service if they bear a "coupon" issued by the Prisoners of War Department, Canadian Red Cross Society, London, England. These coupons are to be used on parcels only and no coupons can be issued for amounts under ten pounds, and are issued only to next of him except by transfer or right by this person or by this prisoner.

Supplies can be purchased in Asia Minor and it is better to remit money to the Prisoners rather than send many parcels.

This new scheme relates only to parcels containing foodstuffs for Officer Prisoners of War interned in enemy countries and does not affect in any way the present regulations governing the transmission of parcels to Prisoners of War other than Officers, which regulations remain unchanged.

The needs of Officer Prisoners of War holding commissions in the Imperial Army are looked after by the Central Prisoners of War Committee, 4 Thurloe Place. London, S.W., England. This Committee will supply the necessary coupons to the next of kin of these Officers for parcels addressed to them which are packed personally.

Travis A. Tod, sales manager of the National Paper Co., Montreal, is on an extended business trip to the West, and will go as far as the Coast before returning.

UNITED STATES NOTES

It is understood that, at the coming banquet of the Associated Dealers in Paper Mill Supplies of New York, to be held at the Hotel McAlpin, on February 6, 1918, the usual entertainment feature will be eliminated and addresses on war topics by speakers of national prominence will be substituted. A reduction in price of covers, in accordance with the recommendations made by the Food Administration, will be made possible by the change in program.

According to reports received here early last week, the plant of the Cleveland Paper Mills Co. was burned. The plant and contents were valued at $100,000.

It was made known, through the incorporation of the Jasperson Paper Co. of Appleton, Wis., as a Delaware corporation, that this concern had made arrangements to build a mill in Brooklyn for the reclaiming of waste paper for the purpose of manufacturing newsprint. It is understood that the plant will have a daily capacity of about 100 tons. If the Brooklyn mill proves a success, it may be that the company will erect a number of other similar plants in various parts of the country. The corporation, which is capitalized at $2,000,000, is promoting the process recently invented by Dr. Thomas Jasperson, of Neenah, Wis., by which old newspapers may be used over again.

Fire which broke out early on Friday morning in the store of Wilkinson Bros. & Co., paper jobbers and paper mill supply dealers, at 419 Broome street, New York, did considerable damage to the stock of new paper stored in the basement of the four-story building.

Advices just received from Washington are to the effect that the readjustment of newsprint prices and distribution of stocks has been turned over to the Federal Trade Commission by the Department of Justice. W. B. Colver and Dr. E. O. Merchant, who were in charge of the investigation of the industry, have begun preparations to carry out the agreement reached with indicted manufacturers at New York several days ago. Before a price is fixed and a system of equitable distribution arranged, it is probable that hearings will be held, possibly in different parts of the country. While the Canadian price has been set at $2.50 temporarily, the American market price has averaged $3.25 and higher, attracting great quantities of paper here and evoking protests from Canadian publishers.

The West Virginia Pulp and Paper Co., has leased space in the Printing Crafts Building, at 479 Eighth avenue.

There is to be a meeting of the Philadelphia Paper Stock Dealers' Association this Wednesday, at which it is expected there will be some interesting discussions on the market conditions, as well as the first formal announcements regarding the coming banquet.

Among those graduated from the Officer's Training Camp at Plattsburg, N. Y., November 24th, was August Klipstein, Jr., son of August Klipstein, President of A. Klipstein & Co., 644 Greenwich St., New York City. He has received a commission as First Lieutenant in the Infantry.

Announcement has been made by the H. Norwood Ewing Co., of New York that its Chicago office is to be managed by Fred Woodcock, who has been, for 17 years, manager of the Chicago office of the Continental Paper Co.

Adam C. Remley, who has been for four years engineer for the city of Appleton, will become associated with the Patten Company after the first of the year.

The Holden Paper Co., of Newburgh, N.Y., is to have a new superintendent in the person of Elmer Staub, recently with the Bryant Paper Co., at Kalamazoo, Mich. His career includes service with the Munising Paper Co., of Munising, Mich.; and also with the Inland Empire Paper Co., at Spokane, Wash.

It is understood that Charles F. Briggs, secretary and treasurer of the Hartje Paper Mfg. Co., has resigned this position. The Hartje mill is regarded as quite a factor in the kraft paper and of the business.

Hollis G. Gleason, who has been special rerpesentative for the Inland Printer, Chicago, has been appointed manager of the LaSalle Paper Co., also of Chicago. This concern has just entered the jobbing field.

Chicago is to have an office of the Diamond State Fibre Co., of Bridgeport, Pa. This new headquarters for the West will be at 1656 Besley Court. The management of this branch will be divided between Gordon Friend, in charge of the paper department, and Theodore Herkert, in charge of the fibre department. The Diamond Fibre Co., manufacturers a large line of glassines, greaseproofs, vegetable parchments, and fibre sheets, rods and tubes, for all of which there is a big market in the West.

Plans reported to be materializing with regard to a fibre mill to be erected for the Filer Fibre Co., at Manistee, Mich. The concern has recently started operating a plan on a process for making a fine grade of fibre board, which was invented by Max Oberdorfer. The company has a capital of about a half million dollars. The chief stockholder is E. G. Filer, while P. R. Schnorbach is manager of the plant.

One of the important incorporations of the week was that of the F. W. Baden Co., of East Orange, N.J., to make corrugated cardboard. The company is capitalized at $25,000, and its incorporators are: Harry H. Picking, Charles O. Geyer, and L. Matthews, all of East Orange.

The New York Times Co., publisher of the "New York Times," has purchased the Tidewater Paper Mills in Brooklyn. It will be remembered that, on several occasions, the Times has been mentioned in connection with attempts to get a plant of its own in various parts of New York State. This is evidently the result of its continued efforts in this direction.

Frank J. Sensenbrenner, of Neenah, Wis., first vice-president of the Kimberly-Clark Co., was elected treasurer of the Wisconsin Manufacturers' Association, at its recent annual meeting in Milwaukee. Judson G. Rosebush, of Appleton, president of the Patten Paper Co., was re-elected as one of the directors of the organization.

PULP AND PAPER NEWS

A federal charter has been granted to the Ottawa Paper Box Co., Limited, with headquarters in Ottawa and a capital stock of $150,000.

James Logie, of Toronto, Ontario representative of the Canada Paper Box Co., has returned after spending a few days in Montreal and Sherbrooke on business.

The amalgamation of country newspapers goes steadily on owing to the high cost of production, wages, paper, etc. The Petrolea Topic and the Petrolea Advertiser have been merged, after each has been issued separately for forty years. The owners of the new weekly are Mr. Ellis, the present proprietor of the Advertiser, and G. G. Bramhill, who has been in the employ of the Dominion Government as a flax and fibre expert.

Many friends in the paper trade in Canada will learn with regret of the death of David William Higgins, former editor and proprietor of the Colonist, Victoria, B.C., and a former Speaker in the B. C. Legislature. The late Mr. Higgins was a native of Nova Scotia, and a Californian of 1849, being the founder of the San Francisco Call. He played a large part in western journalism and achieved some distinction as a writer of fiction.

A large firm in Toronto, which supplies country weeklies with paper, has sent out a notice to its customers to the effect that the high cost of doing business has probably hit the newspaper publisher harder than any one else. Newsprint is costing 50 per cent more than it did before the war, twine has gone up 400 per cent, wrapping paper 300 per cent, ink 62 per cent, stereo paper 50 per cent, roller composition for presses 100 per cent; type metal, 100 per cent; wages 25 per cent, and postage, which is a large item in any newspaper office, 50 per cent.

A. M. Huestis, of Toronto, Canadian representative of the Kalbfleisch Corporation of New York city, sailed this week for England and will be absent until the middle of January on business.

S. R. Armstrong, vice-president of the Mattagami Pulp and Paper Co., Toronto, has returned from a business trip to New York. It is expected that the third digester for the large plant of the company at Smooth Rock Falls, Ont., will arrive this week. E. R. Barker, of Boston, the new manager of the company, has taken up his headquarters at Smooth Rock Falls where the two big digesters are now in operation and turning out a satisfactory product in sulphite pulp.

Excellent progress is being made on the Chippawa Hydro-Electric Power canal. The construction railway, which will carry away the material excavated, has been completed from the Whirlpool at Niagara Falls, Ont., to the power house and the rest of the line is being pushed forward. Some three hundred and fifty men are being employed. About thirty bridges will have to be built and the engineers will fill in a great many ravines, which are around the Niagara river, with the earth taken out in excavating the canal,

William Irvine passed away in Toronto recently in his eighty-fourth year. Until within the last few weeks he had enjoyed excellent health, and had resided for the last twenty-seven years with his daughter, Mrs. Challes, wife of George E. Challes, sales manager of the Riordon Pulp and Paper Co.

Among the pulp and paper concerns in Toronto who took large subscriptions in the recent Victory Loan fund, were the Hinde and Dauch Paper Co., $100,000; Reg. N. Boxer Co., manufacturers of wall paper, $50,000; Provincial Paper Mills Co., $35,000, and several others.

John Martin, of the John Martin Paper Co., Winnipeg and Calgary, who has been spending the past two weeks in Toronto, Montreal, and the paper centres of the New England States, returned to the West this week.

Some time ago a provincial charter was granted to the Spruce Falls Pulp and Paper, Limited, with headquarters at Spruce Falls, Ontario, with a capital stock of $3,500,000. It is undersotod that the men behind this enterprise are American capitalists, but nothing in the way of definite organization has been gone on with since the charter was issued a few weeks ago. It is likely that further steps will be taken in the near future is the report from the Provincial Secretary's Department.

The time for receiving tenders for the right to cut pulpwood and pine timber along the Kapuskasing river in the districts of Timiskaming and Algoma, which has been advertised for the past three months by the Ontario Department of Lands, Forests and Mines, expires on Monday, December 17th. Tenders have to offer a flat rate per cord for all classes of pulpwood, whether spruce or other woods, and will be required to pay for the red and white pine a flat rate of ten dollars per thousand feet, board measure. The successful bidder will also have to erect a pulp mill on the property. It is understood that a large number of inquiries are being received by Hon. G. H. Ferguson for description of the territory, capital to be invested, etc.

A charter has been granted to the Ideal Box Lunch, Limited, with a capital stock of forty thousand dollars and headquarters in Hamilton. Among the powers conferred upon the company are to manufacture boxes and containers.

Among the new companies, which have obtained a provincial charter, is the Auto-Printing Register Co., of Canada, Limited, with a capital stock of $15,000, and head offices in Toronto. The company is empowered to manufacture, buy, sell and deal in all kinds of printing, serving, vending and recording registers, machines and devices. Among the incorporators are Jethro Crang, James Crang and Harvey E. Stonge.

There were some heavy subscribers among the pulp and paper manufacturers in the recent Victory Loan campaign. The Laurentide Co. and the Riordon Pulp and Paper Co., Montreal, each took a million dollars worth of bonds.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Increasing the Bleaching Power of Chloride of Lime. By Louis M. Tailfer, Paper Making, **36,** (1917), No. 10, p. 309-310, also Paper Mill, Nov., 1917. From L'Industrie Textile.—A weak organic acid has an advantage over the stronger mineral acids without the dangers their use entails. **Acetic acid** reacts with chloride of lime, setting hypochlorous acid free and forming acetate of lime. During the bleaching process the hypochlorous acid gives up its oxygen and forms HCl, which attacks acetate of lime, setting the acetic acid free. That free HCl does not remain in contact with the fibre is important as its action is destructive. Several methods may be adopted for using acetic acid or other weak organic acid. A little of the acid may be added to the clear solution of chloride of lime, or the pulp may be impregnated with a weak solution of the acid before adding bleach, or immediately after the chloride of lime without washing. The lime should be neutralized by adding strong sulphuric acid to a slight acid reaction. **Chloride of Magnesia** neutralises the alkali in excess, forming a more active hypochlorite which is not decomposed by an excess of $MgCl_2$ whereas using strong acid is much more delicate. **Carbonic acid** gives a clear solution of hypochlorous acid and Ca Cl_2. Bicarbonate of lime is obtained in solution with excess CO_2.—E.K.M.

Ammonium Bisulphite Cooking Process. Paper **21,** (1917), No. 10, p. 18-19. Marusana, U. S. Pat. 1,244,525. —One of the following three different liquors is used: (1) aqueous solution of ammonium bisulphite (NH_4HSO_3), (2) mixed solution of ammonium bisulphite and sulphurous acid, or (3) mixed solution of ammonium bisulphite and a soluble sulphite, such as sulphite of ammonium potassium, sodium, magnesium, or the like. Ammonium bisulphite always is the chief constituent, producing bisulphite ion (HSO_3^1). Sulphurous acid or a bisulphite is to regulate the concentration of hydrogen ion (H^1) which in excess is injurious, while its insufficiency prolongs cooking time and lowers the purity of the pulp. The total acidity of liquors varies between 0.4 and 0.8 normal, and the required concentration of hydrogen ion can be easily obtained by adding a suitable proportion of either sulphurous acid or a soluble sulphite. The liquors are stable and produce no precipitates at even high temperatures. Pulp of various qualities can be manufactured by simply varying the composition of the cooking liquor. Ammonia and SO_2 are recovered.—E.K.M.

Action of salt and brine on reinforced concrete. H. J. M. Creighton, Swarthmore Coll. J., Franklin Inst., **184,** (Nov., 1917), p. 689-704.—Solutions of salts coming in contact with iron promote hydrolysis and rust, which loosens and cracks the concrete and weakens the iron. Salt used in mixing concrete in winter has same effect if water enters. Finely illustrated.—J.N.S.

(From "Engineering Index," in Ind. Management, November, 1917.)

The Price Problem in the Lumber Industry. Wilson Compton, Amer. Econ. Rev., Sept. 1917.—An exposition of the price situation and the influences affecting price.

The Heating and Power Plant of a Modern Industrial Building. Heat. & Vent. Mag., Sept., 1917.—Features of equipment in factory of Phoenix-Hermetic Co., Brooklyn, N.Y.

The Design of Centrifugal Circulating Pumps. Theodore Tohlin, J. Amer. Soc. Marine Draftsmen, July, 1917.—Confined to single stage scroll casing type.

Utilization of Factory Wastes. C. B. Auel, Ind. Management, Oct., 1917.—Methods of Westinghouse Electric Co.

A Study of Graphite and Its Compounds for Lubricating Purposes. C. H. Bierbaum, J. Am. Soc. Mech. Eng., Sept., 1917.—The origin, classification, uses and expedients in using it as a lubricant.

Specifications for Leather Belting. L. W. Arny, Am. Mach., Aug. 30, 1917.—Mistakes in the usual methods of selecting belting and a scheme to secure reliable information.

Lubrication. Machinery, Sept., 1917.—Importance of study of lubrication. Its effect on mechanical efficiency, etc.

Reducing Labor and Increasing Efficiency in Boiler Rooms. J. H. Edsall., Elec. Rev. & West. Elec'n., Sept. 15, 1917.—On the economies of coal and ash-handling equipment.

The Importance of Scientific Feed-Water Regulation. R. W. Andrews, Elec. Rev. & West. Elec'n., Sept. 15, 1917.—Scientific control of feed-water in relation to load and furnace conditions necessary for efficient boiler operation.

Performance and Design of Surface Feed-Water Heaters. M. C. Stuart, J. Am. Soc. Nat. Engrs., Aug., 1917.—New methods of showing relation between tube length and water temperature, etc.

Fuel Economy by Better Practice in Operating Stokers and Boilers. Joseph G. Worker, Assn. Iron & Steel Elec. Engrs., Sept., 1917.—Discusses coal waste and need for efficiency.

Smoke Reduction in Boiler Furnaces. Joseph Goder, Power, Sept. 18, 1917.—Causes and principles involved in its efficient reduction.

Effect of Soot on Boiler Efficiency. Robert June, Elec. Rev. & West. Elec'n, Sept. 15, 1917.—Various methods of soot removal.

Application of Stokers to Moderate Sized Furnace. Franklin G. Rogers. Elec. Rev. & West. Elec'n, Sept. 15, 1917.—Advantages.

Devices to Unload Coal from Cars. Horace Goldstein, Ind. Management, Oct., 1917.—Simple and inexpensive types of coal unloading and conveying apparatus.

Using Low Grade Fuels with Existing Equipment, R. J. S. Piyott, Elec. Wld., Sept., 1917.—Problems involved in burning high-ash coals and effect on equipment, etc.

Les Forets Du Canada. G. C. Piche. Reveu Triemest ielle Canadienne, Aug., 1917.—Species of trees, their extent and geographical distribution in the Dominion of Canada.

A New Method of Coal Analysis. H. Groppel, Chem. Ztg. through Colliery Guardian, Aug. 17, 1917.—Proposed modification of present methods of determining ash, moisture, yield of coke and tar in coal.

Fuel Research in 1915 16. Dr. W. Bertelsmann, Chem. Ztg., through Colliery Guardian, Aug. 31, 1917. —Summary of inventions and researches relating to peat, coal, brown coal, briquettes and fuel utilization.

The Sulphur Deposits of Culberson County, Texas. William B. Phillips, A. I. M. E. Bul., Sept., 1917.—Location and geology of sulphur districts, nature and origin of deposits, etc.

The Markets

CANADIAN MARKETS.

Toronto, December 3.

Now that the new price of newsprint in Canada will not be fixed until January 20 and the figure named for the American product is three cents until April 1st next (which is quite satisfactory to American mills and those plants in Canada doing an export business), there is not likely to crop up anything of interest in the situation until after the New Year.

The demand for newsprint continues unabated, and Canadian newspapers have never carried as much advertising in November, since the war began, as during the past three weeks. The large announcements in connection with Victory bonds and the huge spaces taken by various mercantile and manufacturing firms and banks in urging the public to purchase liberally, have resulted in several more tons of print paper being used than at the corresponding period in 1916. If the rate for news print is fixed in Canada at three cents, as seems now probable, the manufacturers think that the large publishers can have little to complain of considering how their coffers have been swelled by federal and other advertising.

In the book paper and half-tone news investigation nothing definite will be undertaken, if necessary to go on with the probe, until after the Chrisetmas holidays. Prices are still well maintained on book papers, although there are reports of special cuts in certain cases, but there has been no general reduction. The mills have received questionaire, a summary of which is published in another column of the Pulp and Paper Magazine. The majority of the questions will have to go unanswered as no statistics are available to reply in detail to the multitudinous points raised. It is understood that Commissioner Pringle still has hopes that an inquiry may be avoided, and that the mills and their customers may come to an amicable understanding. Conferences have been going on between the manufacturers and the individual firms which they supply, during the past few weeks, and another gathering will be held in a few days to report progress.

It is learned on the best of authority that, if the probe proceeds, there are so many phases of the question to be covered that a definite price could not be fixed by Mr. Pringle before six months had elapsed. One or two publishers are still hanging out for a better figure, but all hope of coming together and agreeing upon a fair, fixed value is not yet abandoned. G. T. Clarkson, official auditor, who was to have begun an investigation of the books of the manufacturers, has not yet started work. When seen this week by your correspondent, he stated that he had received no instructions to go ahead, and that he would not proceed until all expectation of reaching a settlement had been given up.

There the situation rests at present and, in the meantime, the mills will answer such questions in the documents that have been submitted to them as fully as they possibly can. One leading manufacturer this week stated that he had offered to give one of his customers a price if he, the customer, would furnish him with a guarantee that he would cease pressing for an investigation. This, the latter refused. The manufacturer stated that he had no fear of what the result of the probe would reveal nor had he anything to hide, but he was making this proposition in the hope that peace would be restored and the mutual welfare of the mills and their patrons be preserved.

Business with book mills remains about the same, and in other lines of trade there has been an improvement, particularly in warehouse business. The one great difficulty in the way of most mills is in getting cars for shipment. There are many delays and the United States railways have not returned to Canada nearly as many cars as they have taken out of the country. One pulp manufacturer stated this week that they had nearly three thousand tons awaiting shipment, and were away behind in thier deliveries owing to congestion on the transportation lines. Speaking of the prices of sulphite, he thought they would hold firm around seventy dollars for unbleached and one hundred and ten for bleached. Business was gradually picking up, and more inquiries received for contracts and deliveries. Some new tonnage coming on the market had resulted in offers being made by these mills at a slightly less figure in order to get a foothold, but this was to be expected.

Another feature is conscription, which is playing havoc with some of the mills, not a few of whom, unless their sales managers are successful on appeal, will lose these valuable officials. "It takes years to train a sales manager to know your goods, your customers and your business methods, and then to have an exemption tribunal refuse to allow the claims of these men for exemption is going too far," remarked a manufacturer this week. "I do not know where I can lay my hands on a man. I advertised the other day, and I got nineteen replies, but not one was a trained, competent and up-to-date man. Skilled help, whether in the office or the mill, is difficult to replace, and in these days cannot be secured at all, and when men of this character are called upon to go, legitimate business is being interfered with and hampered. All the mills have given liberally of their labor to help win the war, and have subscribed large sums to the Victory loan. I doubt if any other industry can make as good a showing as has been done by the pulp and paper manufacturers."

Of late, there has been incorporated a number of companies in Canada in the pulp and paper line, with huge capitalization. They are evidently getting ready for the rapid development after the war, and foresee the great future which awaits the paper industry in the Dominion. There has not yet, so far as can be learned, been anything done by J. J. Carrick or Samuel Marks in connection with the erection of a pulp mill on the Pic River or Black Sturgeon pulp wood concessions. It is just about a year ago that these lands were let to the gentlemen named, on condition that each would erect a ground wood plant of one hundred and fifty tons capacity. Two hundred thousand dollars was to be expended on the project the first

year and so far as known, no companies have been organized; neither have sites been selected nor any development work undertaken. A third pulp wood limit is about to be let and the trade is wondering if the awarding of such contracts is to proceed without the bidders being made to live up to the terms of the provisions of their contracts. Other companies without limits have erected mills since the contracts were let, but the concession owners have done nothing in the way of development.

In the rag and paper stock market there is every evidence of quietness until after the holidays. Prices are falling on most lines every day, and the situation is not interesting to either buyers or sellers. There is only a fair demand for new and cotton rags.

Board mills are only fairly busy, and it is rumored that if things do not improve, there may be another cut in prices. There is one bright ray in the horizon and that is, all package cereal manufacturers will be licensed and permitted to operate as before the package goods order-in-council was published. It has been demonstrated to the Food Controller that no economy would result from abolishing cartons or packages, twenty pounds and under in weight. All goods will carry on the package a license number. If the order at first projected by Hon. W. J. Hanna had gone into effect, it would have meant a great loss and hardship to many millers, carton manufacturers and box board makers. Thousands of cartons would have been rendered useless, and a large number of persons thrown out of employment. It has been proved that carton cereals are appreciated by the housewife for their convenience, cleanliness and sanitary qualities.

Jobbers are now selling kraft at a reduction of one-half cent to consumers, grocers and others who handle the product in limited quantities. 9¼ cents per lb. car load delivered; 10 cents, one-ton lots and up, delivered; 10½ cents, less than one-ton lots. This applies to machine finish, M.G., plain or broad stripes is one-half cent higher; kraft paper, 24 x 36, 20 lbs. basis, is one cent more, and kraft paper, 24 x 36, 17-18 lbs. basis, is one and a quarter cent more. The terms are net thirty days, and car load deliveries are to be fifteen tons delivered to one person at one place and at one time, except when customer has branch stores in which case deliveries may be made to branches. One cent is asked extra for colored kraft.

The following prices prevail f.o.b. Toronto. Paper prices are unchanged.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$33.00 to $35.00
Sulphite, easy bleaching	$65.00 to $70.00
Sulphite, news grade	$50.00 to $60.00
Sulphite, (bleached)	$110
Sulphate	$80.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.00
No. 1 soft white shavings	$2.00
Mixed Shavings	70c
White Blanks	$1.50
Heavy ledger stock	$2.00
Ledger and writings	$1.65
No. 1 magazine	$1.20
No. 1 book stock	$1.10
No. 1 manila envelope cuttings	$2.10
No. 1 print manila	$1.10
Folded news	70c
Over Issues	80c
Kraft	$2.50
No. 1 clean mixed papers	50c
No. 1 shirt cuttings	$7.75
No. 1 unbleached cotton cuttings	$7.50
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.00
Bleached shoe clip	$6.50
Unbleached shoe clip	$5.75
White cotton hosiery cuttings	$8.00
Light Colored hosiery cuttings	$7.50
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues (repacked)	$2.75
Flock and satinettes	$2.10
Tailor rags	$2.15

NEW YORK MARKETS.

New York, December 3.

Keen interest has been manifested in the past week by the trade, in the various steps being taken by the government bodies to bring about some sort of relief to the freight situation. At the present time, the situation is regarded as very acute and promises to grow more so all of the time, and it is said that there is every indication that the consumers of paper and pulp will feel the effects of the present conditions before many weeks have passed. Of course, everyone is gratified to see actual relief work in progress, but, after all, there is little to be expected by the civilian trade. It is true, that, through the various schemes that are to be put through, freight traffic will be accelerated—but only for government business—and, at that, only for rush government orders. At the rate embargoes are being declared in various sections, it is hard to tell how some of the mills will be able to dispose of their product—or, how, on the other hand, they will be able to get some of their raw supplies. There are a good many in the trade who have been referring to such talk as this as "calamity howling," but things are getting to the point where they must be faced. To emphasize this situation, advices have recently been received from a concern in the Northwest, that it has closed its plant for a short time awaiting the ability of the railroads to offer cars so it can dispose of its paper. According to the advices, there was no relief in sight from the congestion, and it was not known how long the plant would have to remain shut down.

In the chemical pulp market, no improvement of any real sort has been noted, so far as the domestic trade is concerned. Some sales of domestic pulp of moderate sized tonnage for export are being effected, and sellers are securing very attractive prices for supplies diverted to this channel. In certain cases, as much as a cent per pound more than domestic consumers are paying is being obtained from exporters. Bleached sulphite, as an example, which commands only between 5½ and 6 cents a pound from paper mills in the United States, has lately sold to export firms for as high as 7 cents a pound. This stock, however, is specially wrapped and baled so as to withstand the wear and tear of the trip abroad. South American paper manufacturers are reported looking to this country for their entire supplies of pulp at present, and several local concerns are developing a

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very substantial export business in chemical fibres. Very little stock is being received from abroad. A leading factor in the trade stated during the past week that, to the best of his knowledge, not a ton of sulphite had arrived in this country from either Norway or Sweden within the past six weeks. Dock stocks held by importers are growing lighter and lighter. On the best authority, it was stated that only 35,000 or possibly 40,000 tons of foreign pulp was now held in store in the United States. Another thing that has been suggested—perhaps worthy of note. Although, pulp was not included in the import embargo named by President Wilson this week, it is thought not at all unlikely that it may be so before any great length of time has been passed. Of course, import licenses would be granted in such an event, but it is very certain that the government would not be inclined to show any leniency, and would want to make its power felt by keeping out products of such countries as show unneutral feelings.

In ground wood, difficulties surrounding the transportation of timber to grinding plants is still the most influential factor. The shortage of wood at the mills and the lack of freight cars in which to make the hauls keeps the production of pulp on a limited scale and quotations, therefore, are well sustained, in spite of the unseasonable demand now emanating from consuming centers. Reports are heard from time to time of some lots of pulp being sold at below $35 a ton, at the grinding plant, but sales at such fibre. The majority of transactions now put through fbre. The majority of transactions now put through realize at least $35 a ton, while not a few sales have lately been recorded at $36 and even up to $38. Every indication, it is said, points to a stronger market for mechanical pulp. The consumption is gradually increasing and with manufacturers prevented from extending their operations and enlarging their output the proverbial law of supply and demand promises to place prices on a higher level. However, the chief thing, at the present time, is the freight situation. There is still said to be the possibilty that the agreemen of the newsprint men to fix prices according to the government demands, may have some affect on ground wood.

What activity was perceptible in cotton rags, was still confined to roofing stock and one or two specialty grades. Felt mills are buying in a conservative yet consistent sort of a way, and on the whole, are taking quite a tonnage of rags out of the market. Few are directly in need of additional supplies, however, and demand therefore, fails to attain such lengths as would have an influence on prices. In new cotton cuttings, however, there was a good movement forward and the market was attended by a good steady undertone. Paper manufacturers in varied sections of the country are buying reservedly but regularly and business is characterized by a very healthy tone, caused by the fact that the great bulk of rags now being absorbed by mills are for direct use. There is no question, it is thought, that demand for new paper, and particularly such qualities as bond, linen and ledger, is broadening, and the manner in which manufacturers are purchasing raw materially clearly reflects this improvement. A local dealer who just returned from a trip to New England, said that, after he had called on two writing paper plants in that section, he had to stop booking orders for the reason that the two mills in question readily took all the stock of certain grades he had to dispose of. Shirt cuttings, lawns, silesias, overall cuttings, unbleached shoe rags, flannelettes and washables, are in active call and sellers have no difficulty in securing orders from consumers. A lot of washables to a mill at 5½ cents delivered was recorded, as well as a sale of a good sized quantity of No. 1 white shirt cuttings at 9¾ cents delivered.

Demand for paper stock was still at a low ebb, and few large transactions were made by local dealers. Quotations are attended by weakness and several grades sagged to lower levels, yet consumers refuse to show interest. Mills seem to have all the stock required on hand and are definitely unwilling to take additional supplies. Mixed paper and folded news, in particular, are dull and sellers say they can hardly give such stock away. A dealer told of offering dump mixed stock to a number of consumers at 30 cents New York, and of being unsuccessful in getting an order. Flat stock is quieter. The several Middle Western buyers who have been absorbing offerings right along have retired from the market, while Eastern mills flatly refuse to buy. Shavings are dull and nominal, while manilas and krafts are unimproved and are moving in very small tonnage.

Interest of consumers in old rope continues of a negligible nature and, for this reason, business fails to show any improvement. Manufacturers claim to have all the stock on hand they desire and are buying further lots only when enabled to absorb offerings at low prices. Present quotations are at about 6¾ cents.

In the paper market, the most interesting thing of the week, was, of course, the agreement of the newsprint manufacturers with the government. Despite the verboseness of the documents, etc., the situation that was, has not been altered to any material extent, it is thought in the trade. The chief importance of the decision is the fact that the government has actually fixed the price of newsprint in rolls by the car load at $3.00, and small lots and sheets correspondingly higher, and that its interest may extend into the other branches of the industry, as it has already done with regard to book paper. The demand for newsprint continues good and the mills are working at as great a capacity as circumstances will allow. Some improvement has been reported in writings, ledgers and bonds, but nothing of the sort that would warrant rejoicing. The other lines, such as tissues, wrappings, and fibers are moving a little better, but still lack what might be termed real life. Despite all of the hope that has been expressed in various quarters, the keen observers in the trade admit that they cannot help feel certain that the economy trend, which is growing more pronounced each day, will guide, to more than a little extent, the course of many of these market during the coming few months. (See page 1148.)

WHAT CANADA PRODUCES.

There is substantial wealth and excellent credit behind the Canadian government's war loan. The value of production in Canada last year from field crops, forests, mines and fisheries was $1,292,904,812, compared with $1,071,219,879 in 1915. The details for the year 1916 are as follows: Field crops, $886,494,900; forests, $190,000,000; mines, $177,201,534; fisheries, $39,208,378.

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Best writings	21c and higher
Superfine writings	18c and higher
Newsprint, contract	3 to 3½c
Newsprint, transient	3¼ to 3¾c
Side run newsprint	4c and higher
Books, supercalendared	6½c and up
Books, machine finished	5¾c
Books, coated	7½c
Krafts	6½ to 7½c
Jute manilas	to 10c
Wood manilas	to 5¼c
Best bleached tissues	to 90c ream
Manila tissues	to 90c ream
Kraft tissues	to $1.25 ream
Newsboard, f.o.b. N.Y.	$45
Strawboard, f.o.b. N.Y.	$50
Binders board	to $65
Chipboard	$40

IF THE GOVERNMENT TOOK THE PAPER INDUSTRY.

If the Government took over the paper industry, labor would demand higher wages. The Government would hasten to grant the demand, and up would go the price of paper. The proposition that the Government should pool the total products of all mills and distribute equitably to publishers might spell ruin to large publications whose share might not be sufficient for their needs. The suspension of a single issue of a publication would mean the forfeiture of its advertising and subscription contracts. If the Government wanted to help the publishers why did it establish a zone system tax as to second-class mail that promises to drive many publications out of business?—Leslie's.

NEW DRIVE FOR PAPER MACHINES.

A new drive for paper machines has been patented by Mr. John W. Brassington, chief engineer of the American Writing Paper Co. Owing to the varying strain on the sheet in the paper machines, it is necessary to run certain parts faster or slower from time to time. This has been frequently done by slipping on to the pulleys a piece of leather. The Brassington device consists of a pulley with movable grooves, driven by ropes. By turning a wheel next to the pulley these grooves may be opened or closed, and the rope drive pushed up from the pulley or allowed to drop down, effecting the same result in a more efficient manner.

MORE NEWS.

A federal charter has been granted to the Corriveau Advertising Service, Limited, with a capital stock of $50,000, and headquarters in Montreal, to take over the business now conducted as a going concern under the style of Corriveau Advertising Service, and to carry on a general advertising and publicity business. In addition the company is authorized to do a general printing business, engraving, lithographing, bookbinding, etc., as well as to manufacture card board, paper bags, account books, paper boxes, etc.

G. M. Beale, safety engineer of the Riordon Pulp and Paper Co., of Merritton, has together with a local committee, arranged to engage the Griffin theatre at Thorold for one evening during the next two weeks, for the purpose of showing to the employees of the numerous mills in the district, the "Safety First" moving picture entitled "The House That Jack Built." This picture has been kindly loaned to the committee by the National Safety Council of New York, and it is hoped that its purpose will be appreciated by those who see it.

The Montreal Victory Loan team, captained by Wilbank Trower, formerly with the Riordon Pulp and Paper Co., won the prize for the greatest number of subscriptions in the city. The team, which had the help of the editorial and advertising staff of the Pulp and Paper Magazine, got 2,251 subscriptions.

The employees of the Ontario Paper Mills at Thorold, were agreeably surprised with the announcement that every man's pay was to be increased at the rate of four cents per hour.

The damages estimated at the recent fire at the Kinleith Paper Mills, St. Catharines, is about $3,500.

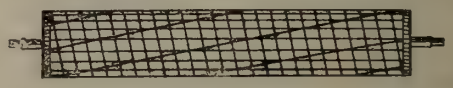
Mr. T. Safford, chemist for the Riordon Pulp and Paper Mills, at Merritton, and teacher for the senior chemistry class at the Thorold Industrial classes, conducted his students over the company's plant on Saturday, describing fully the sulphite and bleaching processes, this being part of the studies taken up by them.

At a meeting in the mill last Monday evening, President F. H. Anson, Sr., made a short address to the superintendents, outlining some of the present and future plans and ideals of the Abitibi Power & Paper Company, and expressing his appreciation of the work they had already accomplished. As a result, the boys are up on their toes and more determined than ever to carry out those plans and live up to the ideals of the Company.

Pulp Wood Producers Association.

According to LaPress, Montreal, an association has been organized in that city to protect producers of pulp wood who have been exploited or deprived of fair returns on their material. The secretary is M. Eugene Poitras.

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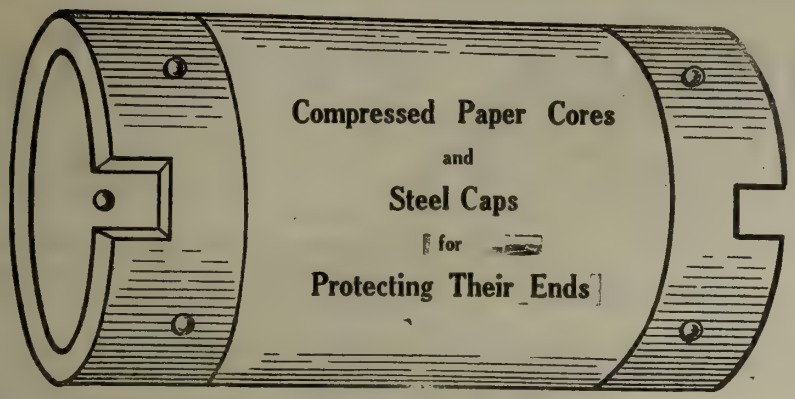
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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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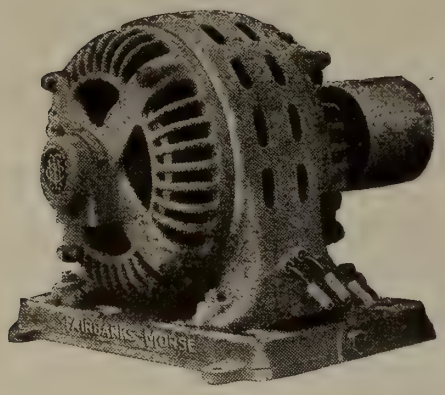
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EDITORIAL

RESEARCH, TESTING, STANDARIZATION.

One of the discouraging features of a democratic government is its unbusinesslikeness. The worst evil is doubtless patronage, and closely akin to this is inefficiency. Besides patronage as a contributory cause of inefficiency there is dispersion. This factor of dispersion is especially noticeable in scientific matters. There are departments, branches and commissions doing this, that and the other thing, often treading over the same ground and blissfully ignorant of what each other is doing.

Much valuable research work has been done by the various Provincial and Dominion departments and it is quite certain that the future will see more and more attention paid to this important phase and factor of industrial development. Because such work is just beginning to be really appreciated is all the more reason why it should be co-ordinated.

The Honorary Advisory Council for Industrial and Scientific Research, if constituted as a permanent department or bureau, would be an excellent binding medium. Such a federal bureau could do for the Dominion what the Bureau of Standards is doing for the United States. And it could well go further. As Dr. Ruttan and others have suggested Canada should have a Bureau of Research, Standardization and Testing.

Take first the matter of research. In the fields of agriculture, live stock, fisheries, minerals, forests and manufactures there are innumerable problems awaiting solution. These problems often overlap and interlink in a manner quite difficult to understand by one of an unscientific turn of mind. A central bureau where all this kind of work would be practically under one roof would have many distinct advantages. A proper organization would be a great stimulus to research in all lines of effort. By putting its positions strictly on a basis of ability and making the salaries adequate, there would be a much needed incentive for capable men to devote themselves to research work. The inspirational value of such a group of scientists would be incalculable. Each department would be an aid to the others and the concentration of effort would be a great stimulus to all. The electro-chemist would sit down with the metalluragist, the physicist with the chemical engineer, the paper expert with the textile authority and the forester, and at the head would be the best trained researcher to be had, so that questions of electricity, biology, engineering and what-not would immediately bring forth the opinion of an expert.

The reaction on our industries would be far-reaching. Natural resources and waste products would be treated with an efficiency that would squeeze from them the last cent's worth of value. Such work as the measurement of forest growth would immediately be co-ordinated with lumber, pulp and paper and hardwood utilization. The last would again touch chemical and other industries. Reports of surveying operations would be interpreted in terms of feasible applications of resources and conditions properly reported. Information would be given out in an intelligent manner.

Much duplication and scattering about of equipment and effort could be avoided. Better equipped and better manned laboratories for chemistry, physics, biology, engineering and for special industries, as pulp and paper, textiles, iron and steel, etc., could be provided than is possible in scattered localities. Library facilities would be infinitely better.

Closely allied to such a research bureau would be the field of testing and standardization. It would then be possible for the government to find out the best material for any particular purpose, centralize the purchase of like materials so as to contract for large quantities, and finally to get the worth of the public's money. That ought to do away with such a ridiculous farce as the use by the Commission of Conservation (of all people) of imported hand-made paper for letter heads and programs; or the general use for mailing a single sheet of paper, a kraft envelope strong enough to carry nails. There are numerous other materials used by the government, especially since it is in the railroad business, which could be standardized, tested and checked by a properly equipped bureau.

Such work of research and standardization would pay the Dominion well in better service, bigger business and in getting the most and the best out of our resources. The formula for success in such work is to concentrate it in one place under a broad plan and a broad man and **keep the politician out.**

SECOND THE MOTION.

To anyone having less than fourteen different sizes of catalogs the proposition of the Pittsburg Advertising Club may not be of interest. This enterprising body has started a movement for the standardization of the size of paper for catalogs and booklets. This ought to be as popular as the movements to prevent useless noise and smoke. Surely its object is to abate a very considerable nuisance.

Paper men should welcome and support the movement for two reasons. In the first place, standardization of the sizes of paper makes paper making simpler and more satisfactory in every way. This is in line with the tendency in several branches of the industry at the present time. In the second place, if catalogs and booklets were issued in two or three standard sizes they would be much more convenient to file, index and use. The chemical industries have gone so far as to have a "master" catalogue of a large number of firms and covering a great variety of items. It would not be feasible, however, to do away with the special or individual catalog and booklet. But these can and should be standardized, so as to do away with the heterogeneous mass of stuff that litters our shelves and makes us swear when we have to dig through a pile of stuff for a catalog which is the wrong size to fit in with others on the same subject.

We second the motion.

EVAPORATED VEGETABLES.

Mention has been made before of the advantages of drying vegetables, both as a conservation of waste and as an improvement on shipping, storing, and keeping qualities of these foods. The Department of Trade and Commerce reports that the potato crop is very large and gives the names of firms that evaporate the spud. The Graham Co., of Belleville, Ont., has 17 plants besides the Chilliwack Evaporating and Packing Co., at Chilliwack, B.C., the Duchesnay Packing Co., at Vancouver, and the Canadian Products Co., at New Westminster, B.C.

These concerns are mentioned as evaporating potatoes, but it is to be hoped that they will handle other vegetables as well. The dessication of vegetables has the advantage over the drying or canning of fruit in that it can be carried on long after the crop is harvested.

The writer has talked with a number of lumbermen and pulpwood operators on this question and all were impressed with the possibilities for the success of dried vegetables in their camp work. There is unquestionably a great field for food in this form and it will be gratifying to those interested in pulpwood operations to know that dried potatoes are available. They would welcome dried carrots, cabbage, turnips, etc., to the already long list of dried foods from beans to peaches.

REFRESHING.

At a time when so many complaints are heard that officials are not attending to business, it is refreshing to find the forest service of Quebec receiving well deserved commendation. No less an authority than Ellwood Wilson, forester for the Laurentide Company, in an address at Montreal last week, sketched the development of Quebec's forest policy under Sir Lomer Gouin, so ably and progressively carried out by the Hon. Jules Allard, a man of public spirit and vision, a conscientious administrator, with courage to stand out against grasping politicians and timber speculators, who has begun a system of land classification, has greatly improved the forest fire protection laws and their enforcement, has established a forest nursery and is at work on a scheme for better taxation laws and reforestation of private and Crown lands.

For the old and unfortunate settlement policy the Minister is trying to substitute a more rational one. The excellent reforestation work being done by our progressive Minister of Lands and Forests, the Hon. Jules Allard, through his Chief Forester, Mr. G. C. Piche, is most commendable.

Considerable work is still being done by private firms that should be done by the government, but the authorities are coming to realize the necessity of giving intelligent support to the forest-born industries. Quebec cannot afford to be drained of her forest resources, and now is the critical period. If proper steps are taken now, the future is secure, but if sensible measures are not put in force promptly and kept in force constantly, **there will be no future** for the industry that now has the brightest of prospects, as far as trade opportunities are concerned.

It is gratifying to know that the Minister of Lands, Forests and Mines is "onto his job." His policy toward settlers has already proved a protection to both the forest and the farmer. His plan of forest lands surveys in units on the basis of a 100-ton pulp mill is excellent. He should have the unreserved support of the province in this effort to put on a sound basis the forest resources of Quebec. It is inevitable that the drain will fall heaviest on the eastern parts of Canada, but other provinces could take some valuable notes from the work of Hon Jules Allard and his staff.

We hope to see the book paper consumers and book paper makers come to an early understandling, that the former will not be charged more than will yield the latter a reasonable profit. Nothing will do more to promote the stability and success of our book paper industry than cordial relations between the producer and consumer. This, of course, involves an appreciation of the function of the jobber, and his attitude to both sides. It is not a duet, but a trio.

With a surplus of nearly $10,000,000 for the fiscal year, the U.S. Post Office Department wants to earn still more by materially increasing the rates on second-class mail matter. The Postmaster-General says this will be a permanent charge, while the tax on letters and parcel post is only a temporary war measure. The new move will undoubtedly kill off some publications.

There are a lot of Canadians who are sorry they did not get in on that $400,000,000 Victory Loan. The wise ones are getting ready to be ready for the next one.

The Rate of Growth on Some Cut-Over Pulpwood Lands in Quebec*

By DR. C. D. HOWE, University of Toronto.

My part on the programme is to tell you something f certain investigations on cut-over pulpwood lands n Quebec, but as an introduction I would like to make . few remarks upon the general situation. The ne-essities of war are driving home to us the importance f our natural resources in the economy of a nation. Jew points in this respect develop nearly every day. Among these, our timber resources take an important lace. There never was a time, and there will never e another time for years, when it is more important or us to know what our timber resources really are, ot only in terms of board feet and cords, but also in erms of their application to new uses and purposes.

We have been talking about the management of ur timber resources in meeting similar to this every ear—several times a year, in fact, for 30 years, and hat have we accomplished? We are woefully ignor-nt of many of the fundamental facts, absolutely es-ntial to the very first tottering steps in the manage-ent of the timber resources of the country. For ex-mple, what do we really know about the extent of ie timber and pulpwood resources of Ontario and uebec, taken together, the largest timber producing rea in Eastern Canada. Can you tell me where else n this earth one can find such a large timbered area, ontaining so many valuable species, with such wonder-il transportation facilities, both natural and artificial, latively so near the great markets of the world?

This great timber producing area has been right here our back yard all these years. It now has a popu-tion of 5,000,000 along its borders, whose consump-on of wood products is increasing every day, and st over the fence is the great population of the astern States, with its growing desire, and necessity en, for Canadian wood products. In the face of con-antly widening markets and increasing demands, ve we really made any methodical, sustained effort determine the possibilities and the potentialities of e Ontario and Quebec timber resources? Do we ow whether or not this area can meet the demands w being made upon it, to say nothing of the prob-ly much greater demands in the future? The United ates is thoroughly scared over its declining pulp-od supply. We are so ignorant of our own that e don't know whether to be scared or not. Is that enviable situation for an intelligent and progressive ople?

There are at least three definite lines of endeavor ich should be prosecuted in connection with our lpwood supply problem:

1. There should be a definite stock-taking of the al-ady commercial material now available. We must ow what we have before we can make any sensible ans for the future. I don't mean the actual cruising every acre, or even of extensive areas. The results uld not justify the expense. Mathematical accuracy, if attainable, is not necessary,—but sufficient cruising and sufficient gathering of data, so that reliable estimates could be made. Such work has already been done by the Commission of Conservation in British Columbia, and I understand it is under contemplation for Ontario. A stock-taking has been made in Nova Scotia and one is now being carried on in New Brunswick under provincial auspices.

Although there have been guesses, perhaps close guesses, as yet there has been no methodical stock-taking of the present commercial available pulpwood supplies in the Province of Quebec. This, in spite of the fact that Quebec is the most important pulpwood area in Canada, supplying as she does over one-half of the pulpwood produced in the Dominion. Nearly or quite half of all the pulp mills in Canada are located in Quebec. With her long southward-flowing rivers, extending into the very heart of the pulpwood regions, with her water and rail connections, Quebec is much nearer the ultimate market for most of the pulpwood products than any other province with an equal supply of material. This very accessibility increases the danger of exhausting her supply. Logically and economically, Quebec should be the first to institute a thorough-going investigation of her present supply of pulpwood.

2. As the first step, we should find out how much pulpwood we have in Eastern Canada, its distribution and its accessibility. Then, with a known rate of consumption, we can make a reasonable prediction as to the duration of the supply. Since, however, we are dealing with living wood substance, which has the wonderful power of regenerating itself each year, we must take another factor into consideration in solving the problem of the pulpwood supply, namely, the rate of growth, or in other words, the annual accumulation of new wood fibre in our spruce and balsam forests. This involves detailed growth studies and stem analyses on carefully selected areas throughout Eastern Canada. Little less than drudgery; tedious, heart-breaking work, especially if done in fly time, but it is this kind of investigation alone that can furnish us data by which we can establish a ratio between the annual accumulation of wood fibre and the amount annually removed by the pulpwood operations. The ratio between annual production and annual consumption of pulpwood is essential to a reasonable prediction of the duration of the supply.

3. The replacement of the pulpwood removed is brought about in the first instance by the growth of the small non-commercial trees already on the area. These in turn will become of commercial size and will eventually be cut. This loss must be supplied by the production of new individuals. New spruce and balsam must establish itself in the forest if the supply of pulpwood is to be continued beyond one generation of trees. Therefore, the third thing we should know in order to solve our pulpwood problem, is the rate of reproduction of the pulpwood species on the cut-over

*Paper read at the annual meeting of the Commission of Conservation, Ottawa, November 22, 1917.

pulpwood lands. If the logging operations or the fires which often follow them change conditions to such an extent that spruce and balsam cannot maintain themselves in their former commercial quantities, then the future supply of pulpwood on those areas will fail to be forthcoming.

Investigations along the last of the three lines of endeavor outlined above, namely the determination of the rate of replacement of pulpwood material by growth and by reproduction on cut-over lands, were carried out by the Commission last summer. Through the kind co-operation of the Laruentide Company and its forester, Mr. Ellwood Wilson, the work was carried on in the holdings of this Company in the lower portion of the St. Maurice Valley in Quebec. The forest here is of the mixed type with patches of pure hardwoods and patches of pure conifers, but mostly they occur in mixed stands and hence the name mixed type. Numerically, balsam leads in the mixture, with 36 per cent, yellow birch comes next with 26 per cent. Spruce, which is practically all red spruce by the way, and not the same as the black spruce, as is generally supposed, makes up 20 per cent of the forest. The minor species are cedar 7.3 per cent, sugar maple 5 per cent, paper birch 3 per cent, hemlock 1.4 per cent, and beech 1.3 per cent.

This type of forest occupies between two-thirds and three-fourths of the region studied. The old burns and the swamps were neglected. It must be borne in mind that the results and conclusions herein stated refer only to this particular forest type and are in no way to be construed as applying to other portions of the St. Maurice Valley, of Quebec, or of Canada.

As we have already stated, the chief object of the investigation was to determine the condition of these cut-over lands with respect to the degree of regeneration and the rate of growth of the present pulpwood-producing species, namely spruce and balsam. Sample plots were established by means of the strip method. These strips, run on a compass line, were one-half chain wide and varied in length from one to 80 chains. All the trees above 8 inches in diameter on the strips were calipered. Those from 8 to 4 inches in diameter down to trees breast high, as saplings. At the end of every second chain a square rod plot was established and the seedlings on the plot were counted, a seedling being considered anything less than breast high without regard to its actual age. The number of seedlings per acre was calculated on the basis of these square rod plots. The ages of the seedlings in relation to the time of the cuttings were also determined. The stumps on the strips were also calipered and the approximate age of the cutting determined. The total area of the sample strips on which the trees of all sizes were thus measured, counted, and classified, comprises 60 acres.

The growth studies were made for the most part on four sample plots varying from 1-10 to 1 acre in size. Every coniferous tree larger than a seedling on these plots was cut and a complete stem analysis made of it. The rate of growth of some 2,000 trees was determined in this manner.

The original forest in the southern portion of the St. Maurice Valley was undoubtedly dominated by pine, probably for the most part white pine. We found on the average 6 pine stumps to the acre still standing. This is the average of all the sample plots taken in all the various conditions. Only 8 of the sample lots failed to reveal at least one pine stump and some of plots ran as high as 20 per acre.

Considering that the first cutting of pine in region took place between 60 and 70 years ago, that there has been practically no cutting of pine s 30 years, thus allowing 30 to 70 years for the stu to decay, it is quite remarkable that the average all conditions should yield six stumps to the acre recognizable as pine. Undoubtedly, we are safe in suming that the original number of pine trees considerably more than 6 per acre.

However, I do not think of the original forest having been a pure stand of pine. Although pine biologically dominant, it was outnumbered by oth species. I picture the original forest as having a tinctly two storied crown cover. The lower st was a mixed forest of yellow birch, maple, spruce, balsam, in abundance in the order named. Towe 40 or 50 feet above this were scattered giant trees from 3 to 6 feet in diameter, from 100 to 125 high and probably 200 to 300 years old. Had th been only six such trees to the acre, they would h dominated it, but there were probably more, with however, forming a complete crown cover in this up story, except on rocky ridges. In the latter situati we often found from 20 to 30 big pine stumps the acre, evidently indicating a pure stand. To flying over the region at that time in an airplane would have appeared as a "black" forest, that is, in which the pines predominated, and the hardwo were subordinate to them. To-day the conditions reversed; it is a "green" forest, that is, one in wh the hardwoods predominate and the conifers hav subordinate position.

This change of conditions in the past 50 to 70 ye is very interesting biologically, but it also has an portant commercial significance. Those areas wh have yielded enormous quantities of white pine destitute of white pine to-day, that is, from a c mercial standpoint; only scattered groves or roc inaccessible ridges and an occasional tree tower above the hardwood forest now remain. Not only t but of still greater significance to the future, wh pine is not reproducing itself; there are practically young trees in the forest. With the exception of borders of lakes, the margins of swamps, and aro old camp clearings, we did not see last summer dozen young pine trees. I mean under the normal co of the forest, yet we found old pine stumps eve where. I can show you areas which once had 20 p trees to the acre, but are absolutely without eve young pine tree to-day not only this, but there are coniferous trees in the crown cover, it being a s mass of yellow birch and hard maple.

These, one-time white pine areas were subsequen cut-over for spruce saw logs or pulpwood at le twice and some of them three times. Our gro studies show that all the spruce trees removed lumbering operations were present in the origi forest beneath the pine trees, and they were alre at least six inches in diameter and about 100 years when the pine was cut. Many lumbermen have notion that the second cutting on an area is fr young trees which have grown since the last cutti The area which we are describing has been cut or three times in the last thirty years and the you est spruce cut was over 100 years old and most of trees were more than 150 years old. This is the

gth of time that it takes to make a spruce forest m seed to pulpwood size, when that spruce grows in company with hardwoods.

The situation is somewhat different, however, in the e of balsam. Some of these trees now being cut pulpwood were seedlings scattered on the floor he original forest at the time the pine was first cut, t is, 70 years ago.

We counted and measured the stumps on all our mple plots. The spruce stumps averaged 22 per e. At the present time, there are 6 spruce trees per e entering the crown cover and over 70 yars old, so years ago at the time of the first cutting there were spruce trees 8 inches or more in diameter on the rage acre.

t is interesting to note in this connection, that ac- ding to Mr. Ellwood Wilson, Forester to the Lauren- Company, there are 26 spruce trees from 8 inches upward in diameter in the virgin forests farther thward in the St. Maurice Valley. This result is ived from cruising surveys, totalling over 1,000 es, representing about 3 per cent of the area through ch the strips were run.

hus, you see that the number of spruce trees has n reduced from 28 to 6 per acre, a reduction of rly 80 per cent, by the lumbering operations of the 30 years, the date when spruce first began to be for saw logs. Our results show practically the e number of balsam as spruce trees taken from the rage acre, namely 22, and the number of balsam er than 8 inches in the present forest is also prac- lly the same, that is 6 per acre.

et us go back and look a minute at the original st, a pine forest with a mixed spruce-balsam-hard- d under story, giving the general impression of a ack" forest. The pine was cut and did not re- blish itself; 80 per cent of the spruce and perhaps same amount of balsam was cut. The result with- 30 years: a "black" forest was changed to a een" forest a softwood forest, to a "hardwood" st.

ery interesting, you say, but what of its economic ortance? It is this: the pine and spruce and balsam valuable, but the hardwoods, the beech, birch, and le, are, so far as we know, valueless, being too far markets to be utilized at the present prices. Let state the case from another standpoint. The sum he basal areas of the stumps of the various dia- rs on the average acre is 25 square feet. The basal of the spruce remaining on the average acre is 5 square feet. The volumes of trees are propor- l to their basal areas. This means that the capital and, therefore, the earning capacity of those s have been reduced by five times. Assuming that hardwoods are valueless and that the stumpage s remaining the same, the owner of the land, in case, the Province of Quebec, is poorer in the same Only the grace of God and the rise of stump- prices could keep a private owner out of the poor- e, who managed his timberland like that.

ere is, however, at least one other point which we ld investigate carefully before we become too mistic in regard to the future of these cut-over s. I refer to the young growth, the spruce and in trees not yet of commercial size. Are they in cient abundance to insure another crop? If so, can we expect that crop? As I have already d these are the two principal questions we had antly before us in our work last summer.

Here is the answer to the first question.

	Seedlings (Trees up to 1" Diameter.)	Saplings (1-4" Diameter.)	Poles (4-8" Diameter)	8-12" Diameter.)	Total.	Per Cent.
Spruce	635	99	30	6	770	14.8
Balsam	3.972	161	59	6	4,198	80.8
Cedar	180	32	8	.	220	4.2
Hemlock	8	2	1	.	11	0.2

At first glance, this looks very bright for the future, but let me read once more the mortality list. Spruce seedlings 635 per acre, but when they get up near commercial size they are all dead but 6! The percentage of loss is still greater in the case of the balsam. There are 6 times as many as spruce in the beginning and about twice as many when the balsam gets into its commercial class of 7 inches.

You may say that the conditions have changed since the 8" to 12" trees came through and a larger percentage of the lower diameter classes will survive. You may be right. Conditions certainly have changed, but my impression is that they have changed for the worse from the standpoint of the spruce at least, and perhaps for the balsam. Each logging operation has stimulated the growth of the hardwoods more than that of the softwoods. The crowns of the large trees soon fill in the gaps and a dense thicket of hardwood shrubbery is developed on the forest floor, thus producing more shade and keeping the spruce and balsam in a still more suppressed condition.

Turning now to the 4" to 8" diameter class, we find 30 spruce and 59 balsam on the average acre. Twenty of the spruce and 40 of the balsam are dominant and they stand a good chance of persisting. If they should all enter the commercial class, they would furnish a sufficient future supply in time. In time, that is the second question indicated above. When can we expect another crop? Our growth studies showed that the spruce trees in the 4" to 8" diameter class were from 80 to 100 years old, and those of the 8" to 12" class were from 100 to 150 years old. Therefore, it would take at least 50 years for the upper range (8 inches) and 70 years for the lower range of the class (4 inches) to reach the 12-inch minimum diameter limit for spruce in Quebec. I think you will agree with me that 50 years is too long for any private concern to wait for another crop of spruce on these cut-over pulpwood areas.

The amount of balsam consumed for pulp is apparently increasing each year. The present increased demand for pulpwood has led to a rapid extension in the proportion of balsam used. So if our 40 dominant balsam between 4" and 8" on the average acre reach commercial size, they would represent a valuable asset. In fact, some in this class are already commercial, for the minimum diameter limit for balsam in Quebec is 7 inches (but unfortunately the number of this diameter cannot be separated from the 4" to 8" class.) However, according to our growth tables, it takes only about 10 years on the average for a balsam to pass from a 4" tree to a 7" tree, so within that time there will be another corp of balsam on these areas.

Several factors, however, greatly reduce the value of balsam. As is well known, it is much subject to disease and windfall. Mr. Wilson finds that as an average of all sites 44 per cent has butt rot. We

found as many dead trees as living in certain conditions. One rarely sees a balsam tree 14" in diameter and the great majority never get beyond 9" in diameter before death overtakes them. Such small trees scattered through a mixed stand may raise the logging cost to a prohibitive point.

We come now to a consideration of what is to be done with these cut-over pulpwood lands. They belong to a provincial government and are leased by private corporations, chiefly by companies manufacturing paper pulp. Therefore, they should be considered from the standpoint of both.

1. From the standpoint of a private company. We have seen that so far as another crop of spruce on these lands is concerned, the case is hopeless. No private concern could afford to wait 50 years, to pay annual rental for that length of time for the sake of a few cords of pulpwood, probably less than two, per acre.

The amount of balsam obtainable in the near future is problematical until there has been an investigation of the rate at which the everywhere prevalent heart rot is progressing.

Unless there are business considerations which would make such a procedure unwise, these companies as soon as they realize the significance of the situation will give up their leases and return the lands to the government. If there were a general movement in this direction by the holders of timber licenses, in the long run it would be one of the best things that could happen to Quebec, for when she saw the $1,500,000 annual revenue from the forest lands rapidly decline, she would take more interest in her forests. If the minimum diameter limit of 12 inches had been properly enforced, the cut-over lands would not be in their present depauperate condition in regard to spruce. As I have already stated, in the mixed forest type in the region under discussion, the average of more than 40 acres of sample plots show 22 spruce stumps to the acre. Six of these, or more than one-quarter, were below the minimum diameter limit of 12 inches. If these 6 trees per acre could have been left and added to the six trees from 8 to 12 inches in diameter that were left, we would have had 12 trees per acre, a fair basis under the existing conditions for a future crop.

This is in no sense a criticism of the officers in charge of the inspection work. Their office simply is not granted sufficient funds to carry on the work in proper manner.

If the hardwoods could be utilized without too much destruction of the young growth spruce, the problem might solve itself. At present they are so far from market and the difficulty of transportation is so great that they are apparently valueless. However, some investigations of possibly great significance are about to be instituted by the forester to the Laurentide Company. Trials are to be made of the applicability of paper birch for pulpwood. There are enormous quantities of this material in Quebec, shading the spruce and balsam, which would be stimulated to increased growth, with the removal of the impending hardwoods. It may be possible to establish a rotation between the softwoods and hardwoods and so keep the land continuously productive.

The possibility of the use of yellow birch for railway ties is to be investigated. There is no doubt of the market for this purpose. The question is whether they can be profitably handled at the present prices. If it proves profitable, then the over-topping birc would be removed and a much larger portion of th 700 young spruce trees to the acre might develop in pulpwood.

If these possibilities become actualities, then th private concerns won't be compelled to surrender the leases.

2. From the standpoint of the government. Sinc these lands are to be held in perpetuity, it may b that their productive capacity in terms of spruc could be increased by raising the diameter limit, sa to 14 inches. A conclusive determination of this poin would involve a careful study of the comparativ rate of growth of the trees 12 and 13 inches in di meter, and whether the increased growth if present, the increased stumpage value, would outrun the com pound interest charges on the extra capital investe in the 12 and 13-inch trees. Since, however, at th present time one finds only one 12-inch spruce tree o 5 acres and one 13-inch tree on 10 acres, and since, a cording to our growth studies, it will be 100 yea before the 30 trees per acre in the 4" to 8" class wi get into the 14" class, I have not made the comput tions necessary for the discussion of the benefit raising the diameter limit.

There is, however, another consideration that seem to me important in determining the future of the land from the government's standpoint. The hardwoods ar at present biologically dominant on these areas. It may be that this is what nature intends, and that w have too great a handicap to overcome in trying t put the spruce back by natural means. Certain in vestigations to which I will refer later may throw ligh on this point.

If nature is really against us, it might be the bes thing to cut every acre off clean, if a market could b found for the hardwoods, and start the spruce ane by planting. An experimental plot of this kind, of 6 acres, has already been inaugurated by the forest to the Laurentide Company, and its developmen should be watched with much interest. It may be tha even here the biological conditions will prove the mos favorable to the hardwoods and keep the spruce alway in a subordinate position.

We talk easily of what we should do with a fores In this particular case we want to increase the pro duction of spruce, the most valuable species at pre ent on this cut-over land, or at least we would like restore it to its former position in the forest. How can this be done? One man says: Cut heavier, ope up the crown cover, let in the light. Another man says Make a lighter cut, disturb natural conditions as litt as possible. The result cannot be obtained by method so directly opposed. What is the answer? The answe is that neither man really knows what he is talkin about. Your opinion may be just as good as mine, b cause both have been spun out beneath our hats, evolved from smoke rings, as we sat in our offic chairs. **What I mean is that we have no accurat knowledge, no definite records, no actual measuremen by instruments of precision, of the conditions as the really exist in Canadian forests.** I repeat what I sa in the beginning. We have been discussing the ma agement of our timber resources for 30 years, but yet we haven't got the fundamental knowledge conditions on which it is necessary to base our plan if we were asked to-day to put them into operatio What definite knowledge we do have as to condition in which trees grow is borrowed from other countrie

even European countries, whose conditions are not our conditions. Is it any wonder that we are groping in the dark? And we will continue to grope in the dark with this matter until we obtain actual experimental records of those environmental conditions that fashion a forest.

Let me illustrate what I mean by using the Quebec cut-over pulpwood lands as an example. Here we have 700 young spruce trees to the acre growing beneath a birch-maple forest. Normally only one per cent of them lives long enough to make a commercial tree. Now, the problem is to determine whether opening up the overshading crown cover to various degrees would bring a larger number of these suppressed spruces to maturity and thus increase the value of the land to the owner. To solve the problem I would mark off certain plots, make a light cull, a medium cull, a heavy cull, and a clear cut of the over-topping hardwoods; and then I would make a definite record of results through a series of years. The intensity of the light exposure on each plot should be measured periodically; the rate of the filling up of gaps by the side growth of the tree crowns should be measured; the behavior of the shrubby layer should be noted; any changes in the humus content or in other soil conditions should be studied; the height growth and the diameter growth of the little spruces should be measured periodically, at least every fifth year. The trees that show stimulated growth should be studied very carefully, their root development, the moisture condition of the soil in which they are growing, the relative number, size and vigor of its leaves.

I emphasize the necessity of studying the successful trees, for they may be the key to the whole situation. You have all noticed in a nursery bed that certain seedlings were more vigorous than the majority, making three or four times as much growth in a season as their companions. Now, it may be that they are inherent dominants, and once dominant, always dominant. We know there are inherent domiants among animals, including man. Why not among trees? If this be the case, why waste time and money planting any trees but dominants. If this be true, it may be that those which survive in the struggle for existence in the forest are those which are predestined to survive from the beginning.

The truth or falsity of this suggestion is capable of being demonstrated by field experimentation and logically is the first problem to be solved, for, if true, it would automatically solve many other problems as well and render further experimentation along certain lines unnecessary.

Let me give one more illustration of the necessity of field experimentation, and I will put it in the form of a question. Why is the young balsam so abundant and so aggressive in the logged-over forests; why is it more successful than the spruce, its principal competitor? Unless checked by its greater susceptibility to disease balsam may in time dominate all our northern forests—no longer pine forests, no longer spruce forests, but balsam forests. Why the dominance of balsam reproduction? One man says it is because the balsam can endure more shade than the spruce, another says the spruce can endure shading better than the balsam. One man makes the first statement in one of his papers, and the last one in another; and one of our best authorities makes the two contradictory statements between the covers of one book. Personally, I think the importance of light as a determining factor in the forest has been very much over-estimated by foresters. We have accepted it as a kind of tradition from our fathers, as we accept other traditions, without thinking very much about it and still less subjecting it to experimental proof.

I would establish experimental plots in the forest where the balsam and spruce seedlings were growing naturally and I would measure the light intensities in the two cases. No only this, but other points need investigation, such as the comparative vigor of the roots of the two seedlings, their ability to penetrate the leaf litter in order to reach the mineral soil; their relative ability to endure drought; the rate and abundance of root growth in the two cases. With data of this kind, the result of measured records of environmental conditions, we could determine the reasons why certain methods of lumbering encourage the growth of spruce. With such data, we could discuss with intelligence the means by which to increase the production of spruce pulpwood in Quebec.

To improve upon nature, we must first know how nature acts and reacts upon the thing we wish to improve. This is so self-evident as to be axiomatic, but thus far we have made no determined and sustained effort to get such data in regard to the forest. This has been the basis of plant and animal breeding and it must be made the basis of forest breeding. We must not be deterred because trees grow more slowly than other plants and therefore, definite results are slower of attainment. It will require patience, perseverence, and time, but when it is done we will have reliable data on which to base our plans and we could really manage our timber lands intelligently. We could substitute a **real** policy to the trust-to-luck-and-nature policy of the past, where both luck and nature have been against us, already reducing a large portion of our incomparable forest heritage to the condition of waste lands.

PENETRATION OF PAPER BY INK.

Some useful information has been obtained by Yano, who reports in the "Journal of the Society of Chemical Industry," Tokyo, on the penetration of paper when printed.

"Various kinds of paper were printed with an ink prepared by grinding lampblack with "medium" varnish colored intensely scarlet with Naphthylamine Bordeaux, and the penetration of the colored varnish was traced by microscopical examination of thin sections of the paper. The penetration varies with the fineness of the paper fibres; in wood pulp papers the varnish easily penetrates to the back side of the paper. If the printed paper is dried at too high a temperature the varnish penetrates quickly and the pigment separates on the surface and is easily rubbed off; the drying temperature should not exceed 50°C. Drying may be carried out above 50°C., however, if manganese borate be added to the printing ink. Rosin size, though effective in preventing penetration of writing ink in writing papers, does not prevent the penetration of printing ink varnish; indeed the varnish penetrates a paper containing 20 per cent of rosin size more readily than it does unsized paper. Gelatin sizing prevents the penetration of the varnish and renders the paper unsuitable for printing. An excessive quantity of loading material must be avoided, otherwise the pores of the paper are filled and the penetration of the varnish prevented." — "Journ. Soc. Chem. Ind."

The Production Problem

British and American Methods Compared.

By P. J. O'NEILL.

In all matters affecting production, standardization is the keystone to all succesfully managed firms in the United States. Whether its application be to design materials, machinery, tools, buildings, methods or office equipment, standardization is insisted upon and carried to the limits of consistency.

In factory equipment the Americans have outstripped this country. Almost every machine tool for rapid and accurate production has of late years emanated from the States, and we have nothing to compete with these machines, but are dependent upon them. Also hydraulic power, compressed air services and electrical devices are much more in evidence in American factories than British, and "special purpose" machinery is installed in all the large factories.

The two countries afford a contrast also in the laying out of plant. The Englishman likes to group his machines according to their class, whereas the American cares nothing for appearances, and groups his machines so as to eliminate as much unnecessary transport as possible and give him the best results.

More attention has been given in the States to such matters as the heating and ventilating of factory buildings. Automatically-controlled heating installations may be seen, and, generally speaking, the American workmen are better looked after as regards washing accommodation and sanitary appliances than British workmen.

To stand outside the main gates of a factory in the States and watch the workers troop out at closing time, one could not fail to be impressed with their clothing, cleanliness and general demeanour. A similar spectacle in this country is, to say the least of it, uninspiring.

In works management America has taken the lead. It has been left to the United States to discover that shop management is a science, and that managers, to be efficient, require training along well-defined lines. This training of men to fill executive positions has been a feature of what is known as "scientific management" for some years past, and it is hoped that this country will eventually wake up to the necessity for preceding along similar lines.

Scientific management in America was due to the genius of F. W. Taylor, D.Sc., and his book, published in 1903, stands alone in the literature of industrial organization. There are already hundreds of factories scientifically managed in the States whereas, so far, there is one only in Great Britain.

There is hardly a book worth reading, certainly no standard work, on management in this country. Not only does literature abound on the subject, but every journal and magazine devoted to organisation is published in the United States.

The "industrial engineers" who specialize in re-organization work and scientific management are increasing in number and doing well in America. This type of consulting engineer has no counterpart in this country at all. A firm certainly did commence on these lines in 1907, but soon came to grief.

The production engineer in America is one of the most important and powerful officials in the executive, and exercises functions which in England are usually divided between three or more distinct departments, each more or less a law unto themselves, with results sadly lacking in co-ordination.

There is a strongly marked difference in the American attiude of mind towards the selecting of men to fill responsible positions, and this is reflected in the wording of their advertisements. The American is keen to get the right man to fill the position. The Englishman's first consideration is what it will cost to instal him. In choosing men too much attention is given to salary in this country. "State age, experience and salary required." has become a formula which too often results in the survival of the cheapest. Contrast the advertisements for help in our leading engineering periodicals with the employment bulletin in a recent number of the "Journal" of the American Society of Mechanical Engineers. In the latter you will find 34 executive positions offered. In 11 cases the firms state the salaries they are prepared to pay; in 17 cases salary is not mentioned at all; and in six only are the applicants asked to state their requirements.

Before leaving the subject of production it is interesting to note, that in methods of remunerating labor America has shown more enterprise than Great Britain. If we except ordinary piecework, the Rowan bonus system stands as our sole native contribution under this heading.

America, on the other hand, has produced the Emerson bonus system, the Towne-Halsey plan, Gantt's "Task with a Bonus" system, the Parkhurst system, the Knoeppel system, and Taylor's differential piecerate system.

The last named is probably the best from a manufacturer's point of view, but would be very difficult of introduction into England as its requirements regarding standardization of shop conditions and equality of opportunity are extremely exacting. It was this system which enabled Dr. Taylor to demonstrate the possibility of combining high wages with low labor costs.—"The Machinery Market."

*Extract from paper read at an efficiency meeting of managers and officers of the Associated Equipment Co., Ltd., Walthamstow, England.

"HOW TO PILE."

Bulletin No. 42, entitled "How to Pile", is a twenty-four page booklet just issued by the New York Revolving Portable Elevator Co., illustrating and describing the use of their Revolvator for piling cases, bales, barrels, hogsheads, rolled products, crated machinery, etc.

In piling or tiering heavy goods, this machine saves both time and labor, and permits utilization of all the floor space as these goods can be stacked clear to the ceiling.

Copies of this booklet will be sent free upon request, by the N. Y. Revolving Portable Elevator Co., 344-352 Garfield Ave., Jersey City, N. J.

It is curious to see a trade association fined and dissolved for alleged violation of the Sherman Act, and at the same time to note a movement for the suspension of the act so the railroads can get together. If it is advisable to promote efficiency in one industry, why handicap another?

Waste Sulphite Liquor and its Conversion into Alcohol

By DR. ERIK HAEGGLUND.

Technical Director Sulphite Alcohol Plant, Bergvik, Sweden.

Printing and Publishing House of Friedr. Vieweg & Son, Braunschweig, 1915.

Translated by O. F. BRYANT.
Forest Products Laboratories of Canada, Montreal.

(Continued from page 1129).

4.—The Neutralization of Waste Sulphite Liquor.

Besides SO_2 the waste sulphite liquor contains considerable quantities of organic acids in the free state, especially acetic and formic acids. According to recent investigations by Hoenig (39) the amount of these acids varies. The amount of acetic acid varies between 0.73 and 0.15 per cent and the amount of formic acid fluctuates from 0.008 to 0.016 per cent. Concerning the origin of these acids Cross (40) has shown that the acetic and formic acids produced by the hydrolysis of wood do not come from the cellulose and the wood gums, but that they are decomposition products of lignin which also contains aldehyde and acetyl groups. This hydrolysis may be more or less complete. This explains the varying amounts of acetic and formic acids.

Sulphurous acid, as is known, is a poison to yeast and fermentation. An amount equivalent to only about 0.01 per cent will kill the yeast completely within 24 hours (41). In order to get rid of the SO_2 and other acids and to bring the liquor to the proper acidity for fermentation it is aerated and neutralized.

It has also been proposed to add sulphuric acid to the liquor in order to get rid of the sulphurous acid or to separate out the lime which is present in the form of calcium bisulphite. According to the author's investigations this method cannot be recommended. The SO_2 content cannot be reduced to the point that is absolutely necessary for fermentation without adding a considerable excess of sulphuric acid which must then be neutralized. Added to this is the fact that this process does not remove the injurious non-volatile acids and, further, the method is too expensive.

The neutralizing agent which would first be thought of is lime. The use of lime, however, is accompanied with great difficulties. These are essentially of two kinds. First of all the lime breaks up a portion of the sugar in the sulphite liquor. This occurs as soon as a state of alkalinity is set up in the liquor by the lime added. However, through aeration which produces a comparatively strong agitation of the liquor, any such state of alkalinity will be very quickly compensated by the acid surroundings. Such an alkalinity though of monetary duration is sufficient to decompose a considerable amount of the sugar, between 5 and 10 per cent. This decomposition of the sugar by neutralization with lime was also observed by Stutzer (42).

The extraordinary sensitiveness of sugar to lime is shown for example by the following investigation which the author has carried out with pure dextrose solution. Lime solution was introduced with the dextrose solution into a flask which was provided with a reflux condenser, a thermometer and a tube for the admission of air. At different temperatures a slow current of air was passed through the solution.

Experiment I.

Temperature 90°C. Lime: 0.005 N.

Hours.	Sugar Per Cent.	
0	1.81	
1	1.77	
2	1.64	Solution neutral.
3	1.60	
4	1.58	
5	1.56	Solution faintly acid.

Experiment 2.

Temperature 90°C. Lime 0.034 N.

Hours.	Sugar Per Cent.
0	1.65
1	0.42
2	0.33
3	0.17
4	0.12

(The context indicated that these figures should be 1.42, 1.33, 1.17 and 1.12.—Ed.)

Experiment 3.

Temperature 21°C. Lime 0.02 N (equivalent.)

Hours.	Sugar Per Cent.
0	1.48
1	1.09
2	0.99
3	0.97
4	0.77

It is shown by the above investigation that dextrose is easily developed and with a very low lime concentration.

On still other grounds the neutralization with lime alone is to be avoided. It has been proved by tests on a large scale that liquor which has been neutralized in this manner is very difficult to obtain clear, at least if the necessary acidity for fermentation is main-

(39) Der Papierfabrikant **10**, 103 (1912.)
(40) Ber. d. deutsch. chem. Ges. **43**, 1526 (1910.)
(41) Maercker-Delbrueck, Handb. d. Spiritusfabrikation, p. 487. Berlin, 1908.

(42) Schwalbe, Cellulose, p. 418, Papier Ztg., 1910, No. 9, p. 300.

tained. This lime sludge is so finely distributed in the liquor that it can only be separated to an appreciable extent after settling for several days. For the yeast and for fermentation a perfectly clear bright fermentation liquor is required.

Moreover great difficulties are experienced in the continuous distillation of such turbid liquids in that considerable amounts of amorphous lime sludge together with organic substances are precipitated in the bottom of the distillation column and in the tubes of the "dephlegmator."

After lime, calcium carbonate comes under consideration as a neutralizing agent and it offers many material advantages. In fact, by neutralizing with finely divided carbonate the difficulties in respect to turbidity and decomposition of sugar are overcome. It strikes one that by using this neutralizing agent the questions of neutralization would be solved. It was soon shown, however, that this was not the case. After some time a hard crystalline sediment was noticed on the bottom and sides of the distillation column. Investigation showed that this sediment was made up of gypsum. This layer of gypsum increased in thickness so that at the end of two weeks it amounted to about 3 to 4 cm. As this layer proved to be extraordinarily hard the removal was very tedious and time consuming and finally would bring about a complete shut-down of operations. The following has resulted from investigations carried out by the author. If the clear liquor neutralized with Ca CO_3 is treated, the liquor which was at first absolutely clear becomes turbid at 60 to 70°C. At 100 to 102°C (boiling) a copious precipitate is obtained which, as is shown under the microscope, consists of extremely small crystals of gypsum.

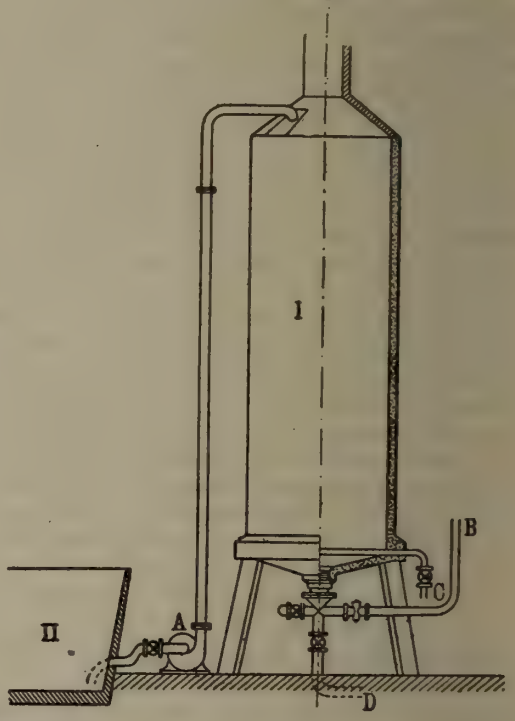
It strikes one that this gypsum originates with the "third" molecule of sulphur dioxide weakly bound to the lignin (see p. 1127)*. Working on this hypothesis the author sought to obtain a separation of the gypsum by the addition of various substances at the temperature at which the neutralization is carried out (that is, 85° to 90°C.) In these experiments he was able to obtain good results by the addition of a small quantity of freshly slaked lime. This method also works well on a large scale. Since the amount of lime was very small there was no decrease in the amount of fermentable sugar. By after-neutralization with carbonate to the proper acidity a liquor is obtained which shows no trace of turbidity, a thing which cannot be avoided when lime alone is used.

The neutralization is best carried out in the following manner:

At the same time that the liquor is being pumped into high reinforced concrete towers (see Fig. 2) of 100 cbm (26,500 U.S. gals.) capacity, air is blown into the bottom of the tower by a compressor. This aeration serves two purposes. On the one hand SO_2 and other reducing substances of organic origin found in the liquor are for the most part oxidized and destroyed and on the other hand a very thorough mixing of the neutralizing agent is obtained. The use of oxidizing catalyzers (Aktion Gesellschaft "Ethyl." Swed. Pat. 34624 (1912) such as manganese and iron salts is unnecessary according to the experience of the author. Meanwhile the proper amount of fresh slaked lime about 300 kg (660 lbs.)—is added. After half an hour the required quantity of pulverized lime stone is added; this must be as fine as possible. From time to time a sample of the liquor is taken and tested for acidity.

According to the experience of the author the acidity test is best carried out by titrating with N/10 NaOH using phenolphthalein as indicator. However, since the liquor itself is of a dark brown color the change of color to rose is most easily observed if toward the end of the titration a little of the liquor is dropped by means of a glass rod onto phenolphthalein paper or filter paper moistened with phenolphthalein. With a little practice the acidity can easily be determined within 0.5 cc. Ordinarily 20cc of liquor are titrated and the acidity is expressed by the number of cc. of N/10 NaOH used. The importance of the use of the proper acidity will be touched upon in another chapter.

Fig. 2.



I. Neutralization Tank. II. Waste Liquor Tank. A. Waste Liquor Pump. B. Air Inlet Pipe. C. Discharge Pipe. D. Washout for Neutralization Sludge.

Ordinarily at the end of four or five hours the liquor is neutralized. It must be allowed to remain in the tower a few hours to clear up, whereupon the sludge settles to the bottom of the tower. An analysis of a sludge under these circumstances is given below:

$CaSO_3$	39.6 per cent.
$CaCO_3$	35.5 " "
$CaSO_4$ & insol. sub.	22.1 " "
Organic matter	2.8 " "

As is evident, a considerable amount of unused carbonate is found in the sludge. It might be supposed that one could manage with a smaller amount of the neutralizing agent. However, this is not the case and

*One might also suppose that the gypsum is already in the solution possibly in a super saturated condition. Under such conditions it is conceivable that through heating the calcium sulphate passes into another hydrated form, less soluble in water, whereupon a portion is precipitated (see the information concerning the equilibrium between H_2O and $CaSO_3$ in Landolt-Boernstein, Physik.-Chem. Tab. 3rd Edition p. 528, and the literature given there.)

this is probably due to the fact that the particles of carbonate upon neutralization are covered with a layer of insoluble $CaSO_3$. The neutralizing action is also dependent to a large extent upon the surface, that is, the fineness of the particles of carbonate. If this lime sludge is again used in a subsequent neutralization a large portion of the unused carbonate is consumed. This occurs because the sulphurous acid in the liquor first of all dissolves a portion of the calcium sulphite whereupon the carbonate again attains its efficacy. Accordingly we are able to utilize the neutralization agent comparatively well if the sludge from the previous neutralization is used several times. In this manner it is possible to reduce the material for neutralization almost to the theoretical amount, calculated on the titration of the waste liquor.

The composition of the sludge removed after the sixth neutralization is shown by the following analysis:

$CaSO_3$	60.9	per cent.
$CaCO_3$	7.2	" "
$CaSO_4$, insol. substances	28.8	" "
Organic substances	3.1	" "
	100.0	" "

From the above figures it appears that a large amount of $CaSO_3$ can be obtained by neutralization. It is a short step to the preparation of sulphite cooking liquor from this material. Investigations in regard to this were carried out long ago by Frank Drewsen. However, a complete recovery of the calcium sulphite is not possible according to Klason (43). In order to increase the sugar content of the waste liquor it has been proposed to mix it with sawdust, peat and like substances before neutralization (44). It was thought that additional amounts of fermentable sugars could be obtained from these substances. A glance at the curves of sugar formation during the sulphite cooking process (Fig. 1), however, shows us that no fermentable sugars are formed below 100°C even with cooking liquor. Accordingly this proposition must be regarded as entirely worthless. In the method already mentioned of treating the waste liquor with sulphuric acid it is also intended to saccharify the wood dextrine of the waste liquor. The author has found that under certain conditions with a waste liquor of low sugar content an increase in the amount of fermentable sugar can be obtained. The increase, however, has proved to be so small that the gain in comparison to the cost of the sulphuric acid added and the increased consumption of the neutralizing agent is entirely delusive. From all these points of view it is therefore of advantage to provide that the composition of the cooking liquor is such that the largest possible formation of sugar is obtained. One need entertain no fears concerning the quality of the sulphite pulp which will be obtained.

After the neutralization sludge has for the most part settled to the bottom of the tower, the neutralized liquor is drawn off into a tank. After a few hours the sludge has all settled out and the liquor is absolutely clear; it is then cooled in a suitable manner and put into the fermentation vats. In order to cool the liquor it may either be allowed to flow over an air cooled checkerwork apparatus* or a water cooler made up of a number of cooling units arranged in series may be used. The latter method has proved to be especially good as by means of it the temperature of fermentation of the liquor can be regulated with extraordinary exactness.

5. Fermentation of the Sulphite Mash.

The fermentation vats which are used are of especially large dimensions. They have a capacity of 100 cbm (3529 cu. ft. or 26432 U. S. gals) and are built either of wood or concrete. The use of such large vats offers several advantages. Should a large amount of liquor be fermented—in the case of a plant of 30,000 tons production per year about 300 cbm. (10587 cu. ft. or 79,297 U.S. gals.) per day—it is easier for the manager to supervise a smaller number of large vats than a large number of small ones. The use of large vats maintains the mash at a constant temperature during the whole fermentation process. The drop in temperature in the course of four days ordinarily amounts to only 1°C. The vats are not closed and are provided with carbon dioxide scrubbers. As the alcohol yield is only about 1 per cent by volume according to the investigations of the author no loss by evaporation occurs.

The yeast which should be used must be very resistant. The sulphite mash with its high content of substances which may be more or less detrimental to the development and fermenting action of the yeast is naturally not so good a food and fermentation medium as the ordinary distillery mash. It is also of great importance to hit upon the proper type of yeast. Now as it well known, the yeast possesses an extraordinary capacity to adjust itself to the medium in which it lives and gradually to increase its resistance toward toxic substances. Owing to these properties of the yeast it is possible to breed a high attenuating yeast culture in the sulphite masher. A preliminary condition is that at the beginning a pure yeast be used, which fulfils the requirements of a high attenuating distillery yeast.

The author has investigated several breeds of yeast of the high attenuating type—among these types II. and XII, and the yeast mixture M of the Institute of the Fermentation Industry in Berlin—regarding their behavior toward sulphite mash. These investigations showed that the yeast types XII and M are particularly suitable. The results from type II are not so good. The latter moreover produces a disagreeable fermentation foam, wherefore this yeast, as judged from the experiments is not suitable for the fermentation of sulphite mash. By carrying out the fermentation properly the yeast can be so accustomed to the fermentation medium that it is to produce up to about 10 per cent higher yield than a unadapted yeast.

As was mentioned above the liquor may under certain circumstances contain a very considerable amount of dextrins of, at present, unknown compositions. The presence of such dextrins is indicated in that they produce a slow and delayed secondary fermentation. As these dextrins are only partially fermented by distillery yeast it occurs to one to investigate whether a complete fermentation can be obtained with special dextrin fermenting fungi such as "Saccharomyces Logos v. Laer," "Schizosaccharomyces Pombe

(43) Tekn. Tidskr. Afd Kemi och Bergsvetenskap, 1893, p. 33; 1908, No. 7.

(44) Wallin. Swedish Pat. No. 26852.

*An apparatus for exposing a large surface to the air. (Translators note.)

Lindner," etc. From the results so far obtained by the author it appears that this is not the case. Further investigations in this direction are doubtless of great importance to the fermentation of waste sulphite liquor. Unfortunately scientific investigation in the domain of wood dextrin has not yet made such great progress that one can hope for a solution of this question in the near future.

When it is a question of using new yeast the best proceedure is to mix about 10 cbm. (2644 U. S. Gals.) of sulphite mash, which contains a sufficiently large amount of yeast food, with about 5 kg. (11 lbs.) of pure yeast. A day before the end of the fermentation 20 to 30 cbm. (5288 to 7932 U. S. gals.) of new mash or food are added. After about two days the fermentation vat is filled up and the sulphite mash is fermented. The yeast obtained by this method is transferred into other vats, mixed with sulphite mash, etc.



Fig. 3. Portion of the Fermentation Room of a Sulphite Alcohol Plant.

There is hardly any advantage in breeding the yeast previously in mash from malt and afterwards transferring it to the sulphite mash as has been proposed; (45) as this process further complicates the progress of the fermentation and makes the manufacture more costly it has not found any field.

If a suitable fermentation process is used and troubles in operation are avoided the yeast added at the bebinning can be used for years without altering the fermenting capacity. The conditions which are above all things of first importance are the nutriment, the acidity of the sulphite mash, the temperature of fermentation and the fermentation process.

* * *

As is well known the mineral substances which are most necessary for the development of the yeast are, nitrogen, phosphorous, magnesium and iron. These substances are present in the ordinary mash of potatoes, grains and molasses in sufficiently large amounts and, indeed, the distilleries which work with the latter materials prepare the "yeast material" by doughing in malt either with rye grist (grain and molasses distilleries) or saccharified sweet mash of potatoes or corn (potatoes and corn distilleries.) In molasses distilleries yeast material is also prepared from molasses mash by the addition of so-called "yeast extract."

This yeast extract was first brought out in the distillery of E. Bauer (46) and in later times has found an increasingly greater use. The yeast extract is produced by "autodigestion" of the waste yeast of breweries. This is carried out most suitably at a temperature of from 40-50°C. The protein substances of the yeast are thereupon digested by the enzyme Endotryptose with the formation of amides.

Waste sulphite liquor contains an absolutely insufficient amount of nutriment for the yeast. As was stated above this applies equally well to nitrogen and phosphoric acid. The other substances on the other hand are present in sufficiently large quantities.

Nitrogen, as is known, is absolutely indispensible to normal fermentation or yeast development and must be offered in a form easily digested by the yeast. Amino acids are particularly suitable and ammonium salts are also easily assimilated.

The importance of phosphoric acid or phosphates for alcoholic fermentation has lately been made plain by the investigations of Harden and Young, Eiler, Lebedew and others. According to these investigations the phosphates are absolutely indispensable to fermentation. As Euler (47) has lately shown the Harden and Young equation:

$2C_6H_{12}O_6 + 2PO_4HR_2 = 2CO_2 + 2C_2H_5O + 2H_2O + C_6H_{10}O_4(PO_4R_2)_2$ applies throughout the whole fermentation period.

The sulphite mash must also be mixed with nitrogen compounds in suitable forms as well as with phosphoric acid—the nitrogen in the form of amino-compounds or ammonium salts and the phosphoric acid as the acid salts of the alkalies or alkaline earths.

Bauer's yeast extract actually contains all the substances which are lacking in waste sulphite mash and moreover in an easily digested form. This extract can be used advantageously in the fermentation of waste sulphite mash.

Although the use of Bauer's yeast extract is undoubtedly cheaper than the ordinary method for preparing yeast material it is too expensive when it is a question of producing alcohol from waste sulphite liquor. It was, therefore, necessary to seek another nutrient which could replace the yeast extract. After investigations in various directions the author has succeeded in producing a food mixture which on fermenting waste sulphite mash gives about a 5 per cent higher yield than Bauer's yeast extract. The cost of this yeast food is about one-fourth that of the extract (see further on.)

It has been known for a long time that the reaction of the fermentation medium is of great importance to the yeast and the fermentation.*

That is, it has been shown that a weakly acid reaction is suitable for the development and fermenting action of the yeast. It is not a question of the absolute concentration of the acids, but the hydrogenion content of the solution. As was mentioned above the acidity

(45) cf. Segerfelt, Tekn. Tidskr. Afd. Kemi och Bergsvetenskap 1910. Vol. 7.

(46) Cf. Maercker-Delbruck, Handbuch der Spiritusfabrikation 9th. Ed. p. 621. Berlin, (1908.)

(47) Euler and Johansson, Zeitschr. f. physiol. Chem. **85**, 192 (1913.)

*Cf. The monograph of the author "Hefe and Gaerung in ihrer Abhaengigkeit von Wasserstoff und Hydroxylionen" Samml. chem. techn. Vortraege. Vol. 21. Part 4. Stuttgart, 1914.

of the sulphite mash was determined by titration with alkali and by practical trials the optimum working conditions of the yeast were reached at an acidity of 10 degrees. Under the above-mentioned conditions this acidity test is not unobjectionable for by titration the hydrogen-ion content is not determined but rather the total amount of acids—in this case chiefly acetic acid, formic acid, etc. If one wishes to know the hydrogen-ion concentration in this case measurements with the hydrogen electrode must be made. In practice, naturally, such a method cannot be considered. However, one is justified in assuming that the "degree acidity" is proportional to the hydrogen-ion concentration since the organic acids in the sulphite mash are sufficiently constant in respect to their nature and relative amounts. The above empirical number is also a sufficiently good indication of the acidity of the mash.

The fermentation of the sulphite mash has proved to be most advantageously carried out by so-called continuous fermentation as in the beet and molasses distilleries. This is very advantageous from several points of view. Owing to its origin and treatment by transferring to the fermentation vats the mash is absolutely steril. With a suitable acidity it is easy to prevent infection in contrast to the case of distilleries which work with mash from raw materials of high starch content.

There are various methods by which continuous fermentation can be carried out (48.) The most important are the following:

1. The ferment for the other fermentation vats is obtained from the starting vat in which fermentation is introduced by means of pure yeast. The proceedure is as follows. As soon as the mash in the starting vat A reaches a state of rapid fermentation a portion of it is transferred to another fermentation vat B. A as well as B are then filled with fresh mash. After some time a portion of the fermented mash in A is again transferred to a third vat C, filled with fresh mash and so on.

2. Another method is distinguished by the fact that the ferment is not introduced from a single vat, as above, but rather the vat C is supplied with yeast mash from B, D and C, etc. Also as soon as the fermentation in the starting vat is sufficiently rapid a portion of the mash is transferred to vat B whereupon A as well as B are filled with fresh mash. As soon as fermentation in vat B has advanced to the proper point Vat C is supplied with ferment from vat B. Then vats B and C are filled with unfermented mash and so on.

3. The third method originated with Guillaume and was introduced advantageously into beet distilleries by Egrot and Grange. It is characterized by the fact that only the starting vat employs fresh mash and the flow of the mash is absolutely continuous. A quantity equal to that which is partly fermented is transferred from the starting vat to the fermentation vats where the fermentation is completed. This process has been described more in detail in another place, (49.) A more detailed description here would be superfluous.

The author has tried the first two of the above methods in a sulphite distillery. It was found that the first method was much more advantageous than the second. As to the reason for this; up to the present time nothing conclusive can be said. By a slight modification of the second method very good results can be obtained as the author has found that only a small amount of fermented mash need be left in the fermentation vat and with this remainder a second fermentation is produced upon the addition of fresh mash. Up to eight fermentations can be carried out without the yeast losing any of its efficacy. After this it is best to empty and wash out the fermentation vat. Then new ferment is introduced from another vat and so on.

A modification of Guillaume's continuous fermentation method, for sulphite mash, has been carried out experimentally on a large scale for some time. The investigations are not yet completed. It appears that the troubles which can be traced back to the occurrence of a "dead point" in the course of fermentation can be avoided.

The avoidance of "dead points" in the preparation of the yeast and the course of fermentation is a golden rule in grain and other distilleries. It is to be understood from this that the series of single operations of the preparation of the yeast and the course of fermentation is as far as possible unbroken so that at no point does a stop occur.

Above all things a "dead point" is to be avoided in sulphite distilleries, a thing which occurs if the mother yeast is not supplied with unfermented ("fresh") mash either before or immediately after the fermentation is finished. Apparently this depends for the most part on the rapidly increasing acidity of the mash. Absolutely dependable investigations in this direction on wort have recently been made by Luers. As these investigations are of interest in this connection one of Luers' tables is given here, (50.)

Temperature 8°.

Fermentation Time Hours.	Concentration H-ion (Normality.)
6	3.39×10^{-6}
17	9.12×10^{-6}
25	3.24×10^{-5}
41	2.46×10^{-4}
50	4.37×10^{-4}
65	1.02×10^{-3}
89	1.29×10^{-3}
113	1.59×10^{-3}
160	1.86×10^{-3}

This table shows us plainly that the power of the yeast for producing acid is extraordinarily great and it cannot be wondered at that the yeast is harmed by long storage in such an acid medium.

Several opinions prevail as to the influence of atmospheric oxygen on alcoholic fermentation. Chudiakow (51), Giltay and Alberson (52), Handen (53), and others are of the opinion that aeration retards fermentation while Iwanowsky (54) holds the opinion that atmospheric oxygen is without influence. Moreover there are other authors who are of the opinion that aeration promotes fermentation: Brown (55), von Laer (56), Buchner and Rapp (57), and others.

(48) Cf. Sidersky "Brennereifragen" Sammlung Viewig, p. 12, Braunschweig. 1914.

(49) Sidersky, Brennereifragen loc. cit.

(50) Zeitschr. f.d.ges. Brauereiwesen, **37**, 79, (1914)

(51) Landw. Jahrb. **23**, 391 (1894.)

(52) Jahrb. f. wiss. Bot. **26**, 543, (1894).

(53) Medd. aCrlsberg Labor. **2**, (1881.)

(54) Bot. Zentralte **58**, 344 (1894.)

(55) Journ. Chem. Soc. **1**, 369, (1892.)

(56) According to Kohl. Die Hefepilze, p. 126, Leipsig, 1908.

(57) Loc. cit.

The reason for these various opinions depends chiefly upon the way in which the investigations of this matter have been carried out. While some investigators have studied the development of the yeast by the varying oxygen content others have determined the alcohol or carbon dioxide formed or the sugar consumed. Now it is by no means established that yeast development and alcohol formation are parallel occurrences. It has rather been shown that there is no fixed relation between the fermentation action and the growth of the yeast, (58.)

But what can be established with certainty and moreover has a long time been a well known fact is that with a high oxygen content the development is much greater than with a lack of oxygen. Further, it is well known that the highest alcohol yield takes place when air is excluded. Thus, for instance, Giltay and Aberson were able to show that by abundant aeration 75 per cent and on the other hand in the absence of air 90 per cent of the sugar was fermented. However, it must not be supposed that in the latter case the best living conditions for the yeast exist. It is certain that yeast development is very small.

Since continuous fermentation presupposes that yeast development is so great that in each new fermentation in the vats a sufficient amount of ferment is present, care must be taken that the mash contains a sufficient amount of oxygen. If this is not the case troubles in operation soon take place which manifest themselves chiefly in prolonging the fermentation period.

Furthermore, it is to be feared that if in the new pitching too small an amount of yeast is added, the acidity, which the sulphite mash possesses under normal conditions, which offers the most favorable living conditions for the yeast, will be too great, whereupon the yeast on account of its great sensitiveness in this direction will be injured.

On the other hand it must not be overlooked that with rapid yeast development large amounts of sugar in the sulphite mash are consumed by the respiration of the yeast which naturally lowers the yield of alcohol.

In this connection it should also be remembered that a special aeration of the mash is not ordinarily undertaken in those distilleries in which it is essential to obtain the highest yield of alcohol from the doughed in starch. The amount of air which the mash is able to take up during cooking in the fore-mash vats is fully sufficient for the cultivation of an amount of yeast which can bring about as complete as possible a fermentation in a certain time.

In sulphite distilleries conditions are very similar. During neutralization and aeration a portion of the organic substances in the liquor will be oxidized. Apparently this oxidation is for the most part irreversible, so to speak. In addition the oxygen is combined in a reversible manner and this is combined with a more or less strong color change in the liquor from yellow to brownish black. During fermentation the liquor becomes lighter because the oxygen is absorbed by the yeast. The amount of oxygen, which the yeast takes up in this way is sufficient for its proper development.

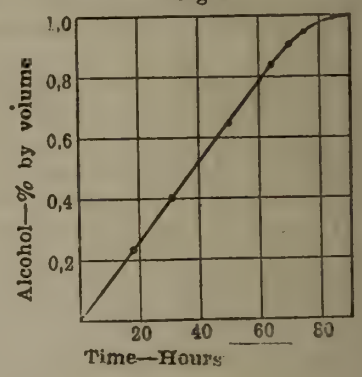
The data concerning the best fermentation temperature differ. Some investigators give a temperature of 27°C, others 33°C, and still others 31°C.

As was mentioned above in sulphite distilleries a temperature of from 29 to 30°C is used. At the end of the fermentation, after 70 to 80 hours, the temperature has dropped to 28 or 29°C, a very small change.

It has been proposed to use a lower temperature at the beginning of the fermentation and a higher temperature—about 32°C—toward the end, (59). This is supported by the fact that mannose is only fermented at a temperature higher than 30°C. The proposition is absolutely wrong, therefore this method is wholly unsuitable.

The fermentation process, as with fermentation in general, can be regarded as divided into three stages. The first period, the preliminary fermentation, is characterized by a slight evolution of carbon dioxide and a strong germination of the yeast. After this comes the main fermentation which lasts about two days. This is distinguished by rapid evolution of carbon dioxide and comparatively large amount of foam. The after-fermentation lasts about a day and is characterized by a decreasing amount of carbon dioxide and a smaller amount of foam. During this time it is highly probable that the dextrins of the liquor are in part fermented. The total duration of the fermentation process is, accordingly, from 3 to 4 days.

Fig. 4.



The three periods mentioned cannot be sharply divided from one another. This is also shown by the following investigation concerning the formation of alcohol in various lengths of time.

As is evident from Figure 4 the rate of fermentation is fairly constant. This applies also to the time when the evolution of carbon dioxide is invisible or scarcely perceptible. With a constant amount of yeast the rate of fermentation decreases, as is known, (60), which apparently depends upon the fact that the products of fermentation act to decrease the activity of the fermenting enzyme. If at the same time a development of the yeast takes place the decreasing power of fermentation of the yeast cells can be compensated and a constant rate of fermentation during the whole fermentation process can be obtained.

As has been emphasized many times, the alcohol yield depends upon a series of conditions. The sulphite cooking, the sugar content of the waste liquor, neutralization and fermentation are all factors which

(58) See the author's monograph "Hefe and Gaerung in ihrer Abhaengigkeit von Wasserstoff — und Hydroxylionen," p. 43, Stuttgart, 1914.

(59) Segerfelt, Tekn. Tidskr. Afd Kemi och Bergsvetenskap, 1910, Vol. 7.

(60) See the author's monograph, "Hefe und Gaerung, etc," loc. cit.

can each of itself influence the amount of alcohol produced. Cooking and the conditions connected with it apparently produce the greatest fluctuations; but the more or less suitable after-treatment of the waste sulphite liquor, that is neutralization and fermentation, may cause the fermentable sugar to be converted into alcohol in varying proportions.

On this basis the yield of alcohol may vary between 0.5 and 1.4 per cent. by volume.

Under favorable conditions the average yield is about 1 per cent. by volume.

6. Distillation of Sulphite Mash and Rectification of Alcohol.

Under ordinary conditions a complete separation of alcohol produced offers no very great difficulties. This is true under the condition that modern continuous distillation or rectification apparatus is used.

Sidersky in Vol. 6 of this collection (Vieweg's Natural Science Series) has given a commendable description of the operation of this apparatus. It is only necessary to mention it here.

However, it seems advisable to call attention to some of the demands which must be made upon the distillation-rectification apparatus in a sulphite distillery. Besides the complete separation of the alcohol, the rectification of the alcohol to the highest possible strength and the continuous separation of the heads and tails special weight should be placed on the following points: first, the steam consumption of the distillation apparatus and second, the resistance of the apparatus to the action of the hot sulphite mash.

Regarding the first point, it seems from the small amount of data available concerning the steam consumption of various distillation apparatus that this may vary greatly.

The following figures, which are taken from the "Handbuch der Spiritusfabrikation" by Maercker-Delbrück gives an idea of this:

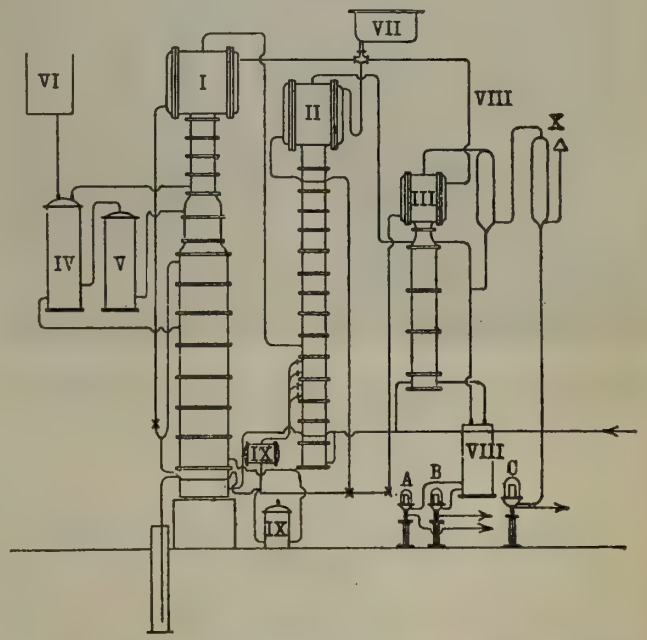
	Per 100 liters. of mash†		Per 100 gals. (U.S.) of mash†	
	Coal consumption kg.	Steam kg.	Coal consumption lbs.	Steam lbs.
Ilge's old apparatus . .	3.18	26.00	26.6	217.0
Christoph's apparatus	3.34	27.3	27.9	228.0
Ilge's automatic fine spirit apparatus	3.43	28.0	28.6	233.8
Column apparatus of Waegener Küstrin . .	2.90	23.7	24.2	198.0
Column apparatus of Zimmerman, Prenzlau	2.40	19.6	20.0	163.7
Column apparatus of Gessner, Beeskow . .	2.78	22.7	23.2	189.5
Column apparatus of Schmidt, Nauen . . .	2.45	20.0	20.5	167.0
Column apparatus of Gebr. Avenarius, Berlin	2.45	20.0	20.5	167.0

†The alcohol content of the mash was 9.87 per cent. by volume. It was assumed that 1 kg. of coal produced 4900 useful heat units (1 lb. of coal produced 8820 useful B. T. U.) and for the production of 1 kg. of steam 600 heat units. (1 lb. of steam, 1080 B. T. U.) must be used.

In the sulphite plants which have hitherto been built the continuous distillation-rectification apparatus of the firm Gebrüder Avenarius in Berlin have been used exclusively. They are saving in steam as the above figures show. Moreover they are not attacked by hot sulphite mash. They are built of cast iron and covered at the bottom and on the inside with a resistant enamel lining. Fig. 5 is a schematic representation of an Avenarius distillation-rectification apparatus. As is evident from the illustration sulphite mash is used exclusively for cooling the dephlegmator. In this way the mash is heated to about 75°C. If the mash coming from the dephlegmator is allowed to pass through preheaters in which a portion of the heat of the residual liquor from the distillation process, which has a temperature of 107°C is utilized, the temperature of the mash can be raised from 10 to 15°C. In order to reduce the amount of heat lost through radiation it is recommended to cover the column with insulating material.

By accurate measurements it has been determined that the steam consumption per cubic meter of mash amounts to from 160 to 170 kg. (10 to 10.6 lbs. per cu. ft. or 134 lbs. to 142 lbs. per 100 U. S. gals.)

Fig. 5.



I. Mash Distilling Column. II. Rectifying Column. III. Heads Column. IV. Soda Column. V. Froth Column. VI. Soda Tank. VII. Feeding Apparatus. VIII. Heads Cooler. IX. Tails Separator and Cooler. X. Heads Cooler. A and B Spirit-Gauges for Ia and IIa Alcohol. C. Spirit-Gauge for Heads.

After neutralization, as has been said, the liquor contains a small amount of organic acids. During the fermentation small quantities of by-products, principally acids, formic acid for example, are also formed. During the distillation process a portion of these acids will be carried over with the alcohol vapor. In order to absorb these volatile acids the alcohol vapor is allowed to pass through a soda filter or through a wash-

ing column containing soda liquor. In this way the acids are removed. The soda consumption is very small so that the cost of purification is insignificant.

In this connection it should be emphasized that in the distillation of the fermented mash which is properly neutralized no formation of SO_2 can be detected.



Fig. 6. View of the Second Story of the Distillation Room of a Sulphite Alcohol Plant.

(To be continued.)

CANADA IS THE "WOOD PILE" OF THE EMPIRE.

Canada holds the only large forests in the whole British Empire. Australia and New Zealand, and South Africa have sacrificed most of their original timber to the fire fiend and ruthless exploitation. These facts emphasize Canada's strategic position as containing the only "wood pile" available to the Empire except those of Russia. Sixty per cent of John Bull's huge timber demand is supplied by the Russian people to-day, for the British Isles provide only one log out of eight actually needed for home use. What part Canada's forests will play in British trade after the war is problematical, but there is no lack of prophets to predict that every square mile of growing timber will double in value under the strain of post-bellum demand from the devastated districts of Europe. Meanwhile Canadian Governments can prepare to take full advantage of increasing timber values by thorough fire protection and scientific control of wasteful lumbering.

PAPER MANUFACTURING IN ARGENTINE.

(Special translation from "Farmand".)

The high prices of paper has made the question of manufacturing pulp and paper from domestic raw materials imperative. The alternatives proposed are not promising since the parts of the country where the raw materials can be found in sufficient quantities are too remote.

The following three projects have been proposed:

1. To use the Neuguensaen pine (Araucaria Taubricata) which is found in abundance in the South Western territories. Two years ago an attempt was made to get a mill started to manufacture paper but this scheme did not materialize, principally on account of heavy cost of transportation. The wood was suitable although very pitchy.

2. Another idea was to use bagasse but this suggestion did not prove profitable, also on account of high cost of transportation.

3. The third project is to build three small pulp mills in the province of Entre Rios and manufacture kraft pulp from "Paja de lino" or linen flax, the pulp to be used for bag paper. To this end a company has already been formed but they have not as yet been able to start up from lack of machinery.

Several years ago the possibilities of using the raw materials of Argentine for paper manufacture were thoroughly investigated by competent German authorities. Bamboo and other materials were considered. The product was satisfactory but the manufacture was not considered profitable.

At present Argentine has 8 paper mills with 32 machines. Of these mills five only are of any importance:

La Argentina, Zavate, 11 machines, 3 in operation.
El Fenix, V. Lopez, not in operation.
El Fenix, Campana, 3 machines.
Compania General de Fosforos, 2 machines.
Casati, San Nicolas, 2 machines.

The four last mentioned companies have a daily production of only 20 tons, mostly wrapping paper and card board.

Before the war the yearly import was 45,000 tons paper, 10,000 tons carton, and 30,000 tons pulp.

ENGLISH FUEL RESEARCH STATION.

The Journal of the Royal Society of Arts describes the work and problems of the Fuel Research Board. The South Metropolitan Gas Co. has offered to rent land at a nominal rate, plan the erection, and make contracts for the necessary buildings, and assist in every possible way. A permanent plant is planned. The main problem is to produce fuel oil by low temperature carbonization and work out uses for the by-products.

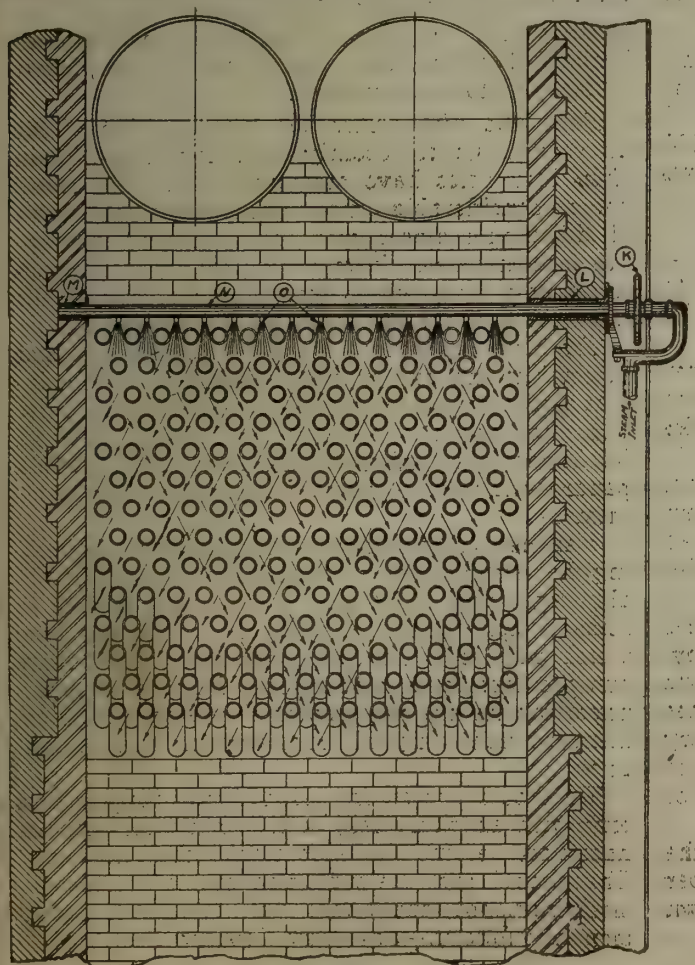
The cost of making money, of literally making it, where it is made of paper, also is advancing. It has gone up, within the last year, at the rate of $2 a thousand sheets, owing to the increased cost of labor and materials, according to a report of the Bureau of Printing and Engraving at Washington. For that matter, the United States Government has recently been compelled to pay a great deal more for the silver it used in coinage than formerly. And it might be added, when the stamp taxes are considered, that it costs more to spend money than formerly.—Christian Science Monitor.

Keeping the Boilers Clean Externally

By HENRY BERT, Milwaukee, Wis.

The writer has been in constant touch with matters pertaining to the operation of the boiler room for a period of twenty-five years and in his experience covering that length of time has come in contact with nearly every make of steam boiler that has been in practical service. Any special design of boiler will have its special methods to follow out to keep the boiler clean internally, but it has only been developed in the last few years that the external parts of the boiler could be cleaned by the use of mechanical appliances, while in service. It may be safely said that a boiler plant of one thousand horse-power capacity will require the services of one man to keep the tubes clear of soot by using the old method of blowing them by hand. There will still be parts of the tubes that can not be reached by the old method of blowing; soot will accumulate in the ends and corners, corrode the metal, lessen the efficiency of the boilers and cause a high fuel consumption to develop the power. Good combustion will not be present under these conditions.

When the different manufacturers of soot blowers began to offer their several methods to the market, the writer became very interested, investigated the matter very thoroughly, and was convinced that the mechanical blowers made at that time were adapted for the installation in new boiler plants only. The only way in which they could be installed was to do so when the boiler settings were being bricked in. To install the blower after the boilers had been assembled, meant that it would be necessary practically to dismantle the boilers and change the brick work to such an extent that the cost would not justify the installation at that time.



The "world do move" and with it everything else — even soot blowers and then soon came to be offered to the market an appliance which appeared to have decided advantages over old methods and very simply and easily installed. The manufacturers, The Diamond Power Specialty Co., of Detroit, Michigan, having confidence to believe they had the right article installed one at their own expense subject to our approval and acceptance, providing the blower performed to our satisfaction. Stipulation was made that none of the brick settings of the boilers was to be disturbed by the installation of this appliance.

The results from this one blower were so apparent that all the other boilers in the battery were similarly equipped with the result that we were able to dispense with the services of two laborers whose duties had been to clean the tubes by hand, showing a saving of $4.80 per day, which at the end of the year was sufficient to pay for the installation of the blowers.

At the time of installation the boilers were being operated to their fullest capacity. Such is still the case. The same amount of fuel is consumed but an increase of seventy horse-power has been made, or about seven per cent.

The first essential to economical boiler room operation is boilers clean both externally as well as internally.

In support of the writer's position as regards these blowers, permit me to offer a report from no less an authority than J. A. Moyer, Professor of Mechanical Engineering of Pennsylvania State College, who says:

	Test No. 1 without tube cleaner	Test No. 2 with tube cleaner
Water evaporated per lb. of coal as fired, lbs.	8.06	8.72
Equivalent water evaporated from and at 212 deg. per lb. of coal as fired, lbs.	9.50	9.97
Equivalent evaporated from and at 212 degrees per lb. of dry coal, lbs.	9.61	10.06
Efficiency including grate, per cent.	68.3	71.5

$$\text{Saving of coal} = \frac{71.5 - 68.3}{.683} = 4.7 \text{ per cent.}$$

Load conditions good.

Very truly yours,
J. A. MOYER (Signed),
Professor of Mechanical Engineering.

TO BLUEPRINT FROM TYPEWRITING.

It is sometimes desirable to make blueprint copies of typewriting. A very satisfactory negative can be made by putting behind the original sheet, a sheet of carbon paper with the carbon next to the original. If a carbon copy is desired, a second sheet of carbon can be used behind the first, but the "other side up." This scheme prevents parallax and gives a good print in quick time.

BERLIN MILLS AND BURGESS FORM BROWN CO.

The merger of the Berlin Mills and the Burgess Sulphite Fiber Co., of Berlin, N.H., into a new corporation to be known as the Brown Co. is a picturesque reminder of the fact that the really successful paper companies are the ones about which little or nothing is heard. The paper companies which are in the stock market eye are generally those which were formed in the ultra-optimistic days of 1898 to 1900 and which were given capitalizations that their earning power has not been able to support.

The Berlin Mills and the Burgess Co., however, belong to the class of conservatively capitalized paper companies. They have been highly successful and at present are earniing a tremendous percentage on their outstanding capital. The Burgess Co. is capitalized for but $1,000,000 and is the largest producer of bleached sulphite fiber in the world. Its product is standard and is used in all paper mills. It produces 450 tons daily.

The Berlin Mills is fairly well known to New England investors who some years ago subscribed to a fair sized issue of its bonds. This company manufactures a diversified product including wrapping paper, bond paper and sulphite fiber. It operates among other things a large window frame factory in connection with its lumber business. This company is capitalized for $2,850,000.

The Berlin Mills has for years owned 85 per cent of the Burgess Co.'s stock. The new consolidation has brought in the 15 per cent of minority stock. The new company, the Brown Co., will have a capitalization of $4,000,000, thus substantially duplicating the combined capital of the two concerns.

Object of the merger is to effect operating economies and also to get rid of the Teutonic name of Berlin.

It is understood that the Berlin Mills and the Burgess companies are doing this year a gross business of substantially more than $20,000,000. Their combined net will equal at least 50 per cent on the $4,000,000 capital and probably nearer 60 per cent.—Boston News Bureau.

N.Y. TIMES PURCHASE AFFECTS DONNACONA.

In referring to the movement of publishers into the ranks of paper makers, The Fourth Estate prints the following:—

The New York Times has bought the Tidewater Mill, which is located in the Bush Terminal, on the Brooklyn waterfront of New York City, and will take over the property on January 1, 1918.

The Tidewater leases the premises it occupies from the Bush Terminal. This lease has fifteen years to run yet, and contains a renewal clause which may or may not be exercised as the owners of the Tidewater Mill may determine.

The property purchased by the New York Times consists of the complete equipment of the company, which is up-to-date and capable of producing 100 tons per day of news print paper. The New York Times has already completed arrangements for the necessary quantity of ground wood pulp and sulphite pulp to operate its new mill to capacity for a long series of years.

This action of the New York Times evidences the belief on the part of its managers that it is a proper function of a daily newspaper to manufacture its own news print paper.

It is understood that the Times' contract with the Donnaconna Paper Mills does not expire until December 31, 1918. It would therefore appear that until the Donnaconna contract expires the Times will have some paper to sell.

The Times consumes a large quantity of supplement and rotogravure paper and it is with the view of manufacturing its own paper for these purposes that an offer has been made to buy the Iroquois Mill, which will probably be either accepted or declined in the very near future. Authorities consulted, who are very close to the Iroquois present ownership, feel that it is more than probable that the sale will be made to the New York Times.

If this eventuates, the Times will then be equipped to manufacture everything it needs in the way of news print and supplement paper and will be eliminated from the speculative market.

It will be noted in this connection that the New York World, the Chicago Tribune, the St. Paul Pioneer-Press and Dispatch and the Boston Globe also make their own paper.

It is believed that the trend for the future of daily newspapers is in the direction of ownership and operation of mills to produce their own requirements as a necessary and proper function of making a daily newspaper.

FEWER NEWSPAPERS.

For twenty years the number of newspapers and periodicals in the United States has been steadily declining, relatively to population. In the last decade or so the number of daily newspapers has notably decreased. A contemporary reports that, though the population of the fourteen largest cities in Michigan has doubled, the number of daily papers has fallen from forty-two to twenty-three.

No doubt like causes have produced a like effect elsewhere. Quite recently consolidations of dailies in first-class cities have attracted attention. The number of considerable cities with no morning paper and of still bigger places with only one morning paper appears to increase. Within our recollection, five morning papers have disappeared from Chicago, though the population of the city has much more than doubled.

The cause, of course, is the steadily increasing cost of establishing and publishing a newspaper. The investment which formerly would have launched a daily paper in Chicago or New York now hardly suffices for Kalamazoo, and operating costs are so high that a paper must win very substantial support or lose a lot of money.

War has greatly increased operating costs by raising the price of paper, other materials and labor. Probably these war costs have been a governing motive in some recent consolidations. The new revenue law, which not only increases postal charges enormously but provides for a zone system, falls heavily on newspaper profits, and will presumably accelerate the movement toward consolidation, sectionalism and elimination.

We should not be surprised if two daily papers in a city with anything less than a hundred thousand inhabitants became the exception rather than the rule. That would give the surviving publisher a lot of political influence, but would tend to a one-sided discussion of public affairs.—Saturday Evening Post.

UNITED STATES NOTES

Federal Trade Commissioner William B. Colver, held a conference in New York on Friday, representing the commission, with Henry A. Wise, attorney for the newsprint manufacturers regarding procedure which will be followed by the commission in carrying out its decree against the indicted newsprint manufacturers in New York several days ago. Other representatives of the government were in attendance.

Daniel M. Hicks, one of the best known New York paper supply dealers, announces the addition to his force of Charles F. Bamman, widely acquainted with the paper mills in this part of the country. Mr. Bamman, it is announced, will do considerable traveling for Mr. Hicks.

The Williamsburgh Paper and Rag Co., of Brooklyn, N.Y., has just been granted a charter of incorporation at Albany, N.Y., to do a general business in rags and paper stock with a capital of $10.000. J. P. Gaccione, A. Dezego, Sr., and Andrew Ragone, are named as incorporators.

A special meeting was held during the week of the stockholders of the Solvay Process Co., for the purpose of voting on a proposition to increase the authorized capital stock of the company to $36,000,000. The Solvay Process Co., supplies a large part of the paper trade with alkalies and some other chemicals. It operates plants at Solvay, N.Y., Detroit, and Hutchinson, Kan., and does an annual business of about $8,500,000 in alkali products.

The paper trade was somewhat surprised during the week to learn that B. W. Bennet had resigned as treasurer and manager of the Volney Paper Co., Fulton, N.Y., and the position of secretary of the Arrowhead Mills, Inc. Mr. Bennett was well known, especially among the local rag dealers, and was regarded as among the best informed of paper men. His career covers a period of 30 years of active service in the business.

Because of the present quiet status of the paper industry, the No. 3 mill of the Bardeen Paper Co., Kalamazoo, Mich., which was recently destroyed by fire, will not be rebuilt. A statement was given out by the concern that this was not a propitious time to invest money in such a construction.

The News Print Manufacturers' Asssociation will be formally dissolved during the present week. A meeting for Wednesday has been called by Robert Houk, Jr., acting secretary of the organization, for the special purpose of carrying out the agreement with the government.

It is stated that Garrett Schenck is devoting his entire time to the affairs of the Great Northern Paper Co., and is in no sense a sponsor for the promotion or prospects of the Great Eastern Paper Co. He has merely given the latter company his friendly support, because of his personal friendship for the Hon. Charles W. Mullen, head of the corporation.

Advices from Oklahoma City, Okla, state that C. S. Stephenson plans to establish a boxboard or paper mill in that city with 100 or 150 tons daily capacity, to utilize waste paper and rags.

The B .G. Ewing Paper Co., is the new style under which Gray, Ewing & Co., of Spokane, Wash., will be known in the future. As the new name indicates, Mr. B. G. Ewing is taking over full control of the business.

The United Paper Board Co. announces that it has secured P. H. Moran, of Watertown, to manage its plant at Thomson, N.Y. Mr. Moran is regarded as being very well equipped to do justice to his new duties, inasmuch as he was at one time manager of the Cylinder Paper Co.'s plant and, for the last five years, was superintendent of the Herring mill of the St. Regis Paper Co., at Watertown.

George A. Galliver, for many years a manager of public utilities companies, has been selected to succeed Alfred Leeds as general manager and vice-president of the American Writing Paper Co. Mr. Galliver is expected to work out a scheme for the conduct of the business whereby the greatest efficiency in selling will be obtained. It is stated that the company has been enjoying steadily improved business recently.

The Hanchett Paper Co. of Chicago, has just assumed the control of the Advance Paper Co. of the same city. In view of the fact that the Hanchett Paper Co. on last June took over the Meyer Paper Co., also of Chicago, the concern is now looked upon as one of the leading factors in the trade of that city.

The trade is interested in the work of the greeting card manufacturers association to counteract propaganda disseminated by unthinking newspapers that urged the abolition of the use of Christmas cards this year to divert funds usually so expended to charity. The association has sent a letter to its complete list of retailers in the United States and in Canada, from which we quote:—"It is the concensus of the best opinion of this country and across the water that the one big thing that is going to win this war is not our strength in the field but the unity of the people cooperating at home. The spreading of goodwill and cheerfulness in these times of international way is a necessity, socially and in business."

The National Association of Greeting Card Manufacturers has forwarded to over 100 of the principal newspapers of the country a strong argument against the unwise policy of discontinuing the time-honored custom of sending greetings at this time of the year. The ability to support war relief organizations, they say, will not be increased by destroying business.

Fire, believed to have started from defective insulation near a dynamo, swept through the engine room of the Lockport Paper Co.'s plant on Mill Street and did about $20.000 damage to the building and contents, early last week.

RUSHING NEW PAPER MACHINE.

A large force of men is again employed on the new paper machine of the Dryden Timber and Power Co., which is now being erected alongside the machine already in operation. The work was commenced over a year ago, but on account of war conditions interfering with the importation of the machinery operations on the new structure have occasionally been interrupted.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Paper and Method of Making the Same. Edward F. Millard, Watertown, Mass., U. S. Pat., 1,244,116. The improvement in the art of paper making consists in preparing mechanically directly from raw wood a pulp stock composed substantially of relatively longer raw wood fibres, mixing the longer fibrous stock with the short fibrous stock in substantially equal proportions to form a pulp mixture having a sufficient quantity of long fibres to loosen up the short fibres and to facilitate running of the pulp combined with a sufficient quantity of short fibres to impart strength and finish to the paper, and preparing the paper directly from such pulp mixture.

Testing and Treatment of Glue. Paper Trade J., 65, (1917), No. 13, p. 44. (From Wochenschrift. By R. Schreiter). The binding power of animal glue depends upon its derivation. Lower grades of raw material like tanners glue, derived from leather scrapings, imperfectly cleaned requires much alum to prevent putrefaction. The acid mostly contained in glue is tannic that has a deteriorating influence on sensitive colors and on metal leaf printing, golding, etc.; this acid may be determined with blue litmus paper. The clear transparency of glue alone is not sufficient for recognizing its quality because chlorine will produce this misleading appearance. The more water a glue absorbs the stronger the binding power. The best Cologne glue soaks in 24 hours, at a temperature of 14°C about twelve times its own weight of water. Another method of testing the quality of glue is by steeping compound glue in cold water during 24 hours and allowing it time to dry; the smallest loss by comparison of weight proves the best quality. Gelatine or gelatine glue should not be boiled but is best prepared in warm water. The spoiling of boiled glue during the warm season is preventable by adding to the boil, carbolic acid or salicylic acid in the proportion of 10 gr. to 1 kg. hard glue. Foaming is prevented by observing a medium temperature and besides not too thin and also by adding to the warm solution carbonate of soda 5 gr. to 1 kg. hard glue. Alcohol and glycerine may be tried in small doses.—E. K. M.

Nitre Cake in Sizing. Paper Maker's Mon. J., 55, 1917), No. 10, p. 303.—It should be added to the beater as the last ingredient, otherwise the mineral colors are not thoroughly fixed on the pulp and resin is apt to accumulate on the press rolls, breaking the paper. The following quantities are most suitable: To 12 cwt. of strong sulphite is added 7 lbs. of alum and 40 lbs. of size, containing about 32 per cent of resinate of soda. Coloring matter is added as desired and later add 20 lbs. of nitre cake.—E.K.M.

Reversing Motor Drive for Platers. W. T. Edgell, Paper 21, (1917), No. 11. p. 29 and 38. Pulp and Paper Mag., 15, p. 1131, (1917). Comparison is made between the performance records of a 15 h.p. direct connected reversing motor and of a 15 h.p. constant speed motor driving the plater through the ordinary belt transmission, the reversals being made by shifting the belt. Records for a 2½ hour run show that with a given output the power bill is decreased 13.7 per cent with the reversing motor, or the output can be materially increased.—E.K.M.

Paper pulp from waste products. G. E. Walsh. Paper Making, 1917, 36, 283—285.—The by-product of the Indian corn (maize) crop in the United States offers an attractive raw material for paper manufacture, as, at the rate of one ton of corn stalks to the acre, the annual supply would be 100,000,000 tons, not more than one-third of which is put to practical use at the present time. The valuable part of the cornstalk for paper making is the tough outer fibre, this portion being also of least value for cattle fodder. Thus by stripping the outer fibre a double purpose would be served, and the residue would be compressed into a concentrated form of fodder. Corn stalks have been used for rough paper and cardboard, but so far not for fine printing paper. Corrugated cardboard boxes made from corn stalk pulp are capable of replacing wooden boxes for the despatch of goods and would liberate a large amount of lumber for more important uses. Broom corn offers a more valuable raw material than ordinary Indian corn, the yield of fibre is much higher (42%), and the quality is suitable for the manufacture of white book papers. The quantity of broom corn stalks available, however, is only about 500,000 tons annually, and it is not certain what would be the effect on the broom industry if the crop were greatly enlarged. In the United States about 720,000 acres are devoted to rice cultivation, the yield of rice straw being about two tons to the acre, most of which is wasted. At present, only four paper mills are using the rice straw as a raw material, but the fibre, though short, is of excellent quality and produces paper of fine texture. The fibre lint which remains after the ginning of cotton is a valuable material which, although not suitable alone for the manufacture of paper, can be digested with corn stalks or broom corn and gives softness and improved texture to the paper. Cotton stalks are not a very promising material, but flax straw should become an important source of paper supply. There are about 2,500,000 acres devoted to flax seed cultivation in the United States, yielding over 3,000,000 tons of straw; as yet this material has not been utilized.—J. F. B. in J. S. C. I.

The Viscosity Principle in Beating. Arthur B. Green, Paper 21, (1917), No. 7, p. 17 and 34. Changes in viscosity in pulp are indicative of the development of qualities necessary for the making of the sheet. One order of changes will give a free and fuzzy sheet, and changes of another order will give a harder, slower sheet; and by governing the manner of producing these changes in viscosity in the mass of pulp, one may control the quality of the finished paper and the way in which it will run on the machine. A proper kind of a recording viscosimenter applied to the stock while it is being beaten is required. The design that will fit a given case best depends on such factors as initial length of fibre, thickness of furnish, type of beater, etc., although beating cannot be entirely controlled, the principle applies universally.—E.K.M.

The Scope of Paper Mill Cost Acounting. By S. L. Bush. Paper 21, (1917), No. 11. p. 13-15. Notes on the determination and control of visible and invisible waste. (Read before the Cost accounting Section of the Am. Pulp and Paper Assn., Nov. 15, 1917).—E.K. Mansfield.

(Courtesy of Chemical Abstracts).

Absolute System of Colors. II. Wilhelm Oswald Z. Physik. Chem. **92,** 222-6 (1917); J. Chem. Soc. **112,** II, 281. The general equation expressing color in O's system involves three terms connected by the relation r+ w + s = 1, where r refers to a pure color, w represents white, and s black. The determination of the pure color factor r in terms of the frequency of light in the visible spectrum is discussed, and a table is given showing the relation between the frequency and its classification of the various colors according to O's system.—E.H.

Wood In Gas Making. From Gas. J. 138, (1917).— Fir and oak were distilled in gas retorts in charges of 100 or 120 kg., respectively. In either case the yield of gas was about 900 cu. ft. Stoppages in the ascension pipes were prevented by alternating coal with the wood distillations. The cost of production after deducting for the sale of charcoal was in the case of fir, 11.5 francs; oak, 10 francs.—R. H. Sawens.

A Rapid Method for the Determination of Magnesium in Limestone. N. Busvold, Chem. Ztg. **41,** 42, (1917); through J. Soc. Chem. Ind. **36,** 290, (1917). The method, suitable for industrial lab., requires 2 hours. Calcine, 5-10 g. of the stone in an elec. crucible furnace, dissolve in the smallest possible amount of HCl (1:1) boil the solution for a few min. with an excess of $CaCO_3$, filter and wash the residue. Treat the filtrate with 20cc. of a 6% suspension of pure lime, boil just long enough to produce a granular precipitate, cool, filter and wash the precipitate with H_2O containing a little milk of lime, place the filter and precipitate in a 1 liter Erlenmeyer flask, add about 300 cc. H_2O, then 40 cc. of 1.0 N $H_2C_2O_4$, boil 5 mins., or long enough to convert all Ca into CaC_2O_4, filter hot and wash the ppt. with hot H_2O. The filtrate contains MgC_2O_4 and the excess of free $H_2C_2O_4$. Cool and titrate with 0.2N Na OH in the presence of methyl red, add 25 cc. H_2SO_4 (1:5), heat to 70°, titrate for total $H_2C_2O_4$ with 0.2N $KMnO_4$. The difference is the $H_2C_2O_4$ combined with Mg; 1 cc. of 0.2N $H_2C_2O_4$=0.004306g. MgO.—J. H. Moore.

Titration of Iodine with Thiosulphate. R. Kempf Z. Angew. Chem. **30,** 71-2, (1917); J. Soc. Chem. Ind., **36,** 571. In the titration of an iodine solution with a thiosulphite in the presence of a free acid a certain error arises by reason of the reaction between the acid and the salt $Na_2S_2O_3 + 2\ H\ Cl = 2NaCl+SO_2+S+H_2O$, made possible by the greater rate of diffusion of acid than I. The SO_2 formed neutralizes, subsequently, two equivalents of I, whereas, this quantity of I would react with two molecules of $Na_2S_2O_3$ in the more rapid reaction producing $Na_2S_4O_6$. This error may be minimized by avoiding a large excess of acid, by efficient stirring during the titration and by running the $Na_2S_2O_3$ solution from the buret slowly.—H. L. Olin.

Analysis of Gases by Means of Orsat's Apparatus Replacing Pyrogallol by Hyposulfites. L. Descamps, Bull. Assoc. Chim. Sucr. et Dist. **34,** 34-6; **J.** Chem. Soc. **112,** No. 11, 216.— Alkaline pyrogallol may be satisfactorily replaced by a 10% solution of either Zn or Na hyposulphite, the latter being made slightly alkaline with NaOH for the absorption of O_2. The absorption is rapid, and complete after 2 or 3 contacts. If a little indigo be added to the solution of the Na salt, the exhaustion of the solution will be indicated by the change of color.—H. R. Smith.

Extracting sulfur from Gases from Roasting Furnace A. G. Anderson, Swed., 42,657, June 13,, 1917. A portion of the gases is passed through or over glowing coal and the other portion is passed through a regenerator, where heat is absorbed, after which the two portions react on each other and pass through the regenerator, where they are mixed and partly reduced by S, giving up heat to the bricks, and then the S. is extracted by condensation.

Waterproofing Composition. H. K. Kiso, U. S., 1,236,183, Aug. 7. A composition for waterproofing cloth or other materials is produced by cutting and crushing the root of Konjak plant, heating until the juices separate and accumulate above the furnace and collecting the separated juices.

Waterproofing. E. Girzik, Holl., 2.040, June 15 1917. The material is impregnated with solutions of cellulose compounds in castor oil, with the addition of stearic acid in amount sufficient to prevent tackiness of the coating.

Resin of Fir and Pine. C. G. Schwalbe. Z. Forst-U Jagdwesen, 1916, 92-103; J. Soc. Chem. Ind. 36,390.— The yield of resin from fir and pine, obtained by successive extracting with ether and alcohol was considerably higher from new than from seasoned wood especially with the former solvent. The ether extraction was yellow and oily and bitter to the taste while alcohol yielded brown, almost brittle resins. The extracts contained a considerable proportion of unctuous fat, chiefly glycerol esters of oleic acid, and in smaller amounts esters of other unsaturated acids, such as linoleic and linolenic acids; the pure resins were hard and brittle. From new wood resins were obtained with lower acid values and appreciably higher iodine values than from seasoned wood. The resins yielded no turpentine when distilled with steam but turpentine was produced on heating either the fresh or extracted wood with caustic soda, under pressure at 170°.

Producing Sulphur Colors from Oxylignin or Oxylignone. E. Oman. Norw. 27.927, May 21, 1917. The initial materials are heated with S and alkali sulfides and the products are dissolved in H_2O, acidulated, and the color is precipitated.

Producing Sulfur Color From Ligninsulfonic Acid E. Oman. Norw., 27,940, May 21, 1917. The sulfonic acid is treated with NaCl, heated with alkali sulfides and the product is dissolved in H_2O, acidulated, and the S color is precipitated.

A Note on Boiler Corrosion. B. G. McLellan, J. Soc Chem. Ind. **36,** 853-6 (1917). — The paper deals with a typical case of boiler corrosion and the causes are investigated and discussed. Of two probable causes (oxidation by dissolved O and electrolytic action) Mc L favors the latter. Electrolytic methods of preventing corrosion are mentioned and the fallacy is pointed out of using protective graphite coatings, which, if broken, result in accelerated action, graphite is electronegative to iron.—S. L. Chisholm.

Waterproof Vulcanized Fibre. J. McIntosh, U. S. 1,236,959. Fibre which has been parchmentized by the action of $ZnCl_2$ is freed from H_2O by treatment with methyl or ethyl alcohol or acetone, and is then rendered waterproof and flexible by impregnating it with castor oil, mineral or animal oil, fatty acid or other substance.

PULP AND PAPER NEWS

The new storage building, which has been erected by the Toronto Paper Mfg. Co., at Cornwall, for housing raw stock is completed and now in use. The structure is three stories high and built of reinforced concrete and brick. Excavation has been undertaken for putting up an addition to the finishing room. Actual construction work will begin in the spring on the extension.

Travis A. Tod, of Montreal, sales manager of the National Paper Co., has returned from a seven weeks trip to the western provinces, calling upon the trade in all the principal cities. He reports that the outlook for business during the coming season is promising.

Word has been received that Private Wm. Logie, son of James Logie, Toronto, Ontario representative of the Canada Box Board Co., was wounded recently in action, but not seriously. Pte. Logie enlisted with the 2nd Canadian Division Ammunition Column, No. 1 Section, which is attached to the Howitzer Battery and has been in France for some months, having been in several engagements.

F. M. Ellis, of the Barber-Ellis, Limited, Toronto, has returned from spending a holiday in New York and New Jersey.

The Ottawa Paper Box Co., Limited, which was recently granted a charter, and has a capital stock of $150,000. is authorized to take over as a going concern the business formerly conducted by Richard E. Bell, in Ottawa, and at present carried on by Elizabeth Bell, administratrix of the estate.

A large addition has been completed to the groundwood building of the Spanish River Pulp and Paper Mills at Espanola. Some ten new grinders are being added and several new wet machines. When installed the new equipment will increase the output of mechanical pulp by nearly fifty per cent. The new store, which has been built by the company at Espanola, was completed last week and is one of the finest and best appointed mercantile establishments to be found anywhere in Canada. The structure is equipped with every facility and convenience and is finished very attractively.

Several new residences have been recently erected at Espanola for the employees of the company and improvements made to all the dwellings which were put up some years ago. A town improvement society has been organized in order to beautify Espanola and made it one of the model communities of the north.

In the recent Victory Loan campaign, Northern Ontario did its share in the raising of the $411,000,000, which was subscribed by the Canadian people. The employees of the Mattagami Pulp and Paper Co. at Smooth Rock Falls, Ont., contributed the sum of $66,0000; the employees of the Abitibi Power and Paper Co. at Iroquois Falls $58,050; the New Ontario Colonization Co. at Jacksonboro $14,550, the town of Cochrane $101,300, and the village of Hearst $2,250.

Mr. Thorne, sales manager for Price Bros. and Co., Quebec, was in Toronto last week calling upon the trade.

The next Annual Convention of the Canadian Paper Box Makers' Association will be held at the Board of Trade Rooms, Toronto, on January 29th and 30th, 1918.

Mr. Lloyd Bradley, cashier for the Beaver Board Works at Thorold, has resigned his position, having joined up with the R.F.C.

The G.T.R. have a gang of men and teams pushing the work of constructing an additional siding at the Beaver Board works at Thorold. When completed the new siding will give greatly increased piling and storage space and facilities for the large quantity of pulpwood that is required by the Beaver Board Co.

Independent of Germany.

American mills are now independent of German dye industries, and after the war the great German monopoly will never regain its former hold in the dye trade of the United States and many other countries, Dr. Willard H. Watkins, chief chemist for the National Aniline & Chemical Works, Inc., told his audience at a recent meeting of a Buffalo business organization. Dr. Watkins said the National Aniline & Chemical Co. are now the largest dye manufacturers in the world, and that they have secured the services of many old German coal tar chemists for their Buffalo plant. He spoke of the rapid growth of the dye industry in the United States since the outbreak of the European war and told of the co-operation the mills have given domestic dye manufacturers to get the desired colors. A large percentage of the colors formerly produced by the Germans are now being made in the Buffalo factory and new colors are being added constantly, according to Dr. Watkins. He said that most of the products upon which the finished dyes depend are now being produced in large industries recently acquired by the National Aniline & Chemcial Works, Inc., of which the old Schoelkopf Company was the parent organization.

Pulp and By-Products from Sugar Cane.

Installation of machinery in the pulp mill owned by the Sugar Cane By-Products Co., at New Iberia, La., is under way after a delay of nearly a year. The company placed orders for the machinery in 1916, but the equipment was only recently delivered. Lack of transportation facilities was the main cause of the delay. The plant will begin operations about the middle of this month with a capacity of 40 tons of pulp per day. No paper will be manufactured for the present, but paper finishing machines will be installed later. The company had developed and patented a process for making pulp from bagasse with denatured alcohol, and fertilizer as by-products. From rice straw, the mill will make pulp, denatured alcohol and fertilizer. It was given out that practically a sufficent amount of by-products will be obtained from the bagasse and rice straw to pay the operating expenses of the plant. The bagasse and rice straw of Louisiana would keep several big pulp or paper mills in operation the year round, so there is no danger of the raw material being exhausted, it was stated.

The Markets

THE CANADIAN MARKET.

Toronto, December 10th.—There is not much new in regard to the paper situation. Matters are expected to go on as they are at present until after the elections and the holiday period. Some look for a revival of good business early in the year, but the knowing ones predict that trade will be quiet until March 1st and, in support of their contention, declare that January and February are always rather slack months.

News print mills are being rushed, and the nearer the date approaches for fixing the rate of this commodity the greater grows the confidence on the part of the producers that three cents will be the figure named. There is a very fair demand for sulphite, but the market for ground wood pulp is still quiet. There are no changes in prices in any line of pulp except that quotations are a little easier on ground wood. One large paper company bought a couple of hundred tons last week at thirty-two-fifty at mill.

In the book paper investigation there is nothing very definite as yet. Some of the mills have filled out the questionaire, but others have not yet done so. The conferences between manufacturers and their customers are still going on in the hope of arranging an amicable settlement. There have been reductions in price on some contracts, but there are one or two consumers who have not yet been satisfied. Mr. G. T. Clarkson has not received any orders to go ahead with the auditing of the books and until all hope of an adjustment is given up, he will not likely be instructed to proceed.

There has been a report in the trade that, if an agreement is reached, it will not obviate the necessity of proceeding with the inquiry, as it is reported that it is the intention of Controller Pringle to fix prices and establish trade customs in conformity with practices in the United States. This rumor is misleading, as it is understood by the mills that, if the points of difference are arranged between producer and consumer, there will be no necessity of continuing the probe. True, there may be a special sitting of the Commission after the holidays to receive the report of how matters have been adjusted, if they are brought to a satisfactory conclusion, but there will be no proceeding with the inquiry which would take months and months to complete

The Canadian Press Association is obtaining from the members of the trade and class section, specific information in regard to the consumption of paper and the prices that members have been paying or are paying for it. Statements are desired showing the price paid per pound for each grade of paper and the total amounts of paper bills for 1914, 1915, 1916 and the first six months of 1917. Each member of the section is asked to give the maximum and minimum prices paid in each of the last three and a half years on half-tone news; machine finish book, No. 1, 2, 3, and 4, super-calendered book, No. 1, 2, and 3, and coated book, No. 1, 2, and 3. The publishers are requested to be sure and state in each case whether the price is delivered or f.o.b. mill or jobber's warehouse, and, if posisble, to give the price as f.o.b. mill. Another statement is called for showing the tonnage of each grade of paper used, during 1914, 1915, 1916 and the first six months in 1917, and also showing the sources of supply on half-tone news, machine finish book, super-calendered book and coated book. The question is also asked if the member buys paper direct from the mill or wholesale dealer, or is supplied by the printer. Any special information or suggestions that may be of assistance are requested.

In connection with the receiving of tenders for the right cut pulp wood and pine timber on the Kapuskasing river in the districts of Timiskaming and Algoma, the time for putting in such bids closing on Monday next, December 17th, it may be pointed out that the two blocks of land in question lie north and south of the Transcontinental Railway and contain 1,740 square miles. The successful tenderer must erect a pulp mill of one hundred tons capacity, employing, at least, one hundred hands for ten months in the year, the mill with the equipment to cost not less than one million dollars. This sum is to be expended in two hundred thousand dollars the first year, three hundred and fifty thousand the second year, and the remainder during the third year. The cutting of pulp wood for the use of the mill may begin as soon as, and when, two hundred thousand dollars shall have been expended in the erection of the pulp mill and the equipment thereof. Business in the board line is rather quiet, but is expected to pick up materially, now that the question of cereal packages is settled and cartoned products may be sold as before. When the Food Controller threatened to cancel the sale of case goods many firms, which had placed large orders with board mills, countermanded the business at once. The supplies of carton material that would have been wasted, had the proposed restriction of trade gone into effect, would have been enormous. Board mills are pleased with the way events have turned out, and look for a lively season after the first of the year.

Envelope factories are only fairly busy, and it is understood that there is some slashing to get business. A new price list will be issued about the first of the year which, it is stated, will show a substantial reduction in price. It will be remembered that about three months ago there was a drop of ten per cent in envelopes and, with the easing of paper quotations, there is likely to be a resultant effect in envelopes. In warehouse lines, trade has fallen off considerably with the jobbers, and what buying is done is for immediate needs. The recent decrease in prices of kraft, manila and fibre has so far not stimulated purchasing to any appreciable extent.

The pulp and paper trade is pleased that a comprehensive and authoritative directory of Canada's natural resources is about to be issued by the Commission of Conservation. This date, which will be carefully compiled, will, among other things, set forth the pulp wood wealth of the various provinces, the available water powers, etc., and will be of the utmost importance in the solution of after-the-war problems. Inventories of the various sections of the country will be arranged and published geographically, provinces having similar resources being grouped together.

One feature that might be mentioned as viewed with a measure of satisfaction by the high grade book paper plants is that they are looking for an increased demand within the next few months as restrictions set on United States exports are making it more difficult to secure bond and ledger papers from across the border, and the Canadian trade will have to depend more on the mills in the Dominion.

Many Canadian manufacturers have recently received from the United States a bulletin showing the pulp wood consumption and wood pulp production in that country in 1916. In Canada a bulletin has been issued yearly covering the pulp wood and wood pulp situation. There has been no bulletin issued in the United States for some years. The total quantity used by the 237 establishments reporting was 5,228,558 cords, an increase of 757,795, or seventeen per cent, over the 4,470,763 cords consumed in the 223 mills reporting in 1914, the last year for which statistics of this kind were compiled. Of the total consumption, 4,444,565 cords were of domestic production and 783,993 cords were imported. The increased consumption of pulp wood naturally resulted in a larger output of wood pulp. The quantity produced in 1916 amounted to 3,271,310 tons, and represented an increase of 378,160, or thirteen per cent, more than the 2,893,150 tons produced in 1914. Of the total amount of pulp produced during the year 1,505,547 tons were manufactured by the mechanical process, 1,401,600 tons by the sulphite process, 290,724 by the soda process and 73,439 by the sulphate process. Spruce continued to hold first place as the premier pulp wood, contributing 3,101,660 cords, or slightly more than 59% of the total number of cords consumed by the industry in 1916. Of this number, 2,399,993 cords were of domestic consumption and 701,667 cords were imported, all from Canada. This bulletin is largely due to the efforts of the late Newsprint Manufacturers' Association.

It is reported from Ottawa, and the announcement will be received with interest by the pulp and paper men, that the Commission of Conservation hopes to undertake a survey of the forest resources of Ontario similar to the investigation it has already made in British Columbia and Saskatchewan. At present Ontario has the largest public fire protection organization on the continent and, at the height of the fire season, its staff consisted of about 1,100 men.

There has been a drop of one-half a cent in coated papers during the past week, but business, while it has picked up some during the past few days, is still much below the average. There are few firms placing orders for paper just now, and trade will not regain anything like its wonted activity until the elections are over. Paper houses and large consumers have been endeavoring to reduce stock, as it is considered unwise to be loaded down with too much paper when inventory time comes around. Business is being placed in small quantities, and an example of this was noted the other day when two firms, which had been after a certain customer for an order in bond paper, were each given half of it. The consignment was so small that it would be considered a mere nothing in ordinary times, being something like ten or fifteen reams.

"But business is bound to get back to normal sooner or later," remarked a leading salesman the other day. "I know of one printing establishment in this city—and it is not a large one either—that bought paper in the early part of the year so that in July they had a stock of fourteen thousand dollars. I called around at this place for an order the other day, and was told by the manager that he had succeeded in reducing this large amount of stock by half, but that he would not do any buying until after the first of the year. This case is typical of most printers and consumers."

The effort to organize a paper jobbers' association in Canada has been deferred for the present, owing to the elections, conscription, the shortage of help and other conditions that are disturbing the market.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 1	$9.25
xBook paper (ton lots), No. 1	$9.50 to $10.00
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload), No. 3	$7.00
xBook papers (ton lots), No. 3	$7.50 to $8.00
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 1	$12.25
Coated book and litho, No. 2	$11 25
Coated book and litho, No. 3	$10.50
Coated book and litho, colored	$12.50 to $14.50
†Grey Browns	$4.25
†Fibre	$6.75
†Manila, No. 1	$6.75
†Manila B	$4.50
Tag Manila	$6.25
Unglazed kraft	$8.25
Glazed kraft	$8.25
Tissues, bleached	$1.25 to $1.80
Tissues, (unbleached sulphite)	$1.20 to $1 60
Tissues, cap	80c to $1.15
Tissues, manila	70c to $1.00
Natural greaseproof	13c
Half bleached greaseproof	15c
Bleached greaseproof	16c
Genuine vegetable parchments	22c
Bleached white glassine	16c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

xx)—Less twenty per cent.



Where do my profits come from?

He wants to know why his profits are not bigger, but he knows he must find out where they **come from** first.

Let's tell him.

From his office force? No. From his salesmen? No. From his advertising? No. From his board of directors? No. From speculation in raw material? No.

These are all big aids, but they are not the real simonpure, day-in-day-out source of PROFITS.

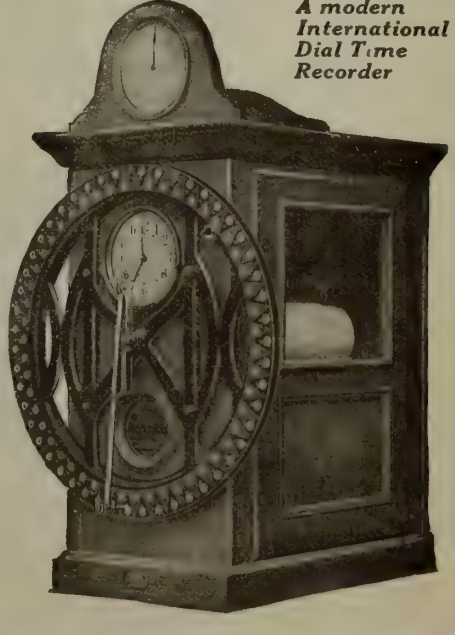
What then?

The working time of his employees. The time he buys and pays for and which is spent in transforming raw material into finished product —and the better the use of the time, broadly speaking, the bigger the output and the bigger the profit the goods will yield.

All right---how about leaks and losses in working time? Well if this man has 500 employees there are at least 12,000 possible leaks a week---one each for the 4 daily arrivals and departures per employee. That is, unless he uses an International Time Recorder as many thousands of successful firms do.

There's a cold-blooded, non-human machine that prints in unchangeable, deadly, accurate figures the time record of every employee **as made by himself.**

An International checks working time, which means safeguarding profits.



A modern International Dial Time Recorder

Full information gladly sent on request

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General Manager
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MONTREAL: Cartier Bldg. Cor. McGill & Notre Dame Sts.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$30.00 to $35.00
Sulphite, easy bleaching	$65.00 to $70.00
Sulphite, news grade	$50.00 to $60.00
Sulphite, (bleached)	$110
Sulphate	$80.00

CANADIAN CHEMICAL MARKET.

Montreal, Dec. 11.—The Bleaching Powder market is of prime interest at the present time. The United States Government has commandeered several large shipments and is expected soon to require as much as 300 tons daily for making chlorine gas. This quantity is considerably more than two-thirds of the total output of the country. Little advance in the price of bleaching powder has been made as yet, but some producers think that the 1914 level of 20c per pound in the United States may be reached during the coming year. In normal times the output of bleach is never much greater than the home consumption, there will, therefore, be a great shortage if the U. S. Government requires two-thirds of the output of that country. This shortage would, of course, apply with almost equal force in Canada, although in 1914 the high level of 20c per pound in the United States was not reached in Canada by a considerable margin. Soda ash and caustic soda are both a little easier on spot quotations, but supplies of both are small and the market erratic. The remainder of the Paper Makers' Chemicals retain their strong position.

The following are the prices in the Montreal market:

Alum, ammonia, per lb.	5½ to 6½c
Blanc Fixe, paste, per lb.	4 to 4½c
Do., powder, per lb.	4¾ to 5¼c
Bleaching powder, per lb.	2 to 2¾c
Brimstone, f.o.b. mines, long ton	$45.00
Casein, per lb.	28 to 35c
Caustic soda, 76 per cent, per lb.	7¾ to 8½c
China clay, imported, per ton	$25.00 to $30.00
Do., domestic, per ton	Nominal
Lime, per ton	$7.25 to $8.00
Sal Soda, bags, per 100 lbs.	$1.45 to $1.50
Do. Barrels, per 100 lbs.	$1.60 to $1.65
Salt cake, per 100 lbs.	$1.45 to $1.60
Soda ash, per lb.	3c to 3¾c
Starch, pearl, in bags, per lb.	8¼ to 8¾c
Sulphite Alumina, technical, per lb.	3½ to 4c
Do. Iron, free, per lb.	4¼ to 5½c
Talc, American, per ton	$18.00 to $25.00

NEW YORK MARKETS.

New York, Dec. 10.—There has been no change in the freight traffic situation, in spite of the widespread consideration that it is now receiving. As a matter of fact, it is generally recognized that, next to war preparations, the second most important factor for the attention of the nation at the present time is the solution of the transportation problem so that business can be conducted with the least possible interference. Present prospects, however, are far from encouraging, and no secret is made by those who are in a position to know, that, during the next few months of winter, the paper trade will suffer keenly from this condition. A good snow storm, which is likely to be a reality at any moment, would do much to hamper the already trying situation. It is interesting to note, in this connection, a report from Watertown, N.Y., to the effect that the paper mill that has limited storage facilities seems destined to much trouble this winter. In fact, it states, paper manufacturers see grave trouble with the car shortage staring them in the face.

Business in chemical fibres continues on a restricted scale, although in several quarters of the market a livelier inquiry was reported by dealers and importers. Throughout the trade, there is a feeling extant that demand for pulp will undergo appreciable quickening just prior to or just after the new year. Paper mills are said to be experiencing a larger demand for their product and sellers of pulp are of the opinion that once the inventory season is past and manufacturers begin 1918 operations that the pulp markets will take on new life under a more general demand. For the moment, however, consumers are still limiting their buying almost wholly to domestic pulp for their immediate requirements. Domestic unbleached sulphite is moving in fair tonnage at a variety of prices, but with $60 to $65 per ton the most common figure heard. Bleached sulphite is being purchased in a conservative way at 5½c to 6c a pound, with the majority of transactions done at the lower level of quotations. There is also a moderate volume of business passing in domestic pulp for export and at prices substantially above those consumers here are paying. According to one report, the demand from foreign sources for sulphite continues to expand and local importing houses who have turned exporters in order to take advantage of the opportunity offered in South America, and in other markets are doing a highly satisfactory trade, they say. Paper manufacturers in Argentina, Brazil, Chile and elsewhere who prior to the war purchased all of their pulp supplies from Germany or Scandinavia, are now looking to the United States and Canada to fill their requirements and are taking substantial quantities of chemical fibres out of this market. Note was reported of a lot of domestic bleached sulphite to an exporting firm at 7c per pound. All that the domestic consumers will pay for this grade of sulphite is at the most 6c a pound, and the sale mentioned denotes the high prices manufacturers are receiving for pulp directed to export channels. Unbleached sulphite also is being exported to quite some extent, while a moderate demand prevails from this direction for kraft and soda pulp. The only thought in the minds of the exporting concerns to-day is whether or not the black list that has just been issued by the United States Government will cover any of their new customers, and in this way take much of this new trade away from them. However, it is argued that, as the United States Government has practically followed the footsteps of England, covering about the same concerns and that, as domestic manufacturers have been keeping shy of concerns on the English black list, the latest action on the matter will have little or no bearing on the situation. Imports of chemical pulp from Scandinavia have failed to increase and importers assert that it is unlikely they will until market conditions here are so changed as to create a greater incentive to bring supplies over from the other side. For the present, there is virtually no demand of worth while proportions from the paper mills in the United States, and the prices which are obtained here are so low as to practically prohibit importers from bringing in pulp at a profit. One vessel with a fairly large cargo of Scandinavian pulp arrived at an Atlantic port within the past week but, as far as could be learned,

MATTAGAMI
PULP & PAPER CO., LIMITED

BANK OF HAMILTON BUILDING - TORONTO, CANADA

Specialize in

Strong Easy
Bleaching Sulphite Fibre

Manufactured from Clean Sound Spruce

New Modern Mills at SMOOTH ROCK FALLS, ONTARIO

Bleached and Unbleached
WOOD PULP
of every description

M. GOTTESMAN & SON

ESTABLISHED 1886

18 East 41st Street New York, N.Y

this was the only shipment to reach this country for some time.

The ground wood market is unquestionably a sore disappointment to the grinders. Under conditions such as the present, with production curtailed because of coal and wood shortage and the prospects for shipping far from bright, it woud be imagined that the market would be strong under a good demand. But this is far from the actual condition. Consumers do not appear to be interested, because they maintain they have sufficient stocks and also because the ground wood papers have not been very active, with the exception of newsprint. Although there is considerable shading of price reported, it is said that it is hardly thought that goods from Eastern grinders can be had for under a range of from $35 to $37 a ton.

Trading in the rag market was confined to rather narrow scope, although the market displayed a comparatively steady undertone. Manufacturers on the whole are buying in small quantities, yet dealers are so imbued with the belief that a stronger situation is ahead that the firm attitude they have adopted is having influence on the market, and consumers invariably have to grant full quoted prices to get the material. There is a consistent movement of roofing stock at steady quotations, and this has a strengthening effect on other qualities of rags, even though the latter are largely neglected by buyers. Mixed satinets readily command 1.80 cents from dealers and brokers, and practically every local market operator has some order or other felt mill supplies. Reports from the Middle West tell of a good demand for roofing stock, and of slightly stronger prices. A dealer in that section gives out information of a sale of 600 tons of stock made at $43 net shipping point. This is an advance of $1 a ton, the price this factor in question having secured in September being $41, and in October, $42. New rags were firm and active. Mills continued to place quite a few orders and dealers generally expressed satisfaction with the current position of the market. Demand still centres upon cuttings, which are bleachable, and few offerings of such stock go unnoticed. Sales were noted to a broker, of a lot of washables at 5.15c and 10 bales of fancy shirt cuttings at 5.35c. No. 1 white shirts were again under inquiry, and reports stated that some mills were offering as high as 9.87½c, delivered, for choice packing. Silesias were sought as were overall cuttings, cantons and flannellettes.

What trade passed in paper stock market consisted of rather small tonnages which were disposed of at weak values. Mills in the East, Central West and New England are buying in negligible volume, and the great majority of offerings of dealers and brokers meet with no response. Most orders now being placed are mainly of a complimentary nature and fail to remove any appreciable amount of stock from the market. Some call was reported for heavy books and magazines at certain prices. Several local dealers reported having orders enabling them to pay around a cent a pound, and quite some buying was done at this basis. Some say it is extremely doubtful whether more than $1 a hundred can be secured for books. Folded news also moved in slightly heavier volume, and a sale was noted of pressed bales to brokers at 50c per hundred pounds. The situation in box boards cuttings has taken a peculiar turn. Consumers are going to box makers and buying up stock direct at a price said to be around 50c New York, dealers and brokers therefore being eliminated from the trade.

No real signs of improvement have yet manifested themselves in the paper market. As a matter of fact, the past week witnessed further weakening in the quotations on several kinds of paper, showing that the mills are beginning to resort to shading, to some extent, in order to get the business. It seems to be that the buyers are confident that, if the market has gone down to this extent, it will go still further, and they are all waiting to see how far things will go. The demand for newsprint continues fairly active, the chief question being how the matter of price will adjust itself. The International Paper Company has been compelled to supply the government with newsprint at 2½c, a price which is said to be ridiculously low under the present conditions. It is understood that President Dodge is protesting the matter at the present time, and has hopes of reaching a satisfactory arrangement. Weakening in some book prices were reported during the week. Writings are doing fairly well. Tissues are selling to some extent, but very limited. Wrappings are not very attractive, while the board market reports some shading.

C. P. & P. ASSOCIATION HELPING HALIFAX.

Besides the generous help immediately rendered the people of Halifax by the E. B. Eddy Co., by J. R. Booth, Beaver Board Co., and other firms, much of which will not get into the papers, the Association is ready to assist the stricken city with all its resources.

The following telegram was sent to the Mayor of Halifax:

To the Mayor of Halifax, December 8, 1917.
Halifax, N.S.:

The Canadian Pulp and Paper Association, comprising all manufacturers of building papers, felt papers and building boards, offers its services to you unreservedly in facilitating shipments of any of these commodities. Please be assured that we are anxious to do anything at all that can be of service to the people of Halifax.

(Signed.) Canadian Pulp & Paper Association.

This was confirmed by letter, and the following reply was received from the Mayor of Halifax:

Halifax, December 8, 1917.

Canadian Pulp & Paper Association, Montreal:

Many thanks for your generous offer. Will be better able to advise you re specific requirements later.

(Signed) P. Martin, Mayor.

SUPT. JOHN L. ROSS, OF ABITIBI, IS DEAD.

John L. Ross, perhaps better known as Johnnie Ross, the genial superintendent of the Abitibi paper mill died Saturday. He is survived by a widow and two children. Mr. Ross was one of the most capable paper makers in Canada and a man who will be missed.

HARD WOOD ASHES WANTED—State quantity available and best price per ton, f.o.b. shipping point. Box 173, Pulp and Paper Magazine, 35-45 St. Alexander Street, Montreal.

The British American Wax Paper Company
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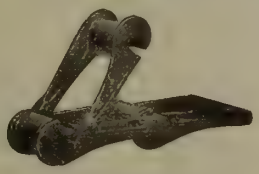
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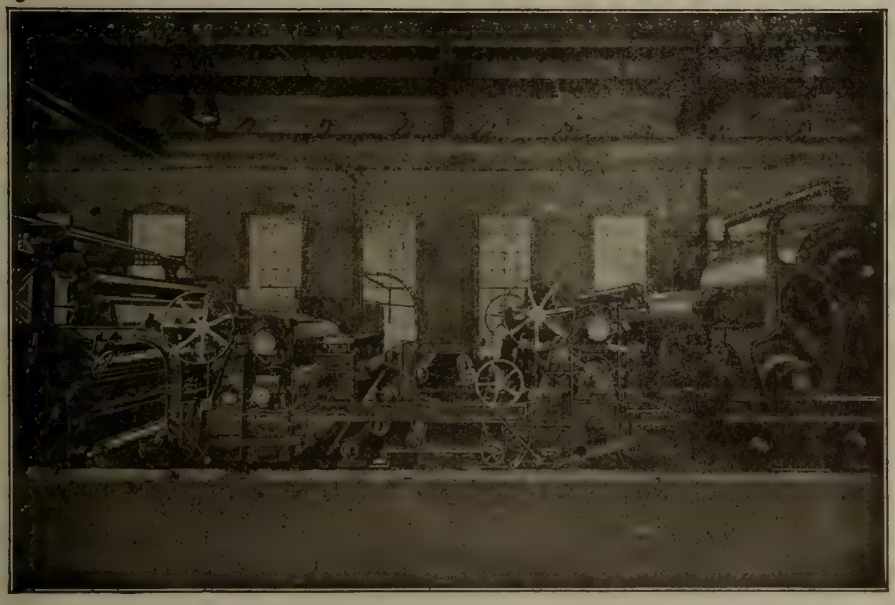
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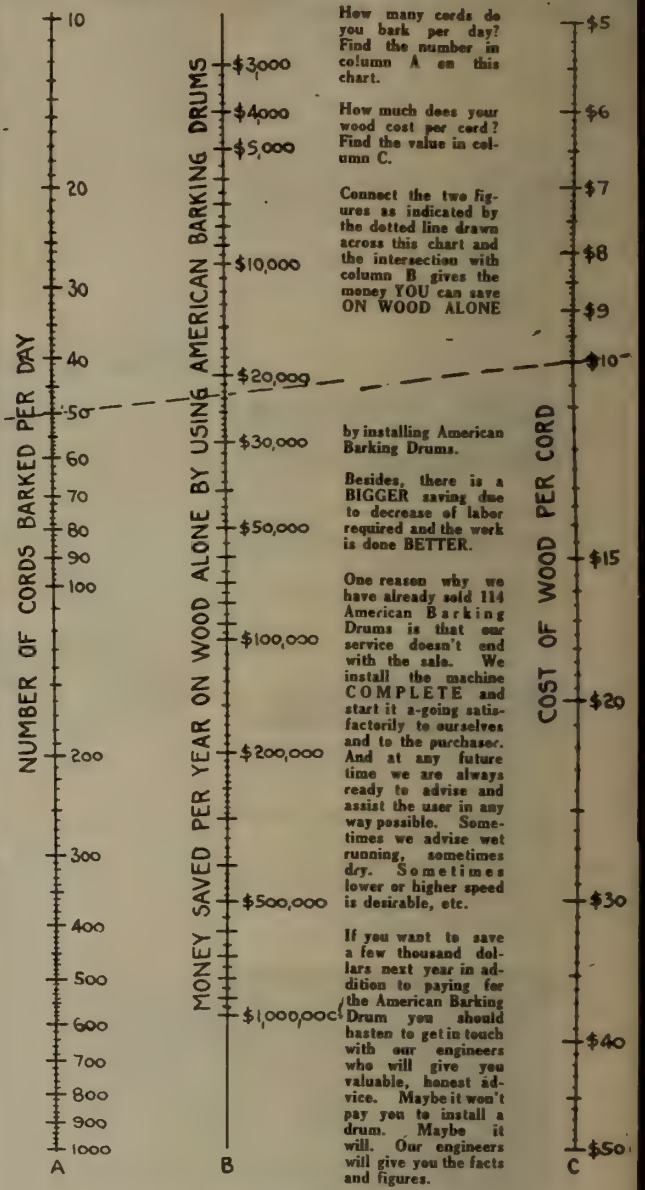
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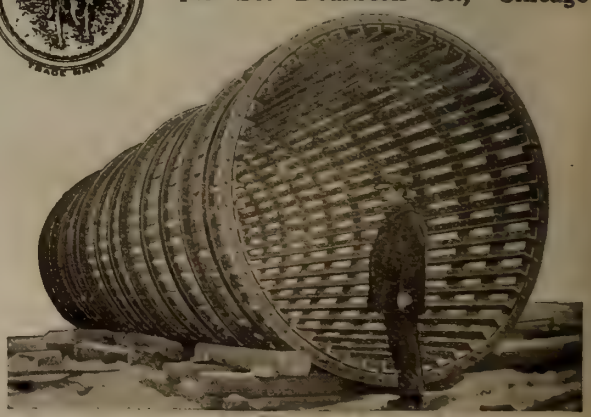
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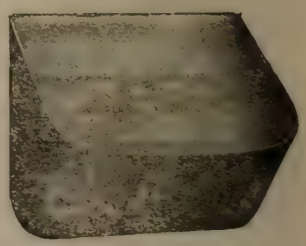
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

OFFICIAL JOURNAL OF THE TECHNICAL SECTION
OF THE CANADIAN PULP AND PAPER ASSOCIATION

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EDITORIAL

MERRY CHRISTMAS.

Next week the words that for centuries have brought cheer and a smile will be heard again on every hand. No matter how sad the condition or gloomy the outlook, the Christian will always be cheered with "Merry Christmas" on the 25th of December. In spite of many circumstances that bear heavily on the hearts of the world at this season, there is more cheer, vastly more happiness because of the message and meaning of Christmas. The idea is to lighten another's burden, whether you have one yourself or not.

With the birthplace of the Saviour and the places hallowed by His life and sacrifice in the possession of the Allies there must be a feeling of deeper consecration of all our powers to bring about an assurance that the principles of peace shall prevail. Surely this is a cheerful prospect.

There is nothing so heartening as cheerfulness and the paper industry is one of its most important agents. The soldiers in their barracks and the refugees at Halifax derive considerable comfort from the protection afforded by roofing paper, wall-board and sheathing paper. Our houses often owe their comfort largely to those same materials and wall paper adds to the attractiveness of the home. Letters and postcards carry messages of love and good cheer to thousands. And tons of books and magazines will make many happy. Taken altogether, the contribution of the pulp and paper industry to the joy of Christmas is very considerable.

With this thought in mind, that our industry is helping largely to make the season a happy one, the Pulp and Paper Magazine wishes one and all a very **Merry Christmas.**

THE COMPETITION OF THE FUTURE.

There seems to be a feeling in some quarters that the agreement which dissolved the Newsprint Manufacturers Association, would cause a reversion of business to the old competitive basis. We are firmly of the conviction that industry will not return to the former cut-throat competitive basis of doing business. The beneficial effects of co-operation have become too apparent to admit of such a retrogression.

The United States is on the eve of allowing a very extensive co-ordination of railways. Government investigation into the production costs of a number of commodities occurs, with announcement of what a commission thinks is a fair price. The purchase of such enormous amounts by the Government makes it highly advisable to have such information. The gathering of production data will continue and will be of great importance to our industries. Investigations so far have shown that some firms had no adequate knowledge of their own financial condition and could not quote prices on a basis of scientifically calculated costs.

The arrangement of cost of production as items or groups of items in the reports of commissions will point out possible economies in some cases and show up sources of positive loss in others. The collection of costs and prices by industries will tend to bring the units of those industries closer together. The fact that they have had to open up to a government inspector will make them the more ready to open up to each other.

Just as a farmer who has had a good crop of wheat is willing to tell his less fortunate neighbor about his fertilizer, seed and machinery, so the paper maker who has a good organization and equipment for making paper cheaply will be willing to discuss his problems with the man in the old mill who must adopt more modern and efficient methods or drop out of the race.

There is fear in the minds of some legislators that business will combine in restraint of trade, and there may be reason for it. This point is sometimes confused with restraint of production. We have seen a surplus of potatoes rot in the cellar and a surplus of apples rot under the trees. In the one case there was a mess to clear up and in the other there were worms in the next crop. A control of the yield in each case in keeping with the capacity for its consumption would have been a good thing. It isn't right to over-produce to a degree that encourages wasteful consumption. It is better to curb production a little when circumstances so direct and keep labor reasonably well employed and prices stable, than to over-produce and have mills closed down and men out of work till the surplus is consumed.

How can conditions be understood better than by conferences and meetings? How can an industry provide properly for the labor that makes its product, unless it be prosperous? How can it be prosperous un-

less the units work in harmony with the common aim of rendering the best service? The industrial association is the solution of the problem. It will endeavor to ascertain the best way to keep the industry prosperous. But if it oversteps reasonable prosperity and fair profits and just prices, another organization will call in the force of government and get a new deal.

We look for a more complete and perfect organization of all industries and a greater readiness of the government to step in and arbitrate—especially in behalf of a powerful group, if it doesn't butt into a more powerful group. The two powerful groups are now the publishers of newspapers and the farmers. It looks as if the railroads would be added before long. Others may be included in time, and perhaps finally, the common people will come in.

The competition of the future will not be the throat-cutting kind among numbers of the same industry, but a striving to so co-operate that each industry may most efficiently discharge its function in the public service.

PARAGONS OF PATRIOTISM.

At a time when the soft-pedal has been put down hard on publications that are known to be out of sympathy with the Allied cause, one would hardly expect the united newspapers of America to stoop to so disloyal an act as to deliberately tie up thousands of tons of shipping that should be devoted to carrying supplies to our armies. Yet such is apparently the case. When the Northcliffe deal was put through it was hailed as the salvation of the small publisher and the blow that would break the back of the market. We trust it has brought relief to any small publisher who was entitled to it, although we have not heard of any charity work of this kind.

Those who had visions of a break in prices must have been sadly disappointed. There is not much advantage in the Northcliffe price of $3.30 per hundred pounds f.o.b. New York over American prices of $3.00 f.o.b. mill. The deal did bring in some paper, but according to the figures of the Publishers' Association, there is plenty of paper on hand or in sight. So the benefit of the deal surely does not warrant nor did the urgency of the need justify the pulling of strings that would divert to an unnecessary purpose, the shipping that is sadly needed for carrying every possible pound of freight to Europe. A transatlantic vessel might as well be torpedoed as tied up at the wharf in Botwood.

The case would be different if the shipping selfishly got to bring in Newfoundland pulp and paper were handling a necessary, essential material, but there is no famine of paper this year. Even the matter of price is in the hands of a commission. The benefits from the deal seem preponderantly in favor of his Lordship. No Canadian paper maker will begrudge Lord Northcliffe or A. E. Read & Co. the chance to keep their mills going nor the market for the product. But for those who have done so much for the cause, the following account from the Financial Times of Montreal makes this "clever stunt" look like pretty small potatoes, to say the least:

How It Happened.

"Information which we have received from reliable sources, indicates that Lord Northcliffe's visit to the United States was not restricted to the work on behalf of the British Commission, but extended to what might now be considered as a very good business deal on behalf of His Lordship.

Before the war the Anglo-Development Company of Newfoundland, owned by Lord Northcliffe, shipped almost its entire output of 200 tons of paper per day to England. Shipments were greatly reduced on the outbreak of war, and finally ceased on restrictions of imports into England.

Lord Northcliffe arrived in the United States in June, 1917, and shortly after his arrival arrangements were made to market his Newfoundland product in the United States.

Lord Northcliffe was instrumental in forming the Publishers' Paper Company, comprised of about twenty leading publishers in New York. This co-operative organization undertook to take a given proportion of the Newfoundland deliveries, and pay Northcliffe the same price as they paid in Canada, i.e., $3.30 per 100 lbs. f.o.b. New York. It was also part of the agreement that any unused portion of receipts would be sold on the open market without profit.

All this, no doubt, was good business, and proper business. But where did the bottoms come from to transport so many thousands of tons of newsprint and pulp (in the past three months 17,000 tons) from Newfoundland to Boston and New York?

Political influence at Washington found the way, as it usually does for favorites. The Federal Shipping Commission directed empty boats coming from Europe to call at Botwood, Nfld., and receive cargoes of paper and pulp for shipment to the United States! It is supposed that these ships are sent empty from England and Europe and generally to save time. It is probable that a full fifteen days' delay would be the shortest period to sail to Newfoundland, take on cargoes, sail to Boston or New York, and there discharge the paper and pulp shipments. The matter of food and troop shipments has been considered of such vital importance that only two per cent of cargo space on outgoing vessels is permitted for general cargo. The Anglo-Development Company of Newfoundland is shipping quantities of paper to England on this two per cent. basis.

AN ERROR IN "THE STRENGTH OF PULP."

Mr. R. S. Hatch calls our attention to an error in the article on "Determining the Strength of Pulp," on page 1133, second column, line 14. This should read, as follows: "Out of sixteen cars tested, only four failed to decrease in strength on a (50) fifty minute sample, and these four increased an average on only 2 points each."

A Little Talk on Export Business

By A. L. DAWE,
Secretary Canadian Pulp and Paper Association.

On January 31, 1917, Sir George E. Foster, speaking at the annual meeting of the Pulp and Paper Association, stated that the only way we Canadians can pay our bills, carry out interest, meet our obligations and keep our national work going, is by producing for export and conserving at home.

Let us study the first phase in connection with the pulp and paper industry and we will see clearly that our export business has been confined to the big producers of pulp and newsprint paper, and that it has developed along the line of least resistance, — and that is with our friends to the South of us. This is business that, owing to our fortunate geographical position, will be permanent, and will also increase as the years go by.

Let us now turn to the other branches of our industry, which include the manufacture of book and writing papers, bonds, wrapping papers and a great variety of specialties that are now being manufactured in this country.

One of the essential factors in the export business is the ability to compete with competitors in other countries. At the present time in Canada there are few, if any, of the mills that have been in a position to compete with the cheap labor and materials that existed in Europe prior to the war. After the war it is impossible to foresee what will happen. We would imagine, however, that wages will be high and the cost of production very much higher than it was, let us say, in 1914.

The world will need paper in large quantities. It is not unreasonable to suppose that Canada will have the opportunity of making any quantity of paper providing she will at this time begin to consider just how she can secure that business, and continue to supply it to mutual advantage.

Outside of newsprint and pulp, the United States does not offer any market for book and writing papers, bristol and covers; in fact, it is somewhat similar to "sending coals to Newcastle." We have, however, the Australian and Far East markets to consider.

Australia:

Australia produces only a very small amount of paper, and at that, she is in the unfortunate position of having to bring pulp into the country in order to produce her paper. The Australian market consumes every variety of paper that we produce and although a severe competition would be met from England and every European country making paper at the completion of the war, it is hoped that colonial preference will give our mills the assistance they will undoubtedly need.

The system of distributing paper in Australia is through a legitimate paper dealer who sells to the printer, in a great many cases through general merchandise houses, who make a specialty of wrapping, book papers and cheap bonds. Several of these legitimate paper jobbers are branches of English manufacturers, who offer all they buy from all markets and are distributing houses in every sense of the word.

Until recently the principal wrapping paper used was the ordinary cheap brown paper manufactured in England, Germany and Belgium. The Scandinavian discovery of kraft paper, however, has cut into this business to a large extent and its general adoption has given a number of our Canadian manufacturers a chance of disposing of some of their product. There is no reason why Canada should not secure the major portion of this business.

In writing and book papers there is a good demand for high quality paper, for good quality supercalendered papers and coated papers of every description; boards are also used in large quantities, although here again the competition from Holland and Germany has hitherto prevented the Canadian manufacturer from securing very much business.

South Africa:

Here on account of the great amount of agricultural work we find that in the demand for paper, wrappings and bags predominate; book papers and cheap bonds are also in demand and there is also a very large call for pads made in the quarto size, which have hitherto been supplied from the English market. It is to be feared that our high costs for material would militate against our securing any of this business.

India:

In this market we find the character of the people reflected in their demands, — only the most elementary grades are used and the cheapest kind of wrapping. Such an idea of wrapping butter in vegetable parchment has not yet occurred to the average Hindoo; he uses a light weight straw paper which used to be supplied from Belgium. For his account books he is not familiar with our sales talks on the desirability of high class rag papers. He uses a brush and wants something smooth and strong. The paper used is what is known as an "imitation vellum", made largely by Germany, Austria, Belgium and England. For his schools the very cheapest form of writing paper is used, commonly called "cream laid"; and here again the native mind shows itself in the fact that frequently their water mark will be a request of the Taj Mahal, or some other fanciful building which would be considered by our dandy makers as an absolute waste of money. Brilliant labels in seven or eight colors, of His Majesty the King, or some other great personage, are used to attract the attention of the native mind, whose only consideration is cheapness and low price. A great deal of what is called "colored flint paper" (Boa surface paper) is used by the natives for pasting on cardboard hats at times of festivals. This may sound impossible, but many thousands of reams are used annually for this purpose.

China:

There is a considerable demand in China for what is known as "staining paper." Everybody who has patronized a chinese laundry is familiar with the red paper used by the Chinese for their bills and correspondence. Most of this paper, which is a hard-sized newsprint, is shipped from Scandinavia and Germany, and is treated by the Chinese themselves. The Chinese newspapers nearly all favor extremely light newsprint; this has nearly all been supplied by Germany and Australia. Whether Canada could produce a light

weight newsprint with a larger percentage of sulphite is a matter of question. Shanghai is a big paper centre and is a large buyer of good quality book and writing papers; there is also a good demand for high grade super-calendered book papers supplied from England. In most of these markets the local conditions are so many and varied that it is invariably a wise plan to select an English speaking merchant of high standing who has a good connection with the native element. It is practically impossible to do business direct with native merchants unless one is right on the spot and can keep in touch with the financial situation through the banks. With all these Eastern markets the banks are the most important factors; in fact, no deal is consumated without consultation with the local banker.

There are other markets which might be touched upon, but the purpose of this article is really to show that all the world uses paper, and it might just as well be from Canada as any other country, providing we can do so to our own profit. It is a wise plan for any mill that decides to go after this export business to take a percentage of its tonnage and take care that at all times this percentage will be left free for export business. It is absolutely fatal to accept at one time. and on account of increased local demands to refuse at another. To again quote Sir George Foster: "In order to pay our bills we must have money flowing regularly into the country," and the paper trade can do its share by building up a permanent export business in all grades of paper, both to the United States and other markets.

Sampling and Testing Lap Pulp[1]

Methods of Determining the Moisture in Pressed Lap Pulp.

To the Secretary of the Technical Association:

Herewith is an article by J. B. Woodruff, of the Joint Sampling and Testing Committee of the American Paper and Pulp Association and the Association of American Wood Pulp Importers on "Determination of Moisture in Hydraulic Pressed Lap Pulp. I would ask to take this up with the appropriate committee of the Technical Association, with request that they continue the investigation of the method as described by Mr. Woodruff.

Mr. Woodruff will be pleased at any time to meet a committee of the Technical Association to go into further details of his method.

From our experience in shipping a great deal of hydraulic pressed lap pulp from our Canadian mills, we wish to say that we have found this method of sampling and testing to be most accurate.

In regard to sampling and testing wet pulp which has not been hydraulic pressed but is shipped as it comes off the wet machine, the joint committee discussed this matter and strongly recommended that the appropriate committee of the Technical Association take up this question also. It is our opinion that the only safe method of sampling pulp, that is run off a wet machine, is to deal with a strip taken from the entire width of the machine.

Yours truly,

S. GOLDMAN,
Secretary.

American Wood Pulp Importers.
New York, September 10, 1917.

Accompanying Mr. Goldman's letter as above was a description of the official method of sampling and testing baled pulp as adopted by the American Paper and Pulp Association and the Association of American Wood Pulp Importers, as well as a method of determining moisture in hydraulic pressed lap pulps proposed by J. B. Woodruff of the American Writing Paper Company. It is desired by the Joint Sampling and Testing Committee of the American Paper and Pulp Association and the Association of American Wood Pulp Importers, that the Technical Association refer this subject of sampling and testing hydraulic wet lap pulp, and wet pulp not hydraulic pressed, to a committee for consideration and possible adoption by the association. The text of the methods of sampling and testing follows:

Instructions for Sampling and Testing Pulp.

By THE JOINT SAMPLING AND TESTING COMMITTEE.

All tests must be made by a chemist duly authorized and approved by the joint committee representing the Association of American Wood Pulp Importers and the American Pulp & Paper Association on one side and the Scandinavian Wood Pulp Associations on the other side, and must be made strictly in accordance with the following instructions—otherwise the committee reserves the right to withdraw the approval of any chemist at any time.

Before proceeding to the weighing and sampling the chemist must ascertain that not less than half of the parcel in question is available.

Number.—Not less than 5 per cent, nor more than 10 percent of the entire shipment. but not less than ten bales shall be sampled. Samples to be drawn only from sound and intact bales from different selections of the entire shipment, and analyst shall be careful to observe that no unusual conditions prevail in the selection of the bales. The accurate weight of all bales sampled to be ascertained by sworn weigher before sampling, or, wherever sworn weigher is not available, by a competent person who must make sworn affidavit that weights are correct, and no other bales are numbered, the number is to be given in addition to the weight.

Method of Sampling.

Depth of Boring. — The sample shall be taken by boring into a bale to a depth of three inches (7.62 centimeters with a special auger which cuts a disk about 4 inches (10.16 centimeters) in diameter.

Selection of Disks. — The disks shall be removed, and ten of them taken as a sample, these to be selected as follows:

1 disk 2nd sheet from the wrapper.
2 disk 1 in. (2.5 centimeters) deep.
3 disk 2 in. (5.05 centimeters) deep.
4 disk 3 in. (7.62 centimeters deep.

10

[1]Read before the technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 27, 1917.

Location of Borings. — The holes to be bored shall be so located that in five successive bales they will represent a portion extending diagonally across the bale. Each bale to be bored but once. The first hole to be bored at the corner, the edges of the cut being at a distance of one inch from the edge of the bale. The second cut shall then be made half way between the location of the first cut and the center of the bale, the third bale shall be cut at the center, the fourth bale half between the center and the corner, and the fifth bale in the opposite corner in a position corresponding to the first.

All samples must be either weighed immediately after being drawn from the bales by accurate scales, or, when this is impraticable, must be put into air-tight vessels, made of metal or glass, with ground glass or metal stoppers, and due care must be used in the transportation of such samples until they can be properly weighed at the laboratory of the chemists. The entire bulk of samples selected from the bales must be dried out for the test. The temperature in the drying oven shall not exceed 212° Fahr.

Chemists must have proper and adequate equipment for weighing and sampling the bales, and for the weighing and drying of samples.

All sampling of pulp must be done by or supervised by the approved chemist personnally, or by his **bona fide** assistants—each chemists to file with the committee a complete list of his **bona fide** assistants who will do the sampling, such list to have the approval of the committee. The chemist will be held responsible for the correct sampling by his approved assistants. The committee shall at any time have the privilege of investigating the sampling done by chemists or their assistants.

Every test certificate shall clearly state the name of the person who did the sampling.

The test certificates hereafter be uniform and in accordance with forms to be approved by the committee, a sample draft of which will be furnished by the committee to each chemist.

Proper Method of Sampling Pulp.

By J. B. WOODRUFF.

The Process of Pressing Pulp.

In order to fully understand the problem a short description of the process of pressing pulp will be given.

The pulp is taken off the wet machine in the usual manner, folded into laps and placed in two piles with cocoa mats between each layer of pulp, under the hydraulic press. In some mills the two piles of pressed pulp is called a 'cheese''. A cheese contains thirty or forty laps and weighs from 1,200 to 1,500 pounds after pressing. Pressed pulp usually tests 52 to 57 percent air-dry.

Definition of "Wet and Dry" Edges.

In a cheese made up of two piles it is evident that the inner edges of every set of two laps receives the full pressure of the press.

The water in the cheese must of necessity be squeezed to the outside. This results in the inner edge receiving greater pressure and therefore carrying a higher test than the other three edges. This edge is called the "dry" edge and experiments have shown it from 2 to 6 percent dryer than the other three edges.

The accompany sketch shows the edges which receives full pressure.

I have stated that the water contents varies from center to edge. I have demonstrated this many times by cutting up a lap with a saw and testing each portion.

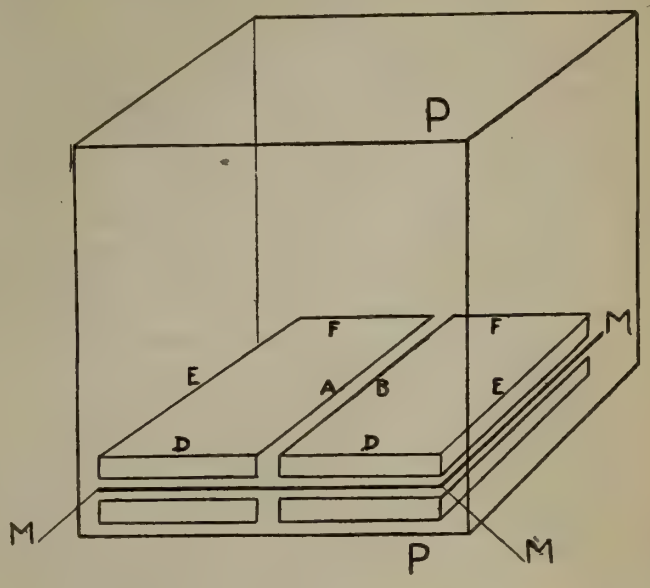


Fig. 1

Fig. 1—A and B are dry edges; D, E & F are wet edges; P is hydraulic press; M cocoa mats between each layer of pulp.

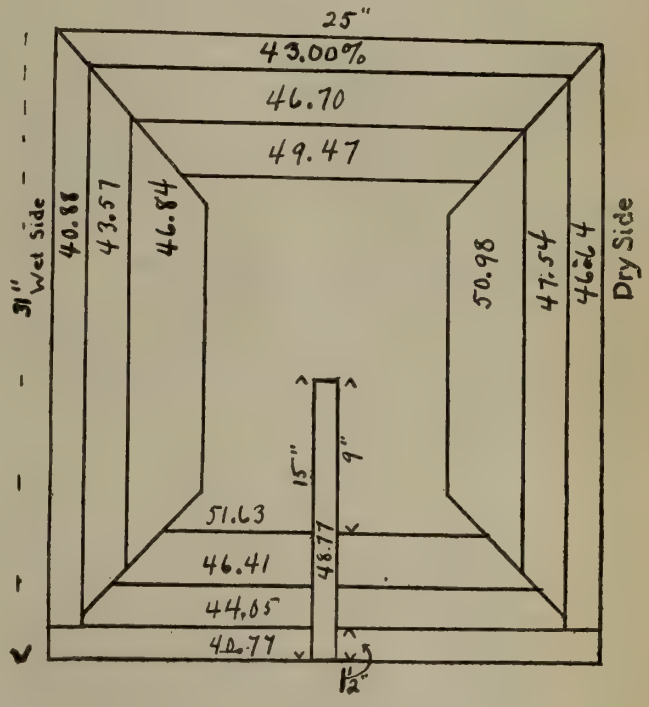


Fig. 2

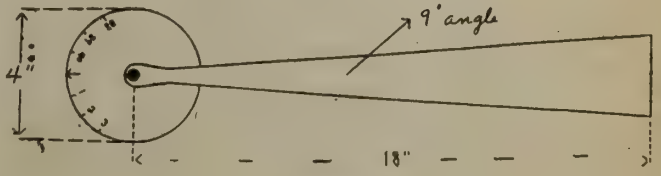


Fig. 3

A typical lap tested is shown in the accompanying sketch, Fig. 2.

Inasmuch as the center of a lap is the driest portion and the edges the wettest, and further, a lap of pulp is

a rectangular figure, it is necessary in order to take a true representative sample to cut it of such a shape as will give the proper proportion of center and edge. In the ordinary lap one quarter of the bulk of the entire lap lies within one and a half inches of the outside edge.

A wedge shape sample is the only one that can fulfill these conditions.

Sindall and Bacon in "**Testing of Wood Pulp**" demonstrate this point fully. It can be shown that the wedge is at least theoretically correct.

I believe that pulp makers and buyers have accepted this statement in the past but have acquiesced to other methods because the actual cutting out of wedges appeared to be impractical. This objection is overcome by the following method.

Method of Cutting Uniform Wedges.

The lap is marked by means of a template. It is then cut out by means of a circular saw.

In order to reduce bulk the sample is split in halves.

The wedge should be cut to all points in the lap. In order to do this properly I would suggest a template made in the same manner as used by the British and Scandinavian Pulp Association but at an angle of 9 degrees. (See Fig. 3). The disk at the center to be divided into 40.

The Use of the Template.

Place the arrow toward the dry edge with the center point of template at the center of the lap and the brass wedge at number 1 on the disk. On the second lap place the arrow pointing toward the dry edge as before but move the brass wedge to position 2 on the disk. If this process is continued on forty different laps it will be seen that one entire lap of pulp will be taken as sample. I have selected forty laps as the proper number because there are about forty "cheeses" in a carload.

Proof of Accuracy of Wedge Method.

In the past it has been very difficult to prove the accuracy of any method on account of the inability of drying large units of pulp as a check against the proposed method. I have been able to overcome this difficulty as I have an oven in which I can dry out 800 or 900 pounds at a time.

In one case of twelve entire laps my test by the wedge method was 47.00 percent and the actual test by drying out the entire laps was 46.69 percent a difference of .31 percent.

In another case of forty-three laps the test by wedge method was 46.91 percent; entire laps, 47.07 percent; a difference of only .16 percent.

The results I think fully justify the wedge method and I hope steps will be taken soon to adopt a standard method.

Remarks on Other Methods.

A method widely used is the "strip" method. By this method a strip about fifteen inches long and an inch and a quarter wide is cut from the center to the edge. This is manifestly an unfair sample as it does not give a fair proportion of center and edge. I have stated that one quarter of the bulk of a lap of pulp lies within an inch and a half of the outside edge. It will be seen that in a strip fifteen inches long the outside 1½ inches or 10 percent of the sample represents 25 percent of the lap. Nine inches or 60 percent of the sample is taken from the driest quarter (twenty-five percent) of the lap. (See fig. 2).

Another method consists in cutting a strip about 1½ inches wide diagonally across the lap. While this gives a larger proportion of outside edge, it does not give a proper amount and also gives a very large bulk of sample.

THE RIGHT LOG LENGTH TO PREVENT WASTE.

By R. O. SWEEZEY.

The point to observe about 16 ft. logs is that spruce will cut one to four logs per tree. In black spruce we usually get two or three logs in the mature trees, and where two logs are cut, probably over 50 per cent of such trees would yield an additional 8 to 12 ft. down to 4 in. top; but, as the operating company wants only 16 ft. logs, the lumberjack has no choice but to leave the top to rot in the woods. The difficulty lies in the fact that the logs are too long. Multiples of 12 ft., says, would give three logs, equal to 36 ft., where only two 16 ft. logs can be cut. It is obvious that both in theory and practice the shorter the log the more complete will be the utilization of the tree.

Now, in the Province of Quebec (which boasts the best log-makers in the world), where streams are so plentiful that long hauling is rare, logging is done mostly by the single-horse method. One immediate result is that roads cost much less, and with small horses the jobber gets into corners where pulp logging by the Ontario system would be very costly. By reason of this single-horse system and narrow roads (aptly described by an Ontario operator as "cow-paths,") the jobbers, equipped with his home-made sleighs of peculiar design, can and does make more logs and greater quantity in a given time than the Ontario log-maker. But he prefers the shorter logs; 9 to 12 ft. suit him best, because one man alone can handle these better than he can the 16 ft. logs, for which, if he must make them, he demands 50 cents a cord more. Thus the extra cutting necessary in logging the shorter lengths is more than offset in the handling. The question, then, is why should not all Ontario pulpwood operators adopt the short lengths and save the waste now occurring in tree-tops?

WHY PAPER BREAKS.

In his report on Testing Sulphite, R. S. Hatch says: "In bursting a sheet of paper two things may take place. The paper may break due to the pulling apart of the individual fibres or it may break by the breaking of the fibres themselves. We have two factors then in the strength of any sheet—the strength of the cementing action of the fibres to one another, and the strength of the fibres themselves. When tested for bursting strength whichever of these two is weaker will determine the test. When the sheets made from the unbeaten pulp are tested, the break is due almost entirely to the separation of the fibres one from the other. As we beat the pulp the strength due to the cementing action increases and the ultimate strength of the fibre probably decreases. At the maximum point of strength, the two strength factors should be practically balanced, so that a portion of the fibres are pulled apart, and the other portion broken. As we pass beyond this point in heating the ultimate strength of the fibre has decreased to such an extent that it is the determining factor in the break, and the test is lowered. It may be noted in passing that the sheets which show a marked decrease from the maximum strength are usually found to be parchmentized."

Physical Properties of Babbitts

By W. G. HARRIS,

President The Metal Co., Toronto.

The real, serviceable value of a Babbitt does not necessarily bear any relation to the intrinsic or commercial value of the elements from which it is made.

To illustrate this fact, add five per cent. of gold to any of the high-grade babbitts and it will make them cost about fifty times as much, but it is quite evident that it will not make them wear fifty times as long.

The real serviceable value of all babbitt metals is directly proportional to their registration in the physical properties which cover the conditions they are required to meet in service; and the value of all those physical properties increases in all metallic mixtures of perfect chemical affinity, and decreases as they recede from that condition in the mixture. Therefore, it is self-evident that to add any element to a metallic mixture in excess of the amount required to produce a perfect chemism would operate as a double loss. It would add to the cost of the mixture and operate to disturb its molecular tension, which would injure the quality of all its physical properties and reduce its value as a babbitt metal. For this reason, the most economical and satisfactory service is secured through the aid of an expert through the aid of an expert metallurgist who. knowing the physical properties required in the babbitt, goes to work in a scientific manner to produce a chemically united alloy at the least possible expense, which will possess the required phyiscal properties.

Developments Resulting From Scientific Investigation.

Invention and discovery in the line of metallurgical processes have within the last few years made some of the formerly rare elements available for use in this line of work, which enables closer chemical affinities to be established between the elements of metallic mixtures; and the expert metallurgist of the present age can design metallic alloys to meet special physical conditions with the same dependable accuracy that the expert mechanic designs special machinery.

A bearing metal has one definite service requirement, that is, to take care of the vital parts of machinery (the bearings). This cannot be accomplished with metal that is too hard or too soft. One increases friction, heat and wear, while the other may not stand the load weight or speeds, but mash or squeeze or disintegrate. The mechanical problem is the simple solution of what is the limit of load weight to which the bearings of any machinery may be carried. That limit every intelligent mechanic knows cannot exceed 2,500 pounds load weight to the square inch of bearing metal without disastrous results to the machinery, by either stalling the machine, destroying the bearings, breaking the belts or wrecking the weaker parts of the machinery.

Investigation will prove that 75 per cent. of the machinery in operation does not carry as much as 1,500 pounds load weight to the square inch of metal in the bearings.

Physical Properties of Babbitt.

The properties of a babbitt metal which determine its real serviceable value are as follows:

First.—Tensile strength, the index to a babbitt's wearing quality. That is, the greater the force required to overcome the molecular tension of a metal, or a straight pull, the greater will be the wearing force or friction required to overcome tension at its wearing surface.

Second.—Resistance to crushing strain; the index to a babbitt's carrying capacity.

Third.—Elastic, tension; the index to a babbitt's ability to resist vibration or pounding.

Fourth. — Resistance to heat; the index to melting point.

Fifth.—Anti-friction quality, the index to the degree of angle at which the factor of friction is overcome by the force of gravitation.

Regardless of their constituent elements, babbitts which register alike in the above physical properties will give like results under like conditions of service.

To obtain results from babbitt metals such as will enable one to guarantee efficiency there must be ex-



View of corner of the laboratory—The Canada Metal Co.

treme care taken and scientifically correct methods adopted to assure a uniform alloy. In order of procedure, these methods usually are:

First, the metals to be used are tested for purity by a metallurgical chemist, and when everything is found satisfactory the melting process begins, each particular grade being made in enormous quantities.

During the melting many tests are made to ensure a perfect chemical affinity of the mixture. After being passed into stock it is again tested for hardness by the Brinell method and on a friction testing machine, and the babbitt must stand up to all tests or it is discarded.

The writer's experience has been gained during the last thirty years by studying all requirements, and whenever a difficult problem arose it was attacked in a scientific investigation.



W. G. HARRIS.

Each problem was a step up the ladder of experience.

Proper Use of Babbitt.

The lack of method of applying metal in the average machine shop is very faulty. In using babbitt metals made under scientific principles a word as to how to obtain best results may be added as a guide to the machinists. Bearings to be filled should always be dry and free from oil.

Heating the shell and mandrel to from 100 degrees to 150 degrees before the babbitt is poured into it tends to prevent blow holes and similar defects, and also prevents the lining from shrinking away from the shell.

Babbitt bearings must not be jarred while the metal is solidifying, since any disturbance at this temperature tends to enlargment of the crystals and corresponding brittleness.

Pour the babbitt metal at as low a temperature as is consistent with the filling of the moulds.

Red hot metal is overheated and has a tendency to form a dense grain. Avoid red hot metal.

Stir well before pouring.

Keep metal pure and do not mix with others for best results.

When peening, strike in the centre, hitting lightly and work to the outside.

In pouring have riser and pour down on the shaft.

Do not tighten upper half of box hard until bearing is settled.

Clay mixed with oil, making a putty like mass, is not best agent with which to stop up the ends, riser, and gate, as it will not cause the metal to pit or fly when it comes in contact with it.

ACCIDENTS ONE COMPANY HAD IN A MONTH.

A trucker while loading rolls of paper in a car fell between the rolls injuring his right hip. An electrician while inspecting motors climbing up the stacker runaway caused a strained tendon in his heel. A trucker while loading paper and when lifting the end of a roll of paper fell against the side of the car bruising his shoulder.

A pipefitter was working near a revolving shaft with loose jumper. His clothing was caught by the shaft resulting in a broken left arm, broken little finger, severe friction burns on arms and body. A millwright was doing repair work in the Sulphite Mill. Sulphuric acid blew between the boards he was hammering causing injury to both eyes.

A jack ladder man while working on the slasher table slipped and fell against a saw resulting in a severe cut on the jaw and in the muscles of his left arm. A fifth hand was working on the winder when his hand was caught resulting in severe bruises.

A laborer in the machine room was injured when changing a roll. His arm was caught between the roll and coupling and his left wrist crushed. A grinderman was fillinga pocket with wood when hot stock flew out burning his right arm. A fifth hand when letting roll off the truck allowed it to catch his foot spraining his ankle.

A fourth hand was taking a set of paper rolls off the winder. The bolt handing the cap of the winder shaft box had come out and allowed the cap to fall striking the injured man's foot, resulting in severe bruise. A splitterman was splitting large blocks of wood when one of the blocks having an uneven end slipped on the stand and caught the injured man's hand between the block and the knife, resulting in deep cut on the hand and fingers.

A workman while making sleigh runner cut his right leg with the axe. A bushman when cutting wood allowed his axe to slip and cut his left foot. A woodsman when coming home from work was followed by another workman who fell with his axe, the axe cutting the heel of the man ahead.

A woods man slipped and fell, with his hand in such a position that a finger was broken. A bushman while felling a tree allowed his axe to slip and cut his knee. A bushman cutting trails was injured by a falling dry tamarack, which broke when another tree fell against it. The man was injured on the head and neck. Another workman was injured in the same manner as above resulting in bruises on his arm.

Waste Sulphite Liquor and its Conversion into Alcohol

By DR. ERIK HAEGGLUND.

Technical Director Sulphite Alcohol Plant, Bergvik, Sweden.

Printing and Publishing House of Friedr. Vieweg & Son, Braunschweig, 1915.

Translated by O. F. BRYANT.
Forest Products Laboratories of Canada, Montreal.

(Continued from page 1164).

7. The Distillation Product.

1. ALCOHOL. The alcohol can be obtained without any special difficulty at a strength of 96 per cent by volume. The composition of the crude spirit is, according to the following analysis by the author:

	Per cent by weight.
Ethyl alcohol	91.0
Water	5.2
Methyl alcohol	3.2
Aldehyde	0.35
Fusel oil	0.24
Acetone	trace
Cymol*	....
Furfural	....
Acids (calculated as acetic acid)	0.0001
Ash	0.008

Color: Colorless, water-white (even after diluting to 30 per cent by volume.)

Power of Decolorization according to Barbet:
50cc alcohol + 2cc 0.05% $KMnO_4$:30sec.

Odor: Slight odor of aldehyde and fusel oil.

From the above investigation it appears that the crude spirit contains considerable amounts of impurities. Aldehyde and fusel oil are also ordinary constituents in other crude spirits. It should be mentioned for example that the fusel oil in crude spirit from potatoes averages 0.32 per cent, from rye 0.45 per cent and from corn 0.49 per cent (61.)

On the contrary methyl alcohol does not occur in ordinary crude alcohol. Methyl alcohol is always formed in considerable quantities in sulphite cooking. According to recent investigations by Bergstrom (62) 7 kg. of methyl alcohol per ton (metric) of pulp are formed (14 lbs. per ton of 2,000 lbs.) From the relief gases of the digester 2.2 kg. are obtained (4.4 lbs. per ton of 2,000 lbs.) The remainder 4.8 kg. remains behind in the liquor (9.6 lbs. per ton of 2,000 lbs.)

On the assumption, that there is no loss during the treatment of the waste sulphite liquor in the alcohol plant the methyl alcohol should amount to 6-7 per cent by weight if one assumes 8-10 cubic meters of waste liquor per ton (metric) of pulp (256 to 320 cu. ft. or 1917 to 2397 U.S. gals per ton of 2000 lbs.) and a yield of 10 litres of alcohol (1 U.S. gal. per 13.4 cu. ft. or 100 U.S. gals liquor.) However as the methyl alcohol content according to the above analysis is only 3.2 per cent, about half the methyl alcohol formed in the sulphite cooking process is removed during neutralization or aeration.

Recently the question of the use of sulphite alcohol as a beverage has become important. The assumption is that the impurities—especially the methyl alcohol—can be completely removed.

The question is then: Can the methyl alcohol or the heads and tails be separated by distillation? Investigation recently carried out by Bergstrom (63) concerning conditions in distilling mixtures of methyl and ethyl alcohol seem to prove that this is possible*. The results of the investigations in these directions are given in the following table of the distillation experiments:

No.	Actual content of solution Per cent. by weight. 95.6% C_2H_5OH	100% CH_3OH	CH_3OH formed, Per cent by weight. In solution	In vapor
1	98.69	1.31	1.28	2.05
2	97.28	2.72	2.14	3.55
3	95.37	4.63	4.40	6.72
4	71.79	28.21	27.20	36.20
5	50.30	49.70	47.30	61.10
6	19.50	80.50	77.00	84.20
7	5.00	95.00	94.40	96.40

For each dilution which has to be considered here, that is, solution up to 4 per cent methyl alcohol, the distillation constant is:

$$K = \frac{CH_3OH \text{ content in vapor}}{CH_3OH \text{ content in solution}} = 1.6$$

*Since cymol is a byproduct always occuring in the cooking of sulphite pulp (see Klason. Ber. d. deutsch Chem. Ges, 33,2343 (1900), it has been thought that this substance would in part remain in the waste liquor and would consequently contaminate the alcohol. According to the investigations of the author this is not the case. The cymol which is present by any chance in the waste liquor will be removed during aeration and neutralization.

(61) According to Maercker-Delbrück Hand b. d. Spiritusfabr, p. 255. Berlin, 1908.

(62) Svensk Papperstidning, 1914, Vol. 10, p. 116; see also Bergstrom Papierfabrikant **7**, 1314 (1909); **8**, 506 (1910); **10**, 677 (1912.)

(63) Loc. cit.

*Regarding the other impurities such as aldehyde and fusel oil, it has long been known that they can easily be separated with the modern continuous distillation-rectification apparatus.

It is also shown that in the distillation of methyl and ethyl alcohol mixtures both alcohols can be separated.

2. HEADS. By using an efficient cooling arrangement it is possible to effect a fairly complete condensation of the heads. The amount of condensate may vary considerably. On the average about 3 per cent of the total alcohol will be obtained. Most of this, however, is nothing but ethyl alcohol.

A distillation of the total condensate as a whole gave the following results:

Fraction.	Temperature °C.	Per cent of heads condensate.
1	21—22	10
2	22—50	3
3	50—70	7

The composition of the principal fractions was as follows:

Fraction 1. (Temperature 21—22°C) was composed of about 75 per cent acetaldehyde.

Fraction 2. (Temperature 22—50°C) contained 30 per cent acetaldehyde and ethers of unknown composition.

Fraction 3. (Temperature 50—70°C) was composed principally of acetone, 20 per cent., methyl and ethyl alcohols besides small amounts of aldehydes.

As can be seen, the main amount is acetaldehyde which can be obtained in comparatively high concentration.

It is, however, very difficult to find a sale for the heads. For this reason their value can scarcely be considered as high as the ethyl alcohol which can be obtained from them.

3. TAILS. A brown oil is obtained from the rectifier of the distillation apparatus. Its composition is given by the following investigations by the author:

Fraction.	Boiling Pt. °C.	Per cent Oil	Main constituents.
1	88—100	28.0	Propyl alcohol with small amounts of water and ethyl alcohol.
2	100—112	9.5	Isobutyl alcohol.
3	112—122	6.5	Butyl alcohol.
4	122—138	26.8	Amyl alcohol.
5	138—165	26.2	Not determined.
5a	165—195	0.0	
6	195—205	1.1	Not determined.
7	205—215	0.9	Borneol.
8	215—270	0.6	
9	Residue	0.4	

The above table shows that the greater portion of this oil is made up essentially of the same constituents as fusel oil from potatoes or corn. For comparison the composition of this oil, according to the investigations of K. Windisch, is given here:

Constituents.	From Potatoes Per cent.	From Corn Per cent.
N- Propyl alcohol	6.85	3.69
Isobutyl alcohol	24.35	15.76
Amyl alcohol	68-76	75.85
Hexyl alcohol	....	0.13
Fatty acids	0.01	0.16
Fatty acid esters	0.02	0.31
Terpenes and terpene hydrates.	....	0.08
Furfural and bases	0.005	0.02

Since amyl and isobutyl alcohols are the valuable constituents of fusel oil it can be seen that the oil from a sulphite distillery is less valuable than the others since the content of these alcohols does not amount to half that in the other fusel oils.

As already mentioned above the author has been unable to discover any cymol in sulphite alcohol. From the above table we see that nothing is carried over between 165 and 195°C. As the boiling point of cymol is 175°C the "fusel oil" separated in the distillation of sulphite mash does not contain any.

Recently Klason and Segerfelt (64) have made observations on the occurrence of borneol. The author has also prepared this substance in its pure form and by means of the melting and boiling point determinations and chemical reactions (for example, oxidation to camphor) has been able to establish its identity with that of borneol. The amount obtained in the manufacture of this substance is too small however for its utilization.

At 230°C a few drops of oil are obtained which, judging from the characteristic odor, is identical with the corresponding fraction of oil which can be obtained by "relieving" the sulphite digester.

The amount of tails depends on the amount and nature of the nutriment which is used in the fermentation of the sulphite mash. As is known, Ehrlich has shown that fusel oil is not formed from sugar, but from leucin and isoleucin. These substances are well known cleavage products of albuminoid substances which are found in corn, potatoes, etc. The previously mentioned yeast extract also contains leucin and isoleucin. On the contrary inorganic nitrogen does not form fusel oil. Furthermore, as has already been mentioned, since waste sulphite liquor contains very little protein substance or their decomposition products the yield of "fusel oil" is dependent upon the amount of yeast extract in the mash. Under very favorable conditions about 1 per cent of the alcohol is obtained as fusel oil.

8. The Consumed Sulphite Mash.

The dealcoholized mash as regards its composition differs from that of the neutralized mash only in that the fermentable sugar has been removed. The greater portion of the pentoses—xylose—are not influenced by the production of alcohol. A portion of the fermentable sugar apparently may serve in part as organic nutriment even though it is not fermented. These amounts are very small. Moreover, the slops contain nitrogen compounds in the form of amino-acids and phosphoric acid or phosphoric acid salts. It may, perhaps, serve as relatively good nutritive substratum for bacteria, a matter which is of great importance in the biological "autopurification" of water. This brings us to the very important subject of the contamination of streams.

It has been known for a long time that waste sulphite liquor at least contaminates the water of small streams, destroying the animal and plant life. It has been thought that this could be traced back to the sulphurous acid or the fermentable sugars in the liquor (65.)

If this were the case the injurious substances would be removed by neutralization and fermentation. This assumption is probably correct. However, quite opposite opinions are also advanced. According to Klein (66) for instance the sulphite slops should contain "fermentable, half decomposed and decomposable organic substances," which perhaps are even more in-

(64) Svensk Kemisk Tidskrift 1911. p. 149.
(65) Hofer, Allg. Fischerei. Ztg. **31**, No. 4, (1906.)
(66) Papierfabrikant **12**, 630, (1914.)

jurious at the place of discharge than the unneutralized and unfermented liquor (67.) At the present time this question cannot be definitely settled as exact investigations on the matter have not yet been published.

9. Cost of Production of Sulphite Alcohol.

At the present time there is very little data in the literature on this subject and the calculations which have been published are all based on more or less uncertain grounds.

The result of this is, for instance that the data on the production costs of 1 litre of alcohol varies from $.0255 to $.11——.113 ($.095 to $.417—.435 per U.S. gal.) Since too optimistic as well as too pessimistic data on the production costs or selling price must act injuriously on the sound development of this industry it seems advisable to the author to point out here a few important factors.

It should be noticed first, that the amount of waste liquor which can be obtained without special apparatus is considerably lower than is generally assumed. That is it has been assumed that as much liquor could be removed from the digester as the liquor and water put into the digester amounted. to; that is, 10 cubic metres per ton (metric) (320 cu. ft. or 2397 U. S. gals. per ton of 2000 lbs.) of pulp. This, however, is not the case. It has been shown that about half the liquor remains in the digester, as the cooked mass is able to hold back a very large quantity of liquor. If, as is the case in many plants, a portion of the fresh liquor is mixed with liquor from another digester which carries with it more or less material dissolved from the wood, naturally not even 5 cubic meters per ton (metric) (160 cu. ft. or 1200 U.S. gals. per ton of 2000 lbs.), but less are obtained. In general not more than 4 cubic metres per ton (metric) (128 cu. ft. or 960 U.S. gals. per ton of 2000 lbs.) can be reckoned on. Of this a portion is lost during the working up into alcohol. Through exact control the author was able to determine that the amount of distilled mash always amounts to 3.7 cubic meters per ton (metric) of 90% pulp (118 cu. ft. or 884 U.S. gals. per ton of 2000 lbs.) On the basis of this amount of liquor and with an intimate knowledge of the actual manufacturing costs the author has calculated, in the following tables, the production costs and the prices at which the alcohol can be sold with an amortization and dividend amounting to 15 per cent. It should be noticed, however, that in the cost calculation no excise tax and denaturing costs have been included.

(67) Cf. Schwalbe, Wochenblatt. f. Papierfabrikation, **41**, 2357 (1910.)

Manufacturing costs for 1 cubic Meter Distilled Mash. (35.29 cu. ft. or 264.4 U.S. gals.), 3.7 cubic meters mash per 1 ton (metric) pulp (118 cu. ft. or 884 U.S. gals per ton of 2000 lbs.)

	30,000 tons (metric)	20,000 tons (metric)	10,000 tons (metric)
Capacity of Sulphite Mill.	(33075 tons of 2000 lbs.)	(22050 tons of 2000 lbs.)	(11025 tons of 2000 lbs.)
Steam	$.1000	$.1000	$.1000
Nutriment	.0197	.0197	.0197
Neutralization	.0397	.0397	.0397
Material	.0521	.0066	.0095
Repairs	.0131	.0186	.0279
Labor	.0393	.0535	.0796
Salaries	.0168	.0214	.0293
Miscellaneous	.0133	.0159	.0174
	$.247	$.276	$.324

As can be seen from the above table it is much more profitable to manufacture alcohol in a large sulphite mill than in a small one. It is also shown that the alcohol yield has considerable influence on the economy of alcohol manufacture. Since the yield is dependent to a large extent on expert management it is clear that the management must only be placed in experienced hands. In fact, as has been stated several times above, a great many factors may cause operation troubles in the manufacture of alcohol from waste sulphite liquor although superficially considered it is a very simple process. Although these factors may sometimes be found it is absolutely necessary that the operation of the plant be placed in the hands of an experienced and scientifically trained expert. Only under such conditions can high alcohol yields be assured.

The tables given above show that up to the present

COST AND SELLING PRICE OF 1 LITER OF 100 % ALCOHOL (also 1 gal. U.S.)

3.7 cubic meters per ton metric of 90 % Pulp (118 cu.ft. or 884 gals.(U.S.) per ton of 2000 lbs.)

1. Yield: 10 Liters 100% Alcohol per cubic meter of Mash [1 gal. (U.S.) Alcohol per 100 gal.(U.S.) of Mash]

Capacity of mill Tons Pulp (Metric)	Cost of Alcohol Plant $	15 per cent Amortization and Interest on Investment $	Amount of Alcohol Produced. Liters 100 % Alcohol	Amount of Alcohol Produced. Gals.(U.S.) 100% Alcohol	Amortization and Interest per Liter 100 % Alcohol $	Amortization and Interest per Gal. (U.S.) 100% Alcohol $	Manufacturing Costs per Liter 100% Alcohol $	Manufacturing Costs per gal.(U.S.) 100% Alcohol $	Selling Price per Litre 100% Alcohol $	Selling Price per gal.(U.S.) 100 % Alcohol $
30,000 (33075 tons of 2000 lbs.)	95,200	14,270	1,110,000	293,260	0.0128	0.0485	0.0247	0.0936	0.0376	0.1423
20,000 (22050 tons of 2000 lbs.)	71,400	10,700	740,000	195,500	0.0145	0.0546	0.0276	0.1045	0.0422	0.1594
10,000 (11025 tons of 2000 lbs.)	47,600	7,140	370,000	97,750	0.0193	0.0729	0.0324	0.1225	0.0517	0.1955
2. Yield: 9 Liters 100% Alcohol per cubic meter of mash (0.9 gal. (U.S.) Alcohol per 100 gal.(U.S.) of Mash)										
30,000			1,000,000	264,200	0.0143	0.0541	0.0276	0.1045	0.042	0.1585
20,000			666,000	175,960	0.016	0.0603	0.0307	0.1160	0.047	0.1765
10,000			333,000	87,980	0.0214	0.0811	0.0360	0.1420	0.052	0.2170
3. Yield: 8 Liters 100% Alcohol per cubic meter of mash (0.8 gal. (U.S.) Alcohol per 100 gal.(U.S.) of Mash)										
30,000			888,000	234,610	0.016	0.0610	0.031	0.1170	0.0471	0.1783
20,000			592,000	156,400	0.018	0.0685	0.0344	0.1305	0.0526	0.1995
10,000			296,000	78,200	0.024	0.0910	0.0405	0.1530	0.0645	0.2440

sulphite alcohol is the cheapest as regards its manufacture.

From the following table, which is taken from a paper by Voerkelius (68) an idea is obtained of the amount of alcohol to be obtained from various materials and the cost of the raw material per 100 kg. as well as per 100 liters of alcohol (also per 100 lbs. raw material and 100 U.S. gals. alcohol). The manufacturing costs are not included in the calculations. With reference to wood the latter would amount to at least $2.38 per 100 liters of alcohol ($9.00 per 100 U.S. gals.) Omitting depreciation and interest the manufacturing cost would amount to about $.0405 per liter ($.153 per U.S. gal.) which is considerably more than those of a well managed sulphite alcohol plant of medium size.

Cost of Raw Material.

Raw Material.	Per cent. water.	Liters of alcohol from 100 kg.	Gals (U.S.) of alcohol from 100 lbs.	per 100 kg. $	per 100 liters of alcohol $	per 100 lbs. $	per 100 gal. (U.S.) of alcohol $
Potatoes	75	11.5	1.38	0.714	6.19	0.324	23.40
Sugar beets	75	9.5	1.04	0.476	5.00	0.216	18.50
Molasses	20	30.0	3.59	0.95—2.14	3.09—7.14	0.432—.952	11.70—27.00
Barley	15	35.0	4.19	3.81	9.52	1.72	36.00
Wood	15	15.0	1.80	0.238	1.67	0.108	6.30
Peat	25	10.0	1.20	0.357	3.57	0.16	13.50

10. Retrospect on the Development of the Production of Alcohol From Waste Sulphite Liquor and its Present Status.

The first attempts to obtain alcohol from waste sulphite liquor originated with A. Mitscherlich (69.) So far as the author is aware this proposal was not tried out on a large scale. In 1891 an exhaustive investigation on the nature and quantity of the carbohydrates was published by Lindsey and Tollens (70.)

These investigators also determined the fermentable sugar in a waste liquor from a pulp mill in Aschaffenburg. They obtained an alcohol yield of 0.58 to 0.67 per cent by volume which corresponded to a content of about 1.2 per cent fermentable sugar in the liquor.

Later Mattheus (71) investigated the fermentability of a waste liquor from the sulphite mill in Waldhof. From this 0.7 per cent by volume of alcohol was obtained.

This subject was not worked upon further for ten years. In 1905, however, investigations on the sugar content and alcohol yield were repeated and extended by Krause (72) with the assistance of the Aktiengesellschaft für Machinen-papierfabrikation in Aschaffenburg. From these investigations it was determined that the alcohol yield amounted to from 0.5 to 0.7 per cent by volume while the sugar content was fixed at 1.47 per cent. These above mentioned investigations in the laboratory have not lead to experiments on a large scale.

In Sweden in 1907 large scale investigations on the production of alcohol from waste sulphite liquor were carried out by Wallin in Kopmanholmen and Ekstrom in Skutskar at about the same time and independently of each other. These investigations gave good results. Wallin used the method already developed by Mitscherlich, neutralizing the liquor with lime or calcium carbonate and afterwards fermenting. Ekstrom, on the other hand, neutralized the liquor with the precipitated lime sludge of sulphate or soda pulp mills. However, this method has only found limited use as such sludge cannot be obtained in sufficient amounts at a cheap price. At present those plants which are not in the immediate vicinity of a sulphate pulp mill will carry out the neutralization with lime or calcium carbonate.

Of the above mentioned experimental plants in Skutskar and Kopmanholmen the latter was very soon closed down. The successful experiments of these plants stimulated the building of two new plants in Sweden in 1911, Bergvik and Kvarnsneden. The plant in Bergvik is at present the largest with a yearly production, under normal conditions of about 1,200,000 liters (317,000 U.S. gals.) of 100 per cent alcohol. Recently (1914) a plant was also put in operation in America.

Practically all the sulphite alcohol patents have been bought by the Aktiebolaget Ethyl in Falum, Sweden. Lately a few patents in which sulphite alcohol would be produced in a "modified" manner have come from other sources. They are, however, only to be regarded as disguised imitations.

As has already been stated in the introduction, at the present time an interruption in the development of sulphite alcohol manufacture has occurred. The causes of this have been briefly mentioned, and of these, selling difficulties offer the most serious obstacles to further development.

In Sweden according to legal enactment the sulphite alcohol plants only have the right to sell denatured alcohol within the country. As the denatured alcohol consumption is already satisfied by the plants now in operation and as there are up to the present very great obstacles to exporting larger amounts of alcohol at a sufficiently good price it is quite natural that at this time the owners of sulphite pulp mills which could produce alcohol with economical results are not inclined to build alcohol plants.

It might also be believed that the prospects for further development of the sulphite alcohol industry in Sweden are not great. It must be considered, however, that the question is one of great national economic importance. This by no means holds good in those branches of the industry which produce alcohol

(68) Wochenblatt. f. Papierfabrikation **42**, 852, (1911.)

(69) D. R—P No. 4178, (1878); No. 7216, (1891); Cf. Max Müller "Literature der Sulfitablauge," p. 6, 74, 79. Berlin, 1911.

(70) Loc. cit.

(71) Papierfabrikant **8**, 532 (1910.)

(72) Chemische Industrie **29**, 217 (1906); Papier Ztg. **32**, I, 1100 (1907).

from potatoes and grain. According to the statements of Key-Aberg (73), the value of the raw materials, which were used during the producing year 1910-11, in Sweden amounted to $1,474,000. The value of the crops in 1910 was abount $197,700,000, and during this time grain to the value of $16,080,000 was imported, which is more than 44 times as much as is used by the distilleries. The consumption of potatoes by the distilleries amounted to about 5,107,500 bu., while at the same time about 1,248,500 bu. of potatoes were imported. Taken altogether the value of the grain and potatoes amounts to only about 1.5 per cent of the crops in all Sweden.

From the above figures it may be concluded that the farm products which were consumed by the distilleries were of no great importance to agriculture. Moreover when it is considered that these products can be replaced by waste sulphite liquor which is at present worthless and available in large amounts, it is very evident that it would be profitable on national, economic grounds if sulphite distilleries could manufacture at least a part of their production for drinking purposes. In this way they would also be able to sell a portion of their alcohol at so low a price that they could enter into competition with benzine and other power and fuel materials.

In other large countries, where rate of taxation does not prevent, the consumption of technical or denatured alcohol is so great that the amount which could be produced from waste sulphite liquor would scarcely bring about an over production.

There is absolutely no basis for the assumption that the development of the sulphite alcohol industry in Sweden, and still less in other countries is at an end. It is much more to be assumed that this new chemico-technical industry offers very good prospects for an ever increasing development.

APPENDIX.

The Use of Alcohol as Motor Fuel.

The question of using alcohol for motor purposes, has been very important of late in the various civilized countries. The extraordinary and increasing use of explosion motors for motor vehicles, boats and stationary plants has caused an ever increasing consumption of motor fuel, especially benzine (gasoline.) Since in many countries the greater proportion of this source of power must now be imported, it is an important national, economic question whether the foreign fuels cannot be replaced by domestic alcohol. This question is of especial importance in war times as its solution would make us independent of foreign countries. Furthermore, an over production of alcohol has already been experienced in several countries; it will therefore continually be more necessary for the alcohol industry to look for new markets.

The further development of the sulphite alcohol industry also depends to high degree on the technical and economical solution of the motor-alcohol question. A short review and discussion of the experience obtained up to the present time in regard to the applicability and economy of alcohol for motor purposes seems to be in place as an appendix to the foregoing description of sulphite alcohol manufacture.

The investigations on the use of alcohol as motive power for explosion motors began in Germany about twenty years ago at the suggestion of M. Delbrück at the Institute für Gaerungsgewerbe in Berlin. These endeavors have been continued by extensive investigations in Germany as well as in other countries especially in France, England and the United States.

In using alcohol for motor purposes we must distinguish between the following two types of motors.

1. Stationary, slow speed motors.
2. High speed motors for motor vehicles and boats.

With regard to the first group of motors a special type of "alcohol motor" has been developed. In appearance the alcohol motor differs but little from the ordinary benzine motor. The difference is mainly that, in the alcohol motor the alcohol air mixture must be brought to a considerably higher compression before ignition. While in the benzine motors a compression ratio of 4 to 1 is not ordinarily exceeded a compression ratio of 10 to 1 is used with advantage in the alcohol motor. In this manner a much better economy of combustion is obtained. While the heat efficiency of a good benzine motor is about 23 per cent, 33 per cent can be obtained with a spirit motor. Such good economy can only be realized with stationary motors not exceeding 300 revolutions per minute. With good alcohol motors the fuel consumption per h.p.-hr. (metric) when using motor alcohol of 86% by weight (denaturized with 2 per cent benzol) amounts to 0.37 to 0.40 kg. (0.816 to 0.882 lbs.) or 0.36 to 0.39 kg. (0.805 to 0.870 lbs.) per English h.p.-hr. With good benzine motors the benzine consumption is about 0.3 kg. (0.66 lbs.) per h.p.-hr. (metric) or 0.296 kg. (0.651 lbs.) per English h.p.-hr. The heat value of benzine is about 10,000 heat units (18000 B. T. U.) whereas the motor alcohol (86% by weight + 2% benzol) only gives 6500 heat units (11700 B.T.U.) If the economy of combustion of the alcohol motor were not better than that of the benzine motor the alcohol consumption would be 0.53 kg. (1.169 lbs.) per h.p.-hr (metric) or 0.52 kg. (1.153 lbs.) per English h.p.-hr.

Besides the high compression ratio the use of cooling water of suitable temperature is required to obtain such good heat utilization with the alcohol motor. While the temperature of the cooling water of a benzine motor should not be higher than 60°C a temperature of 100°C can be used with advantage with an alcohol motor. This is easily accomplished by allowing the water of the cylinder jacket to evaporate when the motor is running. The water evaporated is constantly renewed.

If the alcohol is mixed with benzol the consumption of the alcohol motor decreases as has been determined by Goslich (74), to a certain benzol content of the mixture, after which an increase takes place. The results are compiled in the following table:

Benzol content per cent. by weight	R.P.M.	H.P. (metric)	H.P. (Eng.)	Fuel consumption average per h.p. hr. (metric) kg.	Fuel consumption per h.p. hr. (English) lbs.	Difference as compared with pure alcohol Per cent
0*	225	8.81	8.69	0.420	0.913	— .00
5	226	8.86	8.74	0.405	0.881	— 3.6
10	227	8.89	8.77	0.387	0.841	— 8.0
15	228	8.87	8.75	0.382	0.831	— 9.0
20	228	8.92	8.80	0.370	0.804	—12.0
25	227	8.89	8.77	0.386	0.839	— 8.0
30	227	8.87	8.75	0.391	0.850	— 7.0

*Alcohol content 86 per cent by weight.

(73) From Svensk Papperstidning, 1914, Vol. 4, p. 45.

(74) Zeitschr. f. Spiritusindustrie **23**, 65, (1900.)

It is mainly with the kerosene motor and especially the electric motor that the alcohol motor will have to compete. In Germany, where for many years alcohol motors were used in agriculture and industrial work they have lately been surpassed and replaced by the competition of the others, as the kerosene motors at the present alcohol prices are considerably cheaper in operation and as the electric motors are both cheap and convenient. Sometime ago in Germany the price of alcohol for motor purpose was only $4.76 per 100 liters of 90% alcohol ($0.18 per U.S. gal.) Since that time the price has gone up considerably.

A drawback of the alcohol motor is the fact that it cannot be driven with benzine without alterations.

The typical alcohol motor with high compression, as has been stated above, canot be used as a high speed motor for vehicles and boats. If the compression ratio is lowered the degree of utilization of heat of the alcohol motor decreases correspondingly. Furthermore, the following is to be noticed: With the alcohol motor a special carburettor is not required, but when lower compressions are used effective carburetting devices and air regulation must be employed in order to make possible a uniform mixture of air and alcohol vapor. It is also of great importance to pre-heat the air which can easily be done by utilizing the heat in the exhaust of the motor.

Since the heavy low speed alcohol motor cannot be used for driving automobiles at the present time, the question arises: With what economy could alcohol be used as a motor fuel in benzine motors if slight alterations are made? This question excites great interest at the present time and we will therefore deal with it more in detail.

A series of investigations were carried out in a manner which may be regarded as indisputable, with the friendly assistance of Mr. G. Spaak, Civil Engineer, who is an experienced motor expert. The important results of these investigations and those carried out by others are compiled conveniently in the accompanying table.

As can be seen from the table, the highest efficiency of good motors is not essentially lowered if benzine is replaced by motor alcohol and mixtures of alcohol with benzine and benzol. The difference generally amounts to only a few per cent. If in operating with motor alcohol the air for combustion is preheated to 90°C a decrease of about 11 per cent in the highest efficiency in comparison with benzine is brought about. This decrease is easily understood if we consider that by preheating a decrease in the quantity of the explosion mixture is produced.

With regard to fuel consumption there is a striking variation with different motors. The Fehrmann motor, designated as I, apparently works very well. This also seems to be the case with the Craig and Napier motor. The benzine consumption of this motor is very low at full load, 275 to 300 g. (0.606 to 0.66 lbs.) per h. p. hr. (metric) or 271 to 296 g. (0.598 to 0.651 lbs.) per English h.p.-hr. In order to obtain a comparison of the different fuels the weight and volume of the alcohol or alcohol mixture is compared with that of benzol. From the values of the corresponding weights and volumes it is easy to make a comparison of the fuel consumption per h.p.-hr.

In using motor alcohol a considerable influence of the load on the fuel consumption was noticed with the Fehrmann motor, I. If the alcohol was mixed with 20 per cent benzine this difference, as can be seen, almost

TABLE WITH RESULTS OF TESTS WITH BENZINE, MOTOR ALCOHOL AND ALCOHOL MIXTURES.

Investigator	Motor Data	Fuel	Fuel Consumption and Power. Benzine	Motor Alcohol + 8 per cent Benzol	Benzine-alcohol 25% Benzine	Benzol - Alcohol 53% Benzol	25% Benzol	10% Benzol	Possibility of starting in cold condition	Remarks
		Sp. gr. at 15°C	0.735 - 0.755	0.830	0.790	0.850	0.834	0.830	0.824	
		Load	1/2 3/4 1	1/2 3/4 1	1/2 3/4 1	1/2	1/2	1/2	1/2	
Fehrmann: "Motorversuche an Kraftwagen" Berlin 1907 I	Motor Front 4-cylinder Motor 3.937 x 5.906" 28 H.P. (metric) 27.6 HP (English) 250 RPM Compression Ratio 4.5 to 1 Benzine-Alcohol Carburetter with pre-heating and air regulation	B.P. (Metric) B.P. (English) O/P-hr(Metric) lbs/B.P.-hr (English) Rel. wt. Rel. Vol.	28.5 28.1 301 3.464 1 1	27.5 27.1 447 0.972 1.54 1.47 1.45	----- ----- 587 1.44 1.09	27.8 27.3 405 1.017 1.38 1.26 1.18	----- 638 0.940 1.35		Impossible to start with Motor Alcohol as well as Benzol and Benzol-alcohol	Disregarding the resistance to cold and the starting up, Benzol and Benzol-alcohol work without trouble in operation. In the absence of anti-freezing means motor is very dirty. Per cent by weight of alcohol in the mixture 16, 30 & 9 per cent Fehrmann: Heat value - 5315 to 5333 Benz 9700 to 9750 Alcohol 6400 to 6433 Benzol 9750 to 9790 B.T.U.
Fehrmann: Otto " III	Motor Tractor 4-cylinder 5.511" x 7.087" regulated up to 40 H.P. (Metric) or 15.4 to 17 HP (English) at 1100 R.P.M. Compression Ratio 4.5 to 1 Benzine-Alcohol Carburetter	B.P. (Metric) B.P. (English) O/P-hr (Metric) lbs/B.P.-hr (English) Rel. Wt. Rel. Vol.	8.83 ----- 9.72 1.376 1 1	3.6 3.55 936 2.337 1.83 1.83	----- -----				Impossible to start with Motor Alcohol as well as Benzol and Benzol-alcohol	8.0 7.94 992 2.370 1.85 1.85
Fehrmann: Otto " III	Motor Tractor 4-cylinder 5.511" x 7.087" regulated up to 40 H.P. (Metric) or 15.4 to 17 HP (English) at 1100 R.P.M. Compression Ratio 4.5 to 1 Benzine-Alcohol Carburetter with air regulation	Comp. Ratio 4:1 B.P. (Metric) O/P-hr (Metric) lbs/B.P.-hr (English)	15.0 15.0 938 0.943	13.4 13.2 735 1.593					Impossible to start with Motor Alcohol as well as Benzol and Benzol-alcohol	
		Comp. Ratio 5:1 B.P. (Metric) O/P-hr (Metric) lbs/B.P.-hr (English)		14.3 14.3 691 1.415						
Craig and Napier (1913)	Motor Tractor 6-cylinder (Metric) 7.48 x 9.84" 112 H.P. (English) Compression Ratio 4:1 Benzine Carburetter with a Poppe with Preheating to 71°C	B.P. (Metric) B.P. (English) O/P-hr (Metric) lbs/B.P.-hr (English) Rel. Wt. Rel. Vol.	22.6 22.3 275 0.598 1 1			22.4 22.1 1.15 3.98	18.9 18.7 1.28 1.79	18.8 18.6 1.46 1.85	Possible to start with all Benzol-Alcohol Mixtures at a temperature of 21°C	Composition of the Mixtures: Alcohol 61.3% Benzol 13.3% Water 1 Per cent by weight. Heat value 5833 Heat value(1343 BTU.)
Ormandy (Experiments on mixed fuels, with special reference to Alcohol mixtures) London 1913	Motor Tractor 4-cylinder (Metric) or 80 H.P. (English) Compression Ratio 4:1 Benzine Carburetter with air regulation	B.P. (Metric) B.P. (English)	27.3 27.1			22.7 22.5	19.3 19.1		With 5% per cent Benzol-Alcohol mixture as good as easy to start as with Benzine	Then 5% per cent Benzol-Alcohol mixture as good as Benzine. The composition and heat value of the fuel was not given by Craig and Napier
Brook and England 1914- 1915	Boat Motor, 4-cylinder 3.740" x 5.118" 18 H.P. (Metric) or 17.7 H.P. (English) at 1250 R.P.M. Compression Ratio 4.5 to 1 Benzine Carburetter with air regulation and preheating	Alcohol (Metric) Pre- Heat (Metric) Benzine (Metric) Alcohol (English) Benzine (English)	1 1 1 1	3.57 1.74 3.89 1.58				1.37 2.90 1.35	Impossible with Motor Alcohol and 10% Benzol-Alcohol, cooperatively easy with Phenol-Alcohol mixtures at a temperature of 10°C.	Suitable alcohol of 90 per cent by weight. Heat value 5833 Heat value(3343 B.T.U.) The Motor Alcohol was of 90 per cent by weight. Results of Fehrmann's investigations

Freezing point of benzol (commercial) - about 2°C.

quite disappeared. The Fehrmann motor apparently operates with low efficiency with benzine as well as with alcohol. It is surprising that by the addition of 50 per cent benzol to the alcohol no decrease in the fuel consumption could be obtained. In Fehrmann's tests with Motor III. the influence of different compressions is very noticeable. The power as well as the fuel consumption are apparently favorably influenced by an increase of compression from 4.1 : 1 to 5.6 : 1.

From the tests by Craig and Napier we see, as might be expected, that by increasing the amount of benzol the fuel consumption per horse-power hour is decreased.

Finally the chief results of some tests run by Spaak and myself, are given in the table. The tests with motor alcohol (86 per cent by weight + 2 per cent benzol) gave the result that without preheating the utilization of the heat of the alcohol was considerably lower than that of the benzine; that, however, by preheating to 90°C. efficiency of combustion was about the same as with benzine. The results of the test, with benzine-alcohol correspond closely with those of Fehrmann. The fuel consumption of 16 per cent benzol-alcohol is also as high as would be expected from Craig and Napier's results.

One great drawback is the fact that the starting of motors in a cold condition is generally impossible when motor alcohol and benzol-alcohol mixtures are used. On the addition of benzine the inflammability of the alcohol is considerably increased so that at least at a temperature of 18°C motors can be started with comparative ease. Therefore, when alcohol used for motor purposes it is necessary to start the motor with benzine before the alcohol or alcohol mixture can be used. Accordingly two containers, one for alcohol and one for benzine—and two special carburettors—one alcohol carburettor and one benzine carburettor are required.

According to present experience no especial difficulty is noticed in running continuously with alcohol and alcohol mixtures.

The question as to whether alcohol can be used for motor purposes is chiefly one of the cost of different fuels. From the data on fuel consumption it can easily be seen that the price of alcohol must be considerably lower than that of benzine if alcohol is to compete successfully with benzine, and motor alcohol (86 per cent by weight + 2 per cent benzol) should be in the proportion of about 5 to 4, while the proportion for a good benzine motor with special arrangements for burning alcohol is about 3 to 2 if the prices are calculated on the basis of proportion by weight.

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Ormandy, "Some experiments on mixed fuels, with special reference to alcohol mixtures," The Institution of Automobile Engineers. London, 1913.

AFTERWORD OF THE EDITOR. (B. Neumann.)

The sulphite alcohol question is also of interest to us in Germany (75.) Sweden recovers annually according to the statements of the Export Journal, 2.5 million liters of 100 per cent sulphite alcohol (660,000 U.S. gals.) from the waste liquors of the pulp mills. Germany manufactures annually about 550,000 tons (metric) of pulp (606,000 tons of 2000 lbs.) which according to the calculations in the table swould produce approximately 20 million liters of 100 per cent alcohol (5,284,000 U.S. gals.) Why don't we recover this large amount? The reason is to be found in our tax legislation. A tax of $8.80 is placed on one hektoliter of alcohol ($0.33 per U.S. gal.) in Germany, if the alcohol is denatured, $4.27 of the tax is refunded ($0.16 per U.S. gal.) so that there is in any case a tax of $4.75 on alcohol ($0.17 per U.S. gal.) Since according to the table the manufacturing costs of sulphite alcohol is $.04—$.045 per liter ($0.14 to $0.16 per U.S. gal.) the selling price for sulphite alcohol under the present conditions of taxation would amount to $8.32 to $8.80 per hektoliter ($0.31 to $0.33 per U.S. gal.) This is far too high for normal peace times as alcohol for motor purposes is sold at a much lower price. In Sweden a tax of from $1.88 to $2.14 per hektoliter ($0.071 to $0.081 per U.S. gal.) is placed on alcohol. In spite of this the selling price is only $.067 per liter ($0.255 per U.S. gal.) and it is even offered c.i.f. Hamburg, at $.0595 per liter ($0.225 per U.S. gal.) Under these circumstances the production of sulphite alcohol in times of peace is absolutely out of the question. However, in war times it is quite another question. Germany produces yearly about 450 million liters of alcohol (120,000,000 U.S. gals.) mostly from potatoes; this requires 45 million kilograms (100,000 tons) of potatoes of which there is a large surplus in peace times; however, a large amount of these potatoes could be accumulated at the present for food purposes if sufficient apparatus were at hand for the production of a portion of the necessary alcohol from waste sulphite liquor.

A cheap alcohol would also be of use from a national economic point of view in other ways. There are chemical industries which cannot be established in Germany because the required quantities of alcohol owing to our taxation make it unprofitable.

Furthermore, cheaper alcohol could replace a large portion of the benzine imported for motor purposes, especially automobile motors. There have been interesting discussions on this question in Verein Deutscher Ingenieure, Bezirksverein, Mannheim (76), which are here referred to. In the normal benzine motor the alcohol is utilized better than benzine, as has been stated by Kaufmann. The latter gives a heat utilization of its energy content of 19 to 20 per cent, alcohol or alcohol-benzol mixture gives a heat utilization of 25 per cent. Assuming 100 per cent alcohol to give on an average 6500 heat units (11,700 B.T.U.) the same with 20 per cent benzol would give 7200 heat units (12960 B.T.U.); it is therefore only necessary to use 12 to 15 per cent more of the mixture than of benzine in order to obtain the same result. Each automobile would use yearly

(75) Cf. Zeitschr. d. Ver. Deutsch Ing. **59**, 501, (1915.)

(76) Loc. cit.

approximately 600 liters of alcohol (159 U.S. gals.) with a consumption of 20 liters per 100 km. (12 miles per U.S. gal.) and an average mileage of 3000 km., (1864 miles); with 50,000 to 60,000 automobiles a large quantity of domestic products could be used in place of the imported benzine.

The automobile motor gives greater trouble than the stationary motor when using alcohol. This is true first with regard to starting. As alcohol begins to evaporate at a comparatively high temperature it is difficult to start the motor in cold weather. However, as Dürr has shown, it is not necessary to evaporate the alcohol; if it is atomized it can be started in the cold quite easily.

ERRATA.

Errors in first instalment, Dec. 6.

P. 1125. 4th paragraph, 2nd line should read: "come in the operation of a sulphite liquor alcohol **plant.**"

P. 1125. 8th paragraph, 15th line should read: "later **that** these carbohydrates."

P. 1125. 2nd Note. 1906 instead of 1916.

P. 1126. 12th Note. Kirchner.

P. 1127. 4th paragraph, 12th line, "not go into, **in** detail."

P. 1127. 18th Note. **Bergsvetenskap.**

P. 1127. 7th paragraph, line 3, "**neutralization.**"

P. 1127. 7th paragraph, line 4, "into **in** detail."

P. 1127. 8th paragraph, line 2, "**into** alcohol."

P. 1127. 10th paragraph, line 6, "**temperatures.**"

P. 1127. 22nd Note. "R. R.-P" should be: "**D.** R-P."

P. 1127. 22nd Note. 121889 should be: 121886.

P. 1127. 26th Note. % should be: 7.

P. 1128. 7th paragraph, line 8, "broken by hydrolysis" should read: "broken **down** by hydrolysis."

P. 1128. *Note, line 16: "**was.**"

P. 1129. 3rd paragraph, line 8, "**after.**"

P. 1129. 4th paragraph, line 3, "quicker will be the sugar obtained", etc., should read: "quicker will the sugar obtained", etc.

Errors in second instalment, Dec. 13.

P. 1157. 4th paragraph, line 11, "monetary" should read: "momentary."

P. 1158. 2nd paragraph, line 19, should read: "heated."

P. 1158. Foot-note, "$CaSO_3$" should read: "$CaSO_4$."

P. 1159. 2nd paragraph, line 5, "Frank and Drewson."

P. 1159. 5th paragraph, line 13, "sulphite mash."

P. 1159. 6th paragraph, line 13, "is **able** to produce."

P. 1161. Paragraph No. 2, "D **from** C."

P. 1161. In the table, "6 hours" should read: "O hours."

TESTING METHODS REPRINTED.

The report of the Committee on Paper Testing of the Technical Association, which was presented by chairman Frederick C. Clark and printed in "Paper," has been reprinted as a 14-page pamphlet, and may be obtained from Paper, Que., 117 East 24th St., New York.

Methods for Testing Paper Making Materials by Max Cline, chairman, has been reprinted from "Paper," by Lefax, Philadelphia.

BOOK REVIEW.

Cellulose.—Cross and Bevan (C. F. Cross, E. J. Bevan, C. Beadle). Longmans, Green & Co. London and New York, 1916. Pages XVI and 328. Price 14s. (03.-50).

The recent death of Clayton Beadle, one of the authors of this book must have reminded many on this side of the ocean that this group of Englishmen, with Sindall and Bacon, have done an immense amount of work in the field of cellulose chemistry. Not even in Germany has there deevloped such a hot-bed interest and effort in the study of the substances most fundamental to the pulp and paper industry.

Twenty-two years ago the first edition of CELLULOSE appeared. Since that time the chemistry of cellulose has become a recognized and established branch of science. The lines of thought and investigation laid down by the authors have led to results of paramount importance to the industry. The present edition comes forth at a time when cellulose and its products have attained an importance hitherto unknown. To the student and experimenter, the book is sure to be an inspiration as well as a guide. The readable way in which important discoveries are explained is an encouragement to the humble worker in this vast field. And to bring encouragement and direction is to serve well an industry whose enormous possibilities are but just beginning to be realized.

The material is divided into three parts: I. The Typical Cellulose and the Cellulose Group. II. Compound Cellulose; Ligno-celluloses, Pectocelluloses and Mucocelluloses, Adipocelluloses and. Cutocelluloses. III Experimental and Applied. There are two appendices and 14 plates of photomicrographs.

Part I has to do with the characteristics of the basic substance, as nearly pure as may be and its reactions with certain chemical reagents and treatment. This includes the reactions of fundamental importance to the manufacture of paper and many of its applications.

Part II is the largest section and is devoted principally to lignocelluloses.

Part III would be a good basis for a course of laboratory work in cellulose chemistry. Valuable suggestions are given for the investigation of fibrous materials and methods of analysis and testing.

This book on cellulose is a basic work on the subject and should be in the library of any one who aspires to be a cellulose chemist.

Except for the preface this edition can be found to differ in no way from the issue of 1916. In the preface the authors give a very good résumé of the field and cite some of the recent contributions to the literature on the subject of cellulose chemistry. As far as the papermaker is concerned, the photomicographs could be improved, but we still think this book is the best there is in English.—J.N.S.

PAPER MILLS IN SWITZERLAND.

Switzerland has 18 papermills, the most important of which, the mill in Biberist, was founded in 1862. Several make their own ground wood. The biggest cellulose mill is at Kaiserangst. Considerable progress has been made in the pulp industry. There were altogether 6000 employees in 1912-13, as compared with 2000 in 1888.

Federal Trade Commission's Book Paper Report for November

Weekly reports to the Federal Trade Commission, from 48 book paper companies operating 75 mills for the first and last of the five weeks beginning October 28 and ending December 2, 1917 show the following results of operations.

	First Week Tons	Fifth Week Tons
Stock on hand at mills beginning of Week—		
Total Book Paper	35,127	32,749
Periodical Paper	4,588	4,869
Made during week—		
Total Book Paper	16,492	16,506
Periodical Paper	4,860	5,544
Shipped during week—		
Total Book Paper	17,967	16,506
Periodical Paper	5,200	5,522
Stock on hand at mills at end of week—		
Total Book Paper	33,532	32,602
Periodical Paper	4,607	4,880

Note.—Periodical paper includes that known by manufacturers to be used for printing magazines and periodicals. The total figures include the periodical book paper.

The figures show an increase in mill stocks of periodical paper but a decline in the stocks of other grades of book paper during the five weeks period covered. Stocks on hand at delivery points, however, increased from 9,750 tons to 14,894 tons.

Loss of Time.

The weekly reports for the 245 machines included show the following hours lost for the five weeks on account of lack of orders and other special reasons:

	Down for lack of Orders		Down for other special reasons	
	Number of Machines	Hours Lost	Number of Machines	Hours Lost
First Week	53	2,834	22	1.114
Second Week	39	2,577	29	1,781
Third Week	37	2,254	42	2,180
Fourth Week	30	2,373	25	600
Fifth Week	40	2,954	23	654

Note.—The hours lost for special reasons include repairs, lack of materials, car shortage, etc. During the fifth week there was loss of time on account of holiday, which is not included.

Imports and Exports.

The exports of book paper from the United States and imports of chemical pulp for the first ten months of 1917 as compared with the corresponding period of 1916 were as follows:

	10 Months 1917 Net tons	10 Months 1916 Net tons
Exports of book paper (total)	38,466	48,540
Imports of unbleached sulphite (total)	224,096	.....
From Canada	101,862	.....
From Sweden	114,764	.....
From Norway	5,899	.....
Imports of bleached sulphite (total)	38,797	.....
From Canada	10,030	.....
From Sweden	12,225	.....
From Norway	15,553	.....
Total imports of unbleached chemical	316,225	264,651
Total imports of bleached chemical pulp	40,802	44,892

The table shows a marked decline in the exports of book paper and a large increase in the imports of unbleached chemical pulp for the first ten months of 1917 as compared with the corresponding period of 1916.

INFORMATION BUREAU OF THE PULP AND PAPER INDUSTRY AND ALLIED TRADES.

The highest compliment that can be paid to an article is to say it is in constant use. That is true of our copy of Lockwood's Directory of the Paper, Stationery and Allied Trades. Some people think the editor of the Pulp and Paper Magazine knows all about every mill on the continent. The degree of his ignorance would have been exposed long ago, were it not for the copy of "Lockwood's" at his elbow. It really is an information bureau.

At the present time, when such a large part of the world depends on the United States and Canada for paper and similar products, and when so many changes in quantity and kind of product and in personnel, it is important to have an authoritative, up-to-date guide to the business.

The fact that this is the 43rd edition shows that the compilers have had successful experience.

The number of concerns owning mills in the United States has increased from 665 to 689 since the last edition, and the number of paper mills from 737 to 763. Pulp mills have increased from 287 to 317, but only five of the new ones turn out mechanical pulp, fourteen being sulphite, and seven sulphite. In Canada, the number of firms engaged in pulp or paper manufacture has risen from 81 to 92, and that of paper mills from 58 to 68. Pulp mills have increased by 25 per cent., i.e., from 72 to 90, but of the new mills four are mechanical pulp mills, with eight sulphite and five sulphate. The list of idle mills is encouragingly short, namely, 17 paper mills (as compared with 24 last year) and 2 ground wood mills in the United States, none in Canada or Newfoundland.

It would take too long to tell all there is in this Directory, there are 40 sections listed in the table of contents. The price is $5.00, and the book is worth it, in fact the price has nothing to do with its value. Copies can be had from the Pulp and Paper Magazine or from the publishers, the Lockwood Trade Journal Co., 10 East 39th St., New York, who also publish Weeks' excellent "History of Paper Making in the United States."

The various Government departments of New South Wales are striving to effect every legitimate economy. In the Railway Department a saving of some hundreds of pounds per annum is being effected in the stationery bill. The departmental forms are printed on one side only. After use they are converted into envelopes, the unused side being outermost. A number of other paper economies have also been effected by this department.

Distinguishing Bleached and Unbleached Sulphite*

By CHARLES G. BRIGHT, Kimberley-Clark Co., Neenah, Wis.

The principle of the method is first to stain the fibres with Cross and Bevan's ferric ferricyanide solution, which colors the unbleached sulphite green, on account of the lignin contained in it, and leaves the bleached sulphite colorless. This alone gives a good distinction, but subsequently staining with a red substantive dyestuff, the green of the unbleached is changed to a very pure blue, the bleached being colored red, thus giving a most striking contrast.

The problem is to adjust the treatment with the two solutions to bring out the sharpest contrast. If the treatment with red is too severe some of the unbleached fibres are likely to be colored purplish, or in extreme cases take on a dull, dirty red color. On the other hand, if the treatment with ferric ferricyanide is continued for too long a time or at too high a temperature, the reagent has a tendency to decompose and form a deposit on the slide as well as on the bleached sulphite, so that the latter turns a dull purplish color when subsequently stained with red.

The results depend on three factors—namely: (1), the concentration of the solution; (2), the temperature at which each is applied; and (3) the length of time each is allowed to act. In experimenting with this method these factors were varied separately and the combination which gave the best results was chosen.

The solutions are prepared according to the following procedure:

Ferric Ferricyanide

Sol. A-N/10 $FeCl_3$—2.7 grams $FeCl_3 6H_2O$ per 100 Cc.

Sol. B-N/10 $K_3Fe(CN)_6$—3.29 grams per 100 Cc.

After diluting to the mark with distilled water filter through dry filters into clean, glass stoppered bottles—protect from dust. Equal volumes are mixed fresh whenever the reagent is used.

Substantive Red

Benzopurpurin 4B extra (Bayer Co.) . . . . . Gm. 0.4
Oxamine brilliant red BX (Badische Co.) . . . . Gm. 0.1
Distilled water . . . . . Cc. 100

Have the water hot and stir in the dyes slowly.

The stain is placed in a tall, narrow cylindrical beaker, which is set into a water bath. The slides are suspended in the beaker by a clamp which holds them at their upper ends, the clamps resting across the top of the beaker. The bath is heated by a small bunsen burner with a pilot flame. The burner can be turned on full to heat the bath up to the required temperature (35° and 45° Cent.); then by turning off the burner and regulating the pilot flame the bath can be kept at the required temperature without much difficulty. A thermometer is suspended in the beaker of stain besides the slides. The beaker should be as small as possible so as not to use up too much stain at one time.

Modus Operandi of Staining with Ferric Ferricyanide

Staining with ferric ferricyanide is done as follows:

Mix equal volumes of two fresh solutions and heat to 35° Cent. regulating the waterbath so that it will remain within one degree of the temperature named, for fifteen minutes. The dry slide is then dipped in water to moisten it uniformly, so that air bubbles will not be formed when it is immersed in the stain. If air bubbles are formed the fibres under the bubbles will not be stained. If dipping in water still leaves bubbles, they can be removed by blowing across the slide from the edge. The slide is then suspended in the stain and left there for fifteen minutes at 35° Cent. It is then removed and washed by dipping in and out of a beaker of distilled water six times and repeating the process in a fresh beaker of water. The slide can then be placed wet into the red solution, but it is perhaps best to dry it out so that the fibres will be stuck on tightly again in case they have been loosened to any extent by the treatment.

Staining with the substantive red solution is done as follows:

A fresh solution is heated to 45° Cent., and the slide, after moistening and excluding bubbles as before, is suspended in the solution for five minutes at 45° Cent. and immediately washed in two beakers of distilled water.

The slide is then dried and then a cover glass placed on with a drop of balsam.

To get the clearest, brightest results, distilled water must be used throughout, and the staining solutions must be fresh. The two solutions for ferric ferricyanide will keep well if placed in separate bottles. Equal volumes are mixed together immediately before using. The red solution should be made freshly each time for the best results, as it gets thick and stringy on standing, especially when it is being heated up continually.

Staining under the conditions described gives on unbleached sulphite perhaps the deepest blue it is possible to obtain without depositing blue on the slide and on the bleached sulphite; the method also produces the best red on the bleached without turning the unbleached purple. Unbleached sulphite from different mills varies considerably in lignin content, hence some samples stain a deeper blue than others. The foregoing conditions give a satisfactory blue on a sample of high grade imported unbleached pulp as well as a better color on the average run of unbleached pulps, the latter being not so well cooked as a rule. With pulp containing more lignin it is possible to use a slightly stronger treatment with the red and thus get a better color on the bleached without affecting the unbleached.

After a man has had a little experience with the method he can tell by the color of the unbleached whether he may safely continue the staining with the red for six or possibly seven minutes at 45° Cent. At first, however, it is better to follow the directions as given. It is of prime importance to wash out or neutralize every trace of alkali in the fibres, as the blue is decolorized by alkali.

This method of staining will in general give a distinction between pure cellulose fibres and those which contain lignin. Rags, bleached sulphite, soda pulp or any thoroughly bleached material are stained red, while unbleached sulphite, groundwood, jute, or any lignified materials are stained blue. The principal application lies in the estimation of unbleached pulp in book papers. A considerable saving can be made by using unbleached sulphite instead of bleached, hence it is important to know how much unbleached pulp there is in a sheet.

*Address given at the meeting of the Technical Association in Neenah, Wis., May 24, 1917. We reprint this account from Paper, Aug. 29.

UNITED STATES NOTES

A general revision of rates on paper from Michigan production points to destinations in Illinois, Wisconsin and other states was asked of the Interstate Commerce Commission last week by Michigan manufacturers. In filing a complaint against the present rates, the paper manufacturers declared that competing rates on paper from mills in Wisconsin discriminated in favor of Wisconsin paper mills.

Hearings to assist the Federal Trade Commission in fixing a just price for newsprint paper will begin in Washington, January 7 to continue ten days or until all interested persons have been heard. The date was set this week by the Commission in conference with Mark Hyman, special council to the United States District Attorney, of New York, and Henry A. Wise, of New York, representing paper manufacturers who recently were fined for violating the anti-trust laws, and who agreed to abide by a price to be fixed by the commission. A preliminary conference of the manufacturers will be held on Tuesday in New York, at which a tentative cost schedule, submitted last week by Cimmissioner William B. Colver, in charge for the commission of carrying out the Federal court decree, will be considered.

Guston Joseph has just organized a firm to be known as G. Joseph & Co., to carry on a general business in new rags, at 115 Mercer street, this city, where a six story building has been rented. Mr. Joseph is widely known in the trade, having been with E. Rosenbaum & Co., for a year, Philip Solomon & Co., for six years, and with Solomon & Co. for the past year.

According to reports heard in the local trade, the plant of the Menasha Paper Co., at Ladysmith, Wis., will acquire the machinery of the other plant of the concern at Ashland, Wis. It is understood that the concern is concentrating its units and that this is one of the first steps that have been taken in this direction. According to the reports, the Ashland plant will be sold.

An interesting incorporation during the week was that of the Newfoundland Pulp & Lumber Co., organized at Portland, Me. The concern will carry on a general wood pulp, lumber, paper business, and may extend its activities into other fields. It is headed by Clarence G. Trott, of Portland, with P. B. Drew, also of Portland, as treasurer. The capital stock with which the company will carry on its business will not be less than $50,000, all common; nothing paid in of no par value; shares subscribed, ten. Some prominent men are among the directors of the new corporation.

The local trade felt considerable interest in the appointment of Henry Atterbury, Morris Gintzler and Sigmund Goldman, as a committee on wood pulp to co-operate with the Council of National Defense.

Concurrent with the appointment of the wood pulp committee, another one of importance was appointed —the committee on paper. This includes many well known factors, among whom are: A. B. Daniels, president of the American Pulp & Paper Association; T. F. Stevens, of the Stevens & Thompson Paper Co.; A. W. Esleeck, of the Esleeck Manufacturing Co.; C. W. Lyman, of the International Paper Co.; M. F. Marcuse, of the Bedford Pulp & Paper Co.; L. E. Nash, Nekoosa-Edwards Paper Co.; F. S. Harrison, of the Halltown Paper Co.; W. J. Eisner, of the Newark Paraffin & Parchment Paper Co.; Phillips Kimball, Liberty Paper Co.; Allison Dodd, of the E. H. Davey Co.; G. F. Merriam, of the Holyoke Card & Paper Co.; and R. B. Harbison, of the West Carrollton Parchment Co.

Another of the new companies just organized is the George Banta Paper Co., at Neenah, Wis. The concern is capitalized at $30,000, and its incorporators are: George Banta, George Banta, Jr., R. E. Thickens.

The incorporation of the Gallin Paper Co., of Philadelphia, Pa., has been noted during the week. The concern, which has a capital of $50,000, has a charter to carry on a general wholesale and retail paper business. The incorporators are: F. R. Hansell, of Philadelphia; J. Vernon Pimm, and S. C. Seymour, of Camden, N.J.

One of the early effects of the acute shipping situation has been noted in a report from New Hampton, N.Y., to the effect that the mill of the Diamond Mill Paper Co., at Milo, which has been in operation for close on to fifty years has closed down and that its machinery is to be transferred. For some time, this plant has been handicapped because of difficulty in getting coal and other needed supplies. It was also finding increased costs a severe burden. The closing of the plant was said to have been the direct result of this situation.

The business of Jerome S. Luneschloss, Inc., is to be liquidated gradually, according to a decision of the creditors of the concern. Mr. Luneschloss, himself, is well known to the trade and there are many to learn that the present state of affairs in the paper trade has affected his business in this way. For many years, he has been quite a factor in the sale of tissue paper and in bag papers, at one time handling the account of the Crystal Paper Co. At the present time, it is understood that the concern has an over-abundance of paper on hand, which, if disposed at the present market would not yield very much. The assets of the concern are $152,000 and the liabilities are about $150,000, of which about $95,000 is secured.

Operation has been started at Carthage, N.Y., on the new sulphite plant of the Island Paper Co., which is owned by Charles W. Pratt. The mill is equipped to turn out 42 tons of pulp a day and will supply the paper plant owned by the same concern, which works on specialties. Only one digester has been started, the other will be in condition for operation early during the week.

The new secretary of the Chesapeake Pulp and Paper Co., Inc., of Lockland, Ohio, is Joseph H. Slater. His selection for this office has just been announced by the board of directors of the company.

One of the most important announcements of the week, if not the most important, is that George O. Comfort, president of the Monarch Paper Co., of Kalamazoo, Mich., has resigned this position. Charles A. Dewing succeeds Mr. Comfort. Another announcement made at the same time, was that Alexander G. Gilman has resigned as president of the Wheat Paper Co., of Elkhart, Ind. However, Mr. Gilman will retain his interests in the company.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Some new paper-making materials. Anon Bull. Imp. Inst. **15,** No. 1, 1-7 (1917).—Ecdeicolea monostachya leaves found in Western Australia may be cooked with NaOH to yield about 39% of bleachable pulp, slightly superior to esparto. The ultimate fibre length is 0.08-0.22 in. Neoboutonia macrocalyx wood from East Africa with an ultimate fibre 0,04-0.05 in. long, was cooked wth NaOH to yield about 46% of easily bleachable pulp. The pulp is similar to soda spruce, although somewhat shorter Brachystegia bark from Rhodesia, with an ultimate fibre length of 0.05-0.10 in. gave a yield of 33% by the soda process. The pulp was easily bleached and of good quality.—R. B. ROE, in Chem. Abstracts.

The utilization of Imperata cylindrica P. B. in the paper industry. F. Vignolo-Lutati. Ann. accad. agr. Torino **58,** 69-76 (1915); Expt. Sta. Rec. **36,** 809—The grass I. cylindrica yields a very satisfactory cellulose fibre, about 38% of the raw material being converted into bleached fibre. In the use of the stock a smaller quantity is necessary for the production of the finished product than with some other grasses. —E. J. C. in Chem. Abs.

Paper stock from straw. J. E. Lappen, U. S., 1,236,-723. Straw such as that of wheat, oats or barley is cooked in H_2O under pressure to loosen the gummy constituents and the latter are washed out by forcing warm H_2O through the mass and displacing the warm H_2O which is applied under pressure before the fibre has cooled.

Precipitating organic substances in waste sulfite liquor. H. B. Landmark, U. S., 1,236,948. Sulfite liquor produced in manufacturing sulfite pulp is reacted upon by H_2SO_4 produced in the liquor by oxidizing its SO_2 content with ozonized air formed by discharge of electric sparks in air under pressure in the vessel containing the liquor. This effects the precipitation of organic substances, under a pressure of 6-7 atmospheres.

Analysis of spent soda liquors. Elton R. Darling. Chemist Analys No. 21 (1917); Paper **21,** No. 1, 15 (1917.—Detailed methods are given for determining total solids, oil and fats, alcohol soluble, non-extractable matter, ash, alkalinity of ash and H_2O soluble alkalinity, in waste-soda pulp liquors.—R. B. ROE.

Newer details of the sulfate process. Carl Moe. Paper **20,** No. 20-24 (1917).—A very complete outline is given of the various steps necessary to the technical and chemical control of the sulfate process. The methods of analysis used in mill control are described, also a scheme for the tabulation of data throughout the process. The latter is not intended rigidly to apply to all mills, but is suggested as a means of following the details of the process, in order to eliminate unnecessary losses, and genarally increase the efficiency. — R. B. ROE, in Chem. Abs.

Mechanical Properties of Woods Grown in the United States. J. A. Newlin and T. R. C. Wilson, U. S. Dept. Agriculture, Bull. **556,** 47 pp. These studies aid in (1) comparison of species, (2) choice of species for particular uses, and (3) establishment of correct working stresses. The scarcity of certain species makes necessary the use of other woods and these very comprehensive tables are valuable to many interests. — C. N. Wiley in Chem. Abstracts.

Paper Testing (Report of Committee on Paper Testing of the Am. Tech. Ass.) Fred C. Clark. C. W. Rieser and J. Ernest Hafele. Paper **21,** (1917), No. 6, p. 11-19 and No. 7, p. 11-16. Complete methods (1) Microscopical examination. (2) Physical testing. (3) Chemical analysis. The subject of stains for fibres has received attention, and four stains, giving excellent results are recommended for use. These include phloroglucinol, aniline sulphate, and para-nitroaniline for groundwood fibres, and ferric ferricyanide and substantive red stain for bleached and unbleached pulps. Recommendations are made regarding the terms in which the results of physical testing are to be expressed. Under chemical analysis is set forth all methods that are necessary for uses in ordinary paper testing, together with a number of test methods. that may be used in controlling the process of manufacture. A quantitative method is suggested that may be used as an indication of the kind of loading material used. Mehods are also recommended for sizing materials, coating materials, acidity, and free chlorine.—E.K.M.

Recent German Patents for Paper Makers. Paper Trade J., **65,** (1917), No. 18, p. 46 and 54. From Papier Zeitung. German patent No. 297,705 on a Fourdrinier machine with swinging suction boxes on which aswinging circular motion in a horizontal plane is imparted to the suction boxes. By this arrangement the wire netting of the machine is prevented from forming purrows or wrinkles by being distorted to one side and injured while running over the suction boxes, but the wire netting will be steadily redirected into even shope without forming any folds or wrinkles.—E.K.M.—(Courtesy of Chemical Abstracts.)

The microscopy of paper fibres. Charles G. Bright. Paper **20,** No. 25, 11-2 (1917).—A method is described for distinguishing between bleached and unbleached sulphite pulps, in which the fibres are first stained with ferric ferricyanide solution, whereby the unbleached fibre is stained green, and the bleached remains uncolored. If the fibres are then treated with a red substantive dye, the unbleached fibre is changed to a pure blue, and the bleached becomes red. To obtain the best results, careful attention to details is necessary. The method of making and applying the solutions is described. Also Pulp and Paper, **15,** 1914.

Practical experiments in making paper yarn. Papier-Fabr.: Paper Trade J. **65,** No. 10, 30 (1917).—Due to lack of cotton and jute (in Germany) there has been an increasing demand for paper yarns. The best material is soda kraft paper, although paper from cotton, linen, manila and other materials may be used. Details for cooking the wood pulp and rags are given. The stock may be rosin sized as usual but emphasis is placed on use of viscose for sizing. A 10% solution is added to the beater, and decomposed by either $(NH_4)_2SO_4$, $MgSO_4$ or $ZnSO_4$, the latter being best. Full details are given for making the viscose. There is little choice between a cylinder and a Fourdinier machine for running the stock paper into paper. — R. B. ROE.

The preparation of sulfite acid.—P. A. Paulson. Paper **21,** No. 4, 32-4 (1917). A sketch is shown of a simple apparatus for removing S and SO_3 from burner gas, based upon filtering the gases through a layer of sawdust, from 18 in. to 24 in. thick.—R. B. ROE., also in Pulp and Paper, **15,** 1027 (1917.)

Determination of the degree of bleaching of cellulose by means of the copper value. M. Freiberger. Z. angew. Chem. **30,** I, 121-12 (1917; J. Soc. Chem. Ind. **36,** 707.—To obtain trustworthy results in the determination of Schwalbe's Cu. value (cf. C. A. **9,** 712) for cellulose certain precautions are essential. The alkaline tartrate solution should be freshly prepared, since traces of Na silicate dissolved from the glass will materially increase the Cu. value. For preparing the solution pure NaCl made from metallic Na should be used. It is dissolved in a polished Fe vessel, which has previously been freed from fat by treatment with alcohol and ether, and K Na tartrate is added to the cold solution. Old $CuSO_4$ solutions give too high results, and this solution should also be freshly prepared. To avoid solution of SiO_2 the distilled H_2O should be kept in a stoneware instead of a glass vessel, and rubber stoppers, which yield particles to the liquid, should not be used. The method of boiling the Fehling's solution in Gnehm's apparatus has an influence on the results. The sides of the flask should be protected against overheating by means of an asbestos screen, and the liquid should always show numerous steam bubbles. After removal of the burner the supernatant liquid is at once poured into a beaker, and the fibres in the flask are rapidly washed several times by decantation with H_2O at about 80°, and allowed to stand covered with warm H_2O while the Fehling's solution and washings are being filtered. In this way the further deposition of Cu which takes place when dilute Fehling's solution is heated is prevented. Finally the fibre residue is repeatedly washed and removed from the flask. Filtration through paper (S. and S. No. 505) gives more uniform results than filtration through asbestos in a Gooch crucible. The Cu is dissolved in HNO_3, and the solution allowed to stand for 1 to 2 days, and filtered shortly before electrolysis. A blank determination should also be made, and the amount of Cu obtained should be deducted from the Cu value, but only a slight quantity of Cu should separate in the blank test.—F. W. SMITHER.

Retention of fillers in paper pulp. Otto Kress and G. C. McNaughton. Paper **21,** No. 4, 50-8 (1917).—An experimental study of the effect of various factors on the retention of clay in all sulfite paper and one containing 60% sulfite and 40% soda fibre. Tables are given showing that the % clay retention is decreased with increasing amounts of clay; increasing the size and alum increases the retention, and a heavier sheet shows a greater retention than a lighter sheet. The color of the papers improved with increased clay retention, while the strength decreased. A higher retention resulted when the clay was added after the size and alum. An increase in hydration ("slowness") of the pulp produces a higher retention. The method of calculating was slightly different from mill practice. — R. B. ROE.

Cleaning fibrous material Naamlooze Vennootschap Neo-Cellulose Maatschappij. Brit., 108,434, May 2, 1916. In cleaning fibrous materials, particularly waste paper as described in 105,055, a mixture of a substance which will form a foam with H_2O and air, such as soda soap, and material which will render the foam stable, such as solid or semisolid hydrocarbons, vaseline, animal or vegetable fats, or a mixture such as margarine, is used for forming a foam on the surface of the cleaning liquid.

Clay retention. J. D. Rue and C. W. Hallahan. Paper **21,** No. 4, 58-76 (1917).—A comparative experimental of an English china clay, a domestic clay, and a talc as regards the retention in paper, showed that when no size or alum is used the English clay gave a much lower retention than the domestic clay or talc clay, the latter two being practically equivalent. With 3% alum, the order of retention was, talc, domestic clay, English clay; talc being the highest. With 3% alum and 2.5% size, both clays showed about the same retention with talc somewhat lower; the retention of the clays was considerably increased, and the talc retention decreased over the values obtained with alum alone. The domestic clay when used in the proportion of 1-20 parts per 100 parts of fibre gave a minimum retention of 20% when 11.5 parts per 100 of fibre were used. With 10 parts of mineral per 100 of fibre, alum in proportions of 0.1-3% showed no effect on the retention of domestic clay. Talc retention was increased nearly the same amount with all concentrations of alum used. An elutriator was used to good advantage in the investigation.—R. B. ROE.

Preparing sulfite cellulose. C. Bache-Whig. U. S., 1,240,920, Sept. 25. In preparing sulfite cellulose, small pieces of wood are cooked in a solution of $Ca(HSO_3)_2$, $Mg(HSO_3)_2$ or $NaHSO_3$ and during the cooking operation NaCl (less than 5%) is injected to bleach the fibres, retard formation of hydrocellulose and enable the cooking to be carried out at a lower temperature.

Precipitating organic substances contained in sulfite solutions. E. Oman. Fr., 481,917, Jan. 31, 1917. The sulfite liquors, either concentrated or not, are treated with substances yielding the radicals NH_4, K, Na, Mg, or Ca, and Cl, SO_4, PO_4, and CO_3, in such proportions that the liquor does not become alkaline, preferably heating the liquor and separating the sugar by any preferred means.

Impregnating Fibrous Material With Bakelite. J. McIntosh, U. S., 1,236,460. The parchmentizing agent in green vulcanized fibre is replaced by alcohol or other solvent of bakelite, the fibre is then placed in a liquid bakelite compound and after the bakelite has replaced alcohol for the most part it is converted into the solid form in the fibre by heating. The product is especially adapted for elec. insulation.

COST OF FELLING AND PEELING PULPWOOD.

According to information from extensive Quebec pulpwood manufacturers, the average cost of felling and peeling pulpwood is about $1.50 per cord, which is made up as follows:

Average daily wage	$1.25
Board per day	.40
Supervision per cord	.08
Cost of camp per cord	.05
Tools per cord	.04
Total	$1.82

The average number of cords per man per day is about 1.22, so the cost per cord is very nearly $1.50.

The cost varies according to the accessibility of the operation, the roughness of the ground, the character of the stand, and the general soundness of the timber. Figures given above are for the last season. The outlook at present is that this year costs will increase 15 or 20 per cent.—Canada Lumberman, April 15, 1917.

PULP AND PAPER NEWS

At the regular quarterly meeting of the Provincial Paper Mills Co., held in Toronto, all the plants of the company were reported to be fully employed. The regular quarterly dividend of one and three-quarter per cent on the preferred stock was declared and also a quarterly dividend of one per cent on the common. The preferred stock has carried a return of seven per cent per annum for some years and a dividend of four per cent on the common has been paid for one year, the present quarterly payment being the fourth one.

A. B. Conable, vice-president of the Bardeen Paper Co., Otsego, Mich., who is a director of the Provincial Paper Mills Co., was in Toronto this week on a visit to his brother, Ralph Connable, manager of the F. W. Woolworth Co.

A federal charter has been granted to Edward Clark and Sons, Limited, with a capital stock of $500,000 and headquarters in Toronto. The company are empowered to take over the business Edward Clark and Sons, and, in addition to carrying on operations as lumbermen and timbermen, to manufacture, sell and deal in pulp wood, wood pulp and paper.

The repairs to the beater room of the Barber mill at Georgetown, which was visited by fire a few weeks ago and one paper machine put out of commission, are about completed, and it is expected that operations will again start this month. A new concrete floor has been laid in the beater room and other improvements carried out.

Sir Mackenzie Bowell, proprietor of the Belleville Intelligencer, with which office he was identified for the long period of eighty-two years, was the oldest working editor in the world. His death at the ripe age of ninety-four removes the last charter member of the Canadian Press Association, of which body he was a former president. Twenty-two years ago when he was Premier of Canada and on a western trip, he visited the office of the Calgary Herald, of which J. H. woods, the present president of the Canadian Press Association is managing director, and, picking up a stick, he set several lines of type just to show that his right hand had not forgot its cunning. That evening the Herald, in big lines, contained the unique announcement: "Premier of Canada Sets Type in Herald Office."

The late Sir William Van Horne, president of the Laurentide Co., who died in Montreal in September, 1915, left an estate of $6,331,374, of which $44,603 is in Ontario.

A leading wholesale paper firm of Toronto has sent out a notice to their customers that transportation, even by express, is bad—getting worse every day and, with winter at hand, is giving all jobbers grave concern. Cars and engines to do the hauling are being absorbed in government work more each day and week and, in connection with embargoes, goods of all kinds from the United States as well as points in Canada are held up and side-tracked. The firm in question advises all to order liberally whether of paper, or any other commodity, needed in business for the next six or eight months and conclude, "In our opinion, paper will be cheap at most any price by the middle of the winter, and the man with goods actually on hand will get the business."

J. M. Dent and Sons, Limited, 27 Melinda street, Toronto, have been appointed agents in Canada for the flat papers of John Dickinson and Co., London, Eng., and have also purchased the Toronto stocks of this firm. The sale of stationery, which is manufactured by John Dickinson and Co., will still be conducted in Canada by their own salesmen who will make special visits to the Dominion. Mr. Alder and his associates, of the Toronto office of John Dickinson and Co., have been appointed Canadian distributors for the J. W. Butler Paper Co., of Chicago, and also for Warren's coated papers.

I. D. Bradshaw, of Bradshaws, Limited, manufacturers of waxed papers, Toronto, who has three sons serving overseas, has received word that his son, Lieut. W. J. Bradshaw, who is connected with the 30th Battery in France, was wounde recently in action. The wounds were on the scalp and arm.

W. M. Loveland, president of the Watervliet Paper Co., Watervliet, Mich., and S. B. Munroe, general manager of the Bardeen Co., Otsego, Mich., spent a few days in Toronto this week on business.

The Canadian Leatherboard Co., whose plant is at Chambly Canton, Que., has been reorganized and the name of Bennett, Limited, adopted. The company recently took over the Dominion Counter Co., Montreal, and will remove the industry to Chambly Canton, where operations will be extended. Bennett, Limited, make heel board, fibre innersoling, double and veneer board. George F. Davis has been appointed sales manager for the firm, who have offices at 59 St. Henry street, Montreal.

A charter has been granted to the Terminal Publishing Co., Limited, with headquarters in Fort William and a capital stock of $50,000, to do a general business in printing and publishing.

A. G. Pounsford, general manager of the Port Arthur Pulp and Paper Co., Port Arthur, Ont., spent a few days in Toronto this week on business and reports that the finishing touches are now being put to the buildings of the company and that the first cook of sulphite will take place early in January.

During the past few weeks there has been circulated in Ontario a Liberal publication known as "The Grit." The company has obtained a charter under the name of The Grit Press, Limited, with headquarters in Toronto, and a capital stock of $100,000. Among the incorporators are A. H. Beaton, A. G. Slaght and W. E. Wilson.

In a recent fire in the Arcade and adjoining buildings on Sparks Street, Ottawa, in which a quarter million dollars damage was done, J. Basil Read, stationer and paper dealer, suffered a considerable loss.

"The Veteran" is the name of a new publication at Ottawa, which is the official organ of the Great War Veterans Association of Canada. The paper will be issued monthly and the contributions in the first edition are from a large number of returned soldiers.

OTTAWA NOTES.

When news of the Halifax calamity reached Ottawa, the E. B. Eddy Co. immediately contributed its Halifax stores of roofing, board and heavy paper to the sufferers. J. R. Booth and the Beaverboard Co. also responded promptly and generously and are rushing orders on wall board stock. The Bishopric Wall Board Co., Beaverboard Co., and Corporation of Ottawa gave a carload of board. Paper makers all over Canada are again giving evidence of their patriotism and generosity in rendering assistance.

Arrangements have been made recently whereby the wood's employees of the E. B. Eddy Company have been granted exemption for a period of three months. This will ensure the company using its camp supplies already in the woods, and affording it an opportunity of getting out its expected cut of pulpwood.

It is pretty well understood that the woods employees of John R. Booth (liable to the first draft call) stand a pretty good chance of getting exemption until the present season's woods operations are over.

The report that the newsprint plant of the E. B. Eddy Company had closed down was incorrect. Mr. George H. Millen, president of the Company stated to the representative of the Pulp and Paper Magazine that one wrapping machine had been down seven or eight days for much needed repairs.

A. G. SMITH, OF DRYDEN, HONORED.

A very pleasant surprise was given A. G. Smith, of the Dryden Timber and Power Co. Pulp Mill office staff, when after the close of business on Thursday evening last, the foremen and staff of the plant gathered in the general office. Mr. J. B. Beveridge, General Manager, stated that as Mr. Smith had recently joined the ranks of the Benedicts, they did not wish to let the event pass without showing their esteem for him in a tangible form. He then called on Mr. Humphreys, office manager, for a few words.

Mr. Humphreys briefly spoke of the high regard in which Mr. Smith was held, and as a slight token of the well wishes of those present for his future presented him with a beautiful silver tea service.

Mr. Smith, although taken completely by surprise, in a feeling manner thanked the donors for their well wishes and the splendid form of their token of those wishes.

For making pulp from bamboo Messrs. T. R. Anantha Rama Iver and Bros., Ltd., of Trichur, Cochin State, India, are inviting offers for furnishing the plant and machinery for the mill. The capacity is to be 200 tons of pulp per week.

Bathurst Lumber Co. will have a new sulphite superintendent after January 1. E. Simonson, who has had a similar position with the Dominion Pulp and Paper Co. is the man. He has a good record and is a fine fellow.

DESIRE MORE NIGHT SCHOOLS.

At a meeting of Dufferin School Graduate Society, of Montreal, recently, the members discussed at length the report of Mr. F. W. Merchant, director of Industrial and Technical Education in Ontario, who advocated increasing the number of night schools throughout Canada. The members were of the opinion that compulsory education in some form was one of the requirements if the country was to maintain its place in the industrial competitions. It was the unanimous opinion that night schools opened up avenues to the grown men who would not think of school surrounded by boys and girls. The same applied to young women.

FLOODED PULPWOOD SOLD.

A permit to cut timber on about one hundred square miles of land flooded by the building of a dam on the St. Maurice River, at La Loutre Rapids, was sold at auction last week by the minister of Lands and Forests.

This land on which there is about 30,000 cords of white pine and pitch tree, is covered by 40 feet of water in the period of highest waters, and timber can be cut only when water is low, either in February, on the ice or in summer time.

There were only two bidders. The first offer was $5 a mile for ground rent. The Brown Corp. was given the permit for $8 a mile. In view of the hard difficulties of exploitation, only half of the ordinary stumpage dues will be collected from the forestry operations.

REGARDING REBATES.

The following incident, as told by the Paper Dealers is of a kind that may not be unknown to readers of the Pulp and Paper Magazine.

"There are several kinds of rebaters. Here is one kind: Newsprint, you know, is a choice article these days, as much so as potatoes and diamonds. An old customer pleaded for a few cars of newsprint at as modest a price as possible and quick delivery. We were willing to befriend, offering at $5.50 f.o.b. mill, deferred shipment. The customer replied that he could buy at $3.50 f.o.b. mill. We retired. A few days later the customer wired to ship immediately at $5.50, stating his mill had fallen down," relates a mill man. "Meanwhile prices for groundwood and cost of production were aeroplaning and the demand far exceeding production. Believing our old friend was trying to put something over, we had to put him on a level with the prevailing market, $6, and there the proposition collapsed."

John L. Ross, superintendent of the paper mill of the Abitibi Power and Paper Co., whose untimely death was mentioned last week, was killed by becoming entangled in a rope drive. He was formerly superintendent of the mill at Fort Frances, Ont. His sister, Mrs. Frank Dooley and Mr. Dooley, who is now superintendent at Fort Frances, attended the funeral.



From an Old Cut. Supposed to Represent the Paper Makers' Idea of a Publisher.



From an Old Cut. Supposed to Represent the Publisher's Conception of a Paper Maker.

The Markets

CANADIAN MARKETS.

Toronto, December 17th, 1917.—There has been an exceptional demand for newsprint during the month of December. Advertising has been very heavy with all the big daily papers, pages appearing not only from business houses but from the various political parties. There was never as much publicity in an election campaign as during the present one, and then there have been started a number of political sheets, which have swelled the demand for newsprint. The Newsprint Manufacturers Association, which was said to control about nine-tenths of the newsprint in the United States and Canada, has been dissolved, and a committee of five selected in New York to reorganize the association on a basis agreeable to the federal laws and the regulations established by the Federal Trade Commission.

J. A. Bothwell, general manager of the Brompton Pulp and Paper Co., East Angus, Que., is a member of the committee of the new organization which will submit a plan for the new organization for the approval of the Attorney-General of the United States. The dissolution of the "newsprint trust," as it has been called, does not necessarily mean that print paper will be cheaper in price, for it is not likely that manufacturers will cut the throats of one another and place their product on the market at a figure below cost, the same as they have, by arbitrary federal action, been selling in Canada for the last ten months. One company can set the price and the others can copy it, and no law can intervene in this respect. The manufacturers can scarcely supply the demand for their output at the present time, and there is no necessity of lowering prices to secure business. Any newsprint mill can get all the orders that it requires without resorting to slashing. Reports received from all the big plants show that they are operating to the limit.

During the next month, mills will be busy with inventories while the coming week, and those following, will be devoted by the paper jobbing houses to stock taking so as to begin the New Year with a clean sheet. Some companies will give their usual bonus to employees this Yule-tide season and although, it is not likely the amount will be as large as in 1916, in view of the rather uncertain future of market conditions and the quietness of the trade generally during the last few weeks. 1916 was a banner year with every paper and pulp concern in Canada and while the results, financial and otherwise, in 1917, will be very satisfactory, everything being taken into consideration, it is not expected that the earnings of the average concern will reach those shown at the close of last year.

In the book paper investigation, there is nothing really new to report. Negotiations are still going on between individual customers and the manufacturers but these conferences have been somewhat disturbed by election excitement and holiday festivities. It will probably be well into January before it is definitely known if the probe into prices will be continued. One mill remarked this week that they had come to a satisfactory basis with all their customers, with the exception of one firm and, it was hanging out so long that, in the end, it would probably find itself in the unique position of being the only consumer who was not satisfied. It is reported that this firm is not only trying to get a very low price on book paper, but is aiming to have the investigation go on as well. Apparently there are two strings to its bow, but the general opinion is that it will not be able to pull both of them. Some book mills are very busy and also one or two coating plants, night work having been started by one company during the past week.

Printing establishments have been very busy getting out special announcements for various houses for Christmas and in issuing election circulars, booklets, and other matter. This has all helped the paper trade somewhat. Jobbing houses report that business is very fair. While no large orders are being received there is a multiplicity of small ones, which have swollen the volume of trade to quite respectable proportions during the past month. Envelope factories are fairly busy and, at the beginning of the year, will issue a new price list, which it is expected will show a reduction of about ten per cent. Generally paper quotations are easier than they were a couple of months ago and envelope makers are going to give their customers the benefit of same.

In the sulphite market, there is every indication that prices have touched bottom and the outlook is for a stiffer figure, owing principally to the high cost of production, the scarcity of coal and transportation difficulties. The general opinion of the sulphite manufacturer is that as winter proceeds and these difficulties become accentuated, there is every tendency for prices to climb. The paper manufacturers, on the other hand, who have to buy their supplies, declare that with the added tonnage coming on the market, they will be able to get sulphite at present figures or lower. They point out that a new mill, in order to get a foothold, generally cuts prices and there are, at least, half a dozen new plants which have just started operations or will be selling their output within the next three or four months.

In the groundwood arena there is a better demand this week than there has been for some time and more inquiries are being received regarding the price which mills will supply customers during the coming year. The increased demand come particularly from the West. Canadian consumers are paying about thirty-five dollars, f.o.b. mill, for groundwood pulp of the best grade. The labor situation is getting worse all the while and higher wages than ever are being offered men to go to the woods and cut pulpwood.

In rag and paper stock circles, there is little doing and it is not thought there will be any change in conditions until well into the New Year. There has been a drop of ten cents in mixed papers, while book and ledgers have fallen ten and twenty cents. Manilas are weaker and whites are unsaleable. There is a slightly better demand from the mills for new cotton rags and there have been advances in shirt and overall cuttings, bleached and unbleached shoe clips.

The mills are now all making preparations for their annual meetings and wondering what 1918 will bring forth in the way of prices. While there may be a decline it is not expected that very much lower quotations will prevail, as producers find that a falling market is not conducive to activity in business. Then wages are so high, help so scarce, chemicals, wire, felts, etc., so increased in price, that producing cannot be brought down. One of the worst features is the uncertainty in coal supplies, not to speak of prices which are a hundred per cent more than a year ago, while the transportation lines are not sufficiently manned and the heavy snow storms more than ever are tieing up deliveries. Railway men believe that it will be several weeks before business is back to normal conditions again. In the meantime, all that can be done is to sit down, do the best than can be done and await developments.

Paper.

*News (rolls) at mill, in carload lots	$2.50
*News (rolls) in less than carload lots	$2.75
*News (sheets) at mill, in carload lots	$3.25
*News (sheets) less than two tons	$4.00
*News (sheets) two tons and over	$3.50
xBook papers (carload), No. 1	$9.25
xBook paper (ton lots), No. 1	$9.50 to $10.00
xBook papers (carload), No. 2	$9.00
xBook papers (ton lots), No. 2	$9.50 to $10.00
xBook papers (carload); No. 3	$7.00
xBook papers (ton lots), No. 3	$7.50 to $8.00
Ledgers	15c up
Sulphite bonds	11½c
Light tinted bonds	12½c
Dark tinted bonds	13½c
Writings	10½c up
Coated book and litho, No. 1	$12.25
Coated book and litho, No. 2	$11.25
Coated book and litho, No. 3	$10.50
Coated book and litho, colored	$12.50 to $14.50
†Grey Browns	$4.25
†Fibre	$6.75
†Manila, No. 1	$6.75
†Manila B	$4.50
Tag Manila	$6.25
Unglazed kraft	$8.25
Glazed kraft	$8.25
Tissues, bleached	$1.25 to $1.80
Tissues, (unbleached sulphite)	$1.20 to $1.60
Tissues, cap	80c to $1.15
Tissues, manila	70c to $1.00
Natural greaseproof	13c
Half bleached greaseproof	15c
Bleached greaseproof	16c
Genuine vegetable parchments	22c
Bleached white glassine	16c
Drug papers, whites and tints	9½c to 10c
Paper bags, manila	20% discount
Paper bags, kraft	35% discount
Confectionery bags	25% discount
Gusset bags (manila)	20 and 15% discount
xxStraw board	$70.00
xxChip board	$70.00
xxFilled wood board	$80.00
xxNews board	$75.00
xxManila lined folding board, chip back	$82.50
xxPulp folding board	$90.00
xxJute board	$70.00
xxTag board	$150.00
xxWhite patent coated board	$110.00 to $125.00
xxGrey folding board	$100.00
xxPasted board	$90.00

(*)—Canada only.

(x)—These prices are for machine finish, supercalender one-quarter cent higher.

(†)—Wrappings in sheets are 15c per 100 lbs. higher.

xx)—Less twenty per cent.

Pulp.

	F.O.B. Mill.
Ground wood pulp	$32.00 to $37.00
Sulphite, easy bleaching	$65.00 to $70.00
Sulphite, news grade	$50.00 to $60.00
Sulphite, (bleached)	$110
Sulphite	$80.00

Rags and Paper Stock.

No. 1 hard white shavings	$3.00
No. 1 soft white shavings	$2.90
Mixed Shavings	70c
White Blanks	$1.40
Heavy ledger stock	$1.80
Ledger and writings	$1.55
No. 1 magazine	$1.10
No. 1 book stock	$1.00
No. 1 manila envelope cuttings	$2.10
No. 1 print manila	$1.00
Folded news	60c
Over Issues	80c
Kraft	$2.25
No. 1 clean mixed papers	40c
No. 1 shirt cuttings	$8.25
No. 1 unbleached cotton cuttings	$7.75
No. 1 fancy shirt cuttings	$5.25
No. 1 blue overalls cuttings	$5.25
Bleached shoe clip	$6.75
Unbleached shoe clip	$6.25
White cotton hosiery cuttings	$8.00
Light colored hosiery cuttings	$7.00
New light flannellette cuttings	$5.25
No. 2 white shirt cuttings	$5.25
No. 2 unbleached cotton cuttings	$5.25
City thirds and blues (repacked)	$2.75
Flock and satinettes	$2.10
Tailor rags	$2.15

NEW YORK MARKETS.

New York, Dec. 17.—Demand for chemical pulp plainly reflects the quiet condition of the paper market. Many paper mills are starting to take inventory and this, coupled with the lack of demand for the better qualities of paper, is creative of an even quieter tone in pulp than was formerly the case. Despite the dullness of trading, however, quotations were marked by steadiness. Pulp importers and manufacturers expect considerable improvement in the market about New Year's time and are insisting on full quoted prices in current sales. What buying is in evidence is still restricted chiefly to domestic grades of fibre which are available at cheaper figures than foreign pulp. There is only a limited supply of Scandinavian sulphite available in this country and the bulk of it is high priced stock. Imported unbleached sulphite is scarcely obtainable at below $100 a ton, while high quality of domestic unbleached is selling at about $70 per ton. This wide disparity of values has virtually eliminated competition between sellers and consumers are buying foreign pulp only when domestic fibre cannot be substituted. Reports show that, in certain sec-

tions of the country, some mills are having a hard time in getting their pulp supplies because of railroad embargoes. Traffic congestion is becoming more and more acute. The heavy snowstorms of the past week are said to have wrought havoc along all of the roads. One report, said to have been official, said that no coal cars were moving and there was no definite knowledge when they would be able to do so. Attention to government business is the chief thing in the eyes of the carriers and they make no secret of the fact that all industries, the paper making being no exception, will suffer severely from embargoes. At the present time, there is a movement on foot to clear some of the lines through the East to make the routes for foreign shipments clear. This has resulted in cutting off a number of centres of supply. Pulp mills that have not got their supplies of wood in their yards are likely to find it necessary to close down for a while because of the condition in which the freights of the country now are. It is predicted that some of the prices now heard in the market will soon be cheap, not because of the unusual demand, but because, with a number of the mills isolated, a shortage in consuming centres will result, thus placing a premium on spot stock. During the week, a sale of domestic unbleached sulphite, approximating 100 tons for export was recorded at $65 a ton at the pulp mill, and several offerings of bleached sulphite at around 5¼ cents f.o.b. pulp mill were in the market.

Groundwood pulp is characterized by a steady tone notwithstanding the fact that demand is rather light. Most grinders are kept fairly well engaged in making deliveries to contract customers, but buying in the open market is restricted to small lots of fibre for which consumers find immediate need from time to time. Present indications, however, point to a far more active trade in groundwood within the next few weeks. Sellers emphasize the fact that with demand for paper reverting more and more to the cheaper grades, that an increased consumption for groundwood must necessarily ensure shortly. If this anticipated expansion develops, it is very likely that prices will go up. Manufacturing conditions are such that the output of grinding establishments is considerably below normal for this season and a heavier demand would, doubtless, result in a quick enhancement of values because of the limited supply available. What is more, there are no prospects that the production will be increased to any material extent, for some time at least. The start of work on the second draft for the army to-day, is expected to be another blow at production, for it will undoubtedly take away a good many of the men now employed in pulp mills throughout the country. At the present time, around $36 a ton at the grinding plant seems to be the most common price quoted by Eastern manufacturers. The range is from $35 to $38, while the Western range is from $37 to $40, both f.o.b. pulp mill.

There was comparatively little doing in the rag market. The first heavy snow storm of the winter, however, had the usual sentimental effect of strengthening quotations, particularly on roofing stock. The storm in the Middle West was reported far more severe than in this section and dealers appreciate that the collection of rags in country regions must necessarily be halted, thereby cutting down the amount of stock which will be available in the immediate future. Orders from manufacturers, however, still involved conservative tonnages and actual changes in price were negligible. Rag men point out what they have pointed out before that, whenever the railroads have their choice with regard to what freight they want, they invariably side-track rags because they are regarded as being undesirable and because other commodities mean more profit to the railroads. This, together with the fact that collections are to be curtailed because of the winter season and the lack of men engaged in the work of collecting, are, the dealers say, good argument for a bull market sometime in the future. It is reckoned, judging from the way the mills have been buying for some time that they have not very much in the way of supplies and that they may be hurting themselves by buying in this manner. The activity in new rags by writing mills is said to be fair, but even here it was reported that things were starting to act on a more conservative basis. Repacked blues of the best grade sold to a dealer at 2.40 cents. There is no pointed demand for thirds and blues, but several inquiries are in the market and trading appears of more extent in this grade than for some time. White rags were altogether neglected by consumers. Quotations were purely nominal as there were scarcely enough sales going through to establish a definite market value. Street soiled whites sold, in one lot, at 2.20 cents.

Demand for paper stock was confined to rather limited proportions, although several large orders were reported in the market. One local broker has just accepted an order from a mill for 30 carloads of heavy books and magazines at a price which enables him to pay 95 cents a hundred pounds for the stock. When seen, he had already purchased 18 cars at this figure and was seeking to locate the remaining 12 cars. A sale of 3 cars of No. 1 hard white shavings was made to a broker at 3 cents per pound which, considering the prevailing dull demand for this grade of stock is thought to be a comparatively large transaction. Manilas are a shade weaker in value, the sale of 2 cars to a dealer at 45 cents have been recorded. There is a moderatively active demand for stock at basis, however. No. 1 mixed paper was in slightly stronger demand and dealers and brokers paid around 30 cents for pressed bales, while the offer of $4 a ton for dump mixed paper was noted. Folded news commanded 50 and 52½ cents, while box bales sold at 45 and 47½ cents to dealers. Hard white shavings were sought in limited quantity with brokers offering 3.25 cents for good packing. Sales of No. 1 kraft at 1.90 cents, white news at 1.40 cents and No. 1 manilas at 60 cents to dealers also were recorded.

Activities in the paper market were somewhat limited during the week. As a matter of fact, no real activity is looked for during the rest of the month. The trade seems to be engaged in stock taking and is not paying much attention to the market. There are some who question whether the demand will pick up after the first of the year as some say will be the case. General opinion is that prices will not go any lower than they are at the present. Some say, that, under present manufacturing costs, if prices show a tendency to go lower, it would be more profitable to close down some of the plants. The economy tendency will, it is figured, continue to have its effects on the demand. Fine writings are going fairly well at the present time, but it is thought that, these will be one of the first to feel economy later on. Wrapping papers are not being

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sought very actively. Newsprint continues in fair demand and is expected to continue so for some time. The chief thing of interest now is the expectation as to what action will be taken at the coming meeting of the Federal Trade Commission to fix the price of news. It is felt, in some quarters, that, because of an apparent change in general sentiment, the commission will be fair in establishing a price. At all events, the paper men have the option of appealing any decision that is made, if they feel that it is not properly based. Of unusual importance was the announcement by the International Paper Co. that it would accept contracts for the year 1918 at 3.15 cents f.o.b. mill. It was stated that this conclusion was arrived at in view of the fact that the Federal Trade Commission is allowing the 3 cent price to run until April 1 and the belief that the new price will be slightly higher—most likely averaging about 3.15 cents.

(The following quotations are nominal):

New York quotations for the past week averaged about as follows:

Imported bleached sulphite, ex-dock, N.Y.	8 to 9c
Domestic bleached sulphite, f.o.b. mill	5½ to 6c
Imported unbleached sulphite, ex-dock, N.Y.	5 to 5½c
Domestic unbleached sulphite, f.o.b. mill	2¾ to 3½c
Foreign easy bleaching, ex-dock, N.Y.	5¼ to 5¾c
Domestic soda bleached, f.o.b. pulp mill	4 to 4½c
Mitscherlich unbleached, f.o.b. mill	5¼ to 6c
Scandinavian kraft, ex-dock N. Y.	5¼ to 5½c
Bond papers	10c
Ledgers	10c
Best writings	21c and higher
Superfine writings	18c and higher
Newsprint, contract	3 to 3¼c
Newsprint, transient	3¼ to 3½c
Side run newsprint	4c and higher
Books, supercalendered	6½c and up
Books, machine finished	5¾c
Books, coated	7½c
Krafts	6½c to 7½c
Jute manilas	to 10c
Wood manilas	to 5¼c
Best bleached tissues	to 85c ream
Manila tissues, ream	to 85 cents
Kraft tissues	to $1.25 ream
Newsboard, f.o.b. N.Y.	$40
Strawboard, f.o.b. N.Y.	$43
Binders board	to $60
Chipboard	$38

TWINE PRICES.

3-ply Soft Cotton, per lb.	46½ to 50c
4-ply Soft Cotton, per lb.	50c to 55c
5, 7, 10, 15, 20-ply Soft Cotton, per lb.	50½ to 56c
Sea Island Bulk Twine, per lb.	75c
Do., in boxes, per box	75c
Flax Sewing Twine, 3 to 8-ply, per lb.	58c
Mattress Twine, per lb.	$1.00
Jutes, 2 , 3, 4, 5, 6, 8-ply, per lb.	17c to 21c
Fine Jutes, 2, 3, 4, 5, 6, 8, 10, 12-ply, per lb.	20 to 25c
Unfinished Hemps, 3 to 12-ply, per lb	30c to 40c
Yucatan Twine, per lb.	27c to 30c
Finished heavy jutes (sizes 201, 301, 401, 501) per lb.	22c to 25c
Fine finished jutes (sizes 202, 204, 208), per lb.)	35c to 40c

LATE PULP AND PAPER NEWS.

At a recent meeting in Toronto there was organized the Cost Finding Section of the Master Printers and Bookbinders Association of Toronto. The headquarters of the Section are at 71 Richmond street west, and the cost counsel is C. L. Jones. The officers for the coming years are: A. F. Rutter, of Warwick Bros. and Rutter, Limited, chairman; J. J. Lynch, of the Espie Printing Co., Limited, vice-chairman; P. G. Cherry, of Might Directories, Limited, secretary; W. C. Baker, of Miln-Bingham Printing Co., Limited, treasurer; F. E. Galbraith, Acton Printing Co., Limited, membership. The object of the organization is the study of costs and the introduction of a uniform cost finding system in the printing offices in Toronto. The membership comprises employing printers, book-binders, trade composition offices, electrotypers and lithographers. In the by-laws of the new association it is distinctly set forth that it shall not attempt to establish or control the prices at phich printing shall be sold by its members, but shall confine itself strictly to ascertain costs.

In the recent disaster at Halifax, the premises of the Richmond Printing Co., large wholesale paper dealers and printers, collapsed and were burned. Some thirty employees lost their lives. David Orr, one of the proprietors, was killed, William Orr, his brother, is missing, and Samuel Orr, another brother and also a member of the firm, lost his wife and five children. The Orrs came originally from Greenoch, Scotland, and, by their industry and enterprise, had built up a large business, one of the biggest in the paper line in the Maritime Provinces, and in connection with their establishment had a progressive printing plant.

Mrs. Latter, wife of the late Norman Latter, of Halifax, for many years Maritime Province representative of the Canada Paper Co., suffered the loss of an eye in the terrible explosion in that city. Her sister also suffered a similar accident, but her mother and the members of the family escaped unhurt. Their house was completely wrecked.

F. G. Lancaster, of Halifax, who is the Maritime Province representative of the Canada Paper Co., writes that considerable damage was done to his house in the late disaster. He says that he is detailed to the Armories, one of the three food depots in the city, and reports for work twice daily. Mrs. Lancaster did duty for several days in one of the hospitals which are filled with the wounded and dying. Mr. and Mrs. Lancaster took several people into their home, who had lost everything in the terrible tragedy.

RIORDON AND ABITIBI DIVIDENDS.

The Riordon Pulp and Paper Company, Limited, has given notice that a Dividend of 1¾ per cent (being at the rate of 7 per cent per annum) on the Preferred Stock of the company, has been declared, payable December 31st, 1917, to Shareholders of record at the close of business December 18, 1917.

Abitibi Power and Paper Co., Limited, has announced a Quarterly Dividend of One and Three-quarters (1¾%) per cent on the Preferred Stock of the Abitibi Power and Paper Co., Limited, payable Wednesday, the 2nd day of January, 1918, to Shareholders of record at the close of business Thursday, the 20th day of December, 1917.

NEW MEMBERS OF THE TECHNICAL SECTION.

Plans for the annual meeting of the Technical Section are progressing nicely. Much important business is to be transacted and a fine programme of papers is promised. Details will be given in the next issue of the Pulp and Paper Magazine as several important committee meetings will occur in the meantime.

The Section continues to grow. Since August the following members have been elected to this Section:

Messrs. B. Grav, W. F. Lawry, Cone Barlow, F. W. O'Rourke, E. B. Wardle, D. H. McMurtrie, W. B. Campbell.

The following applications have been received and are having the attention of the Council at the present time:

Messrs. Raymond H. Harding, Theo. Safford, J. J. Brennan, Frank J. Gilloon, J. Aggiman, R. O'Donoughue, E. R. Barker, G. Meerbergen, T. F. McHenry and E. Olsson.

SUCCESSFUL SAFETY RALLY AT THOROLD.

A safety rally under the auspices of the pulp and paper mills of St. Catharines, Merritton and Thorold was held in Thorold on the 7th inst. A local committee of pulp and paper men looked after arrangements and the success with which the program was carried through reflects great credit on them.

The moving picture theatre was secured for the day and a special show was held at three p.m. for school children. The teachers of the various schools marshalled the children and looked after them generally. The Merritton children being conveyed to Thorold and home again by special street cars kindly placed at the disposal of the authorities by the Niagara and St. Catharines Railway Company for which service the railway company made no charge. The accommodation of the theatre was taxed to the limit, but no rough play was permitted and everything went along smoothly. Special films suitable for children were exhibited by Mr. Wyse, of the Ontario Safety League. These films held the children's interest, especially those depicting street accidents caused by playing on the streets.

In the evening a meeting of employees was held, at which the accommodation was again taxed to the full. This meeting was presided over by Mayor Battle, who in a short speech commended the pulp and paper industries for their progressiveness in furthering accident prevention work by arranging such instructive meetings for employees. He also congratulated the employees for turning out in such large numbers. The principal picture shown during the evening was entitled "The House that Jack Built," which was loaned for the purpose by the National Safety Council, Chicago. This film depicts with compelling force the type and seriousness of accidents brought about by carelessness and "The don't care a d---" spirit.

During a short interval an address on "Accident Prevention work" was given by A. P. Costigan, secretary and safety engineer of the Ontario Pulp and Paper Makers' Safety Association. Mr. Costigan's address will appeal in an early number of the Pulp and Paper Magazine.

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This Sheet Alloy is meant to take the place of what is usually called Chemical Sheet Lead. It is 5% lighter in weight, has greater acid resisting properties, and has greater tensile strength and rigidity. It does not creep or buckle, but stays exactly in the position in which it is placed.

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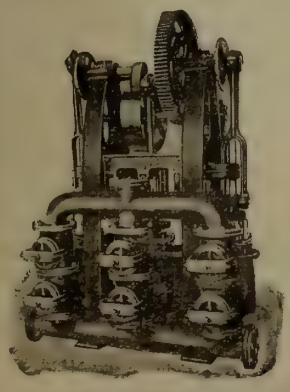
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A NEW NEWSPRINT ASSOCIATION.

New York, Dec. 17.—There is now a new association of newsprint manufacturers called the Newsprint Service Bureau. It was formed on Wednesday of last week at a meeting held at the Hotel Waldorf-Astoria, which had been called for the purpose of dissolving the old organization, as had been decreed by the Federal Trade Commission. The old Newsprint Manufacturers' Association was formally dissolved and is now relegated to the past. This body which has had such an eventful career, which has been the chief instrument in bringing about the understanding between the manufacturers of this country and Canada, that has been the very means of permitting thousands of newspapers in the United States to continue in operation during the past year when conditions were so precarious — this same body was made extinct through the efforts of those same newspapers that it had done so much to preserve—price or no price.

The work of building up the new organization is soon to be in full swing. It will have as its object to act as a statistical organization for the newsprint manufacturers and to act in their behalf whenever necessary. It may be that the present personnel of the organization will be retained, though this has not yet been decided upon.—R. W. J.

PAPER MAKERS IN A DIFFERENT LIGHT.

New York, Dec. 17.—In his annual report, to the House of Senate, the Public Printer Ford paints an altogether different picture of the paper manufacturers of the country from that which proprietors of daily newspapers have been depicting in their reports and editorial expressions on the recent newsprint and book paper cases. Reviewing the paper situation for the past year, the Public Printer states that an acute shortage has existed almost without interruption throughout the last twelve months and that much difficulty has been experienced in keeping his office properly supplied with paper, owing to the refusal of the Joint Committee on Printing to make awards at the large increase in price over previous years. Frequently, he declares, it was only by a direct appeal, principally on the ground of extreme urgency in government needs, that sufficient paper was secured to keep up the necessary deliveries on highly important work. Commenting on the paper manufacturers' attitude with respect to furnishing the government with paper, Mr. Ford says:

There was a very fair spirit of co-operation evidenced by paper manufacturers in the furnishing of the enormous quantities of stock used during the year. The increased cost of paper necessarily cut down the actual quantity of printing and binding. I was not able to fully furnish the departments whose allotments have not been increased over previous years, for the reason that the charges made for paper and envelopes represented but 18 per cent of the total charges. There were a few instances where presses were held up by reason of a lack of stock, but as a whole the paper situation was handled in such a manner as to cause a minimum of trouble and delay. The cost of collecting, baling, and selling all the waste paper from the departments, bureaus, and the independent offices of the government has increased to such a degree that this office should be relieved of that expense and no longer to be required to carry it as a portion of the overhead cost and necessarily pro-rate it in charges made for all printing and binding produced—R. W. J.

WILL CONTRACTS BE AFFECTED?

New York, Dec. 17.—Officials of the American Paper and Pulp Association, as well as others in the local trade manifested some interest in the report to congress that was made by the Federal Trade Commission. One of the points considered in report was whether, in the event that the price on a commodity was fixed, was it proper to allow the enforcement of long term contracts. This had chief reference to iron, coal and steel, where high priced contracts had prevailed and where lower maximum prices had been fixed. In the event of paper, all of the newsprint men would be glad to cut out their contracts, inasmuch as practically all of them are on the low basis. However, it was generally agreed that the reference did not have anything to do with the paper industry.

The need of a comprehensive investigation of trade associations, according to the report, has been developed from the commission's inquiries. Lack of adequate trade information has been found to be one of the chief obstacles in many industries to the operation of natural competitive forces, and where trade associations collect such information it was discovered that temptation frequently results to control prices artificially and the channels of distribution. Publicity of trade association's files, it was urged, would extend the knowledge of demand and supply to prevent abnormal fluctuations in prices, as well as tend to curb association activities of objectionable character. — R. W. J.

TO PREVENT FIRE.

The National Board of Fire Underwriters, in co-operation with the Council of National Defense, has issued a capital, convenient wall placard.

This wall placard deals with the present pressing duties of Americans in the large matter of fire protection, commencing by stating in bold face that:

"A Patriotic Duty of Every American is to Prevent Fire."

Continuing, it says this as to America's war needs and briefly points out some of the ways in which people can help:

"America at war needs every ounce of her energy and resources. It is criminal to cause hazards; it is unpatriotic to neglect them.

"Here are some of the ways in which you can help:

"1. Learn the factory safety rules and observe them.

"2. If you discover a fire, give the alarm promptly. Do you know how to do this? Ask to be shown.

"3. DON'T SMOKE where it is not permitted.

"4. Never drop a lighted match, cigar or cigarette; be sure that it has no spark left before throwing it away.

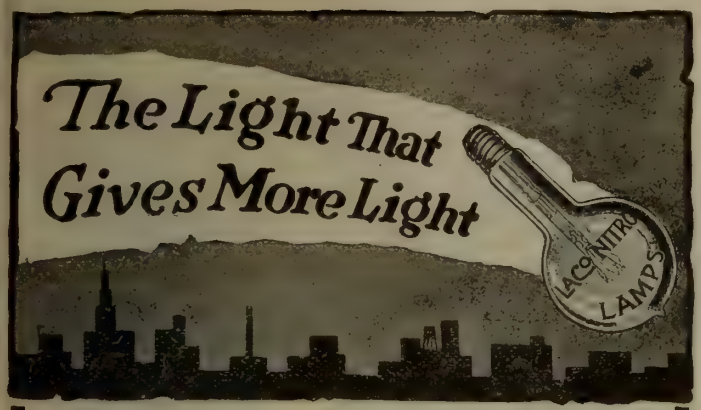
"5. Report suspicious strangers seen about the plant.

"6. If you notice any unusual smoke, the overheating of any machine, or any other accident, notify the foreman at once.

"7. Carry your precautions into your own home; keep your house and yard free from rubbish, and help others to do the same.

"8. Where would YOUR job be if this plant should burn?"

Concluding, it says: "Help Uncle Sam, and Be Careful."—United States Review.



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				LAMPS NEEDED	TOTAL WATTS USED	1000 HR COST	
LACO NITRO	100	111.5	104	9	936	$23.40	NONE
COMPETING LAMP "A"	100	78.5	101	13	1313	32.83	$ 9.43
" " B	100	87.5	109.5	12	1314	32.85	9.45
" " C	100	66.9	103	15	1545	38.63	15.23
" " D	100	63.0	100	16	1600	40.00	16.60

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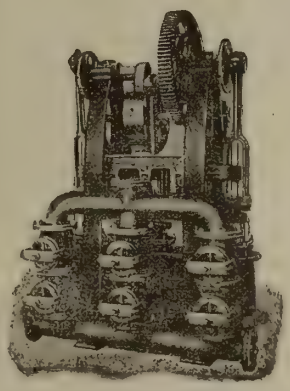
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Underwriters do not have a habit of putting their approval on secondary products. They have a passion for going straight to the brand which has leadership written all over it. You can figure out for yourself the merit **Dunlop Underwriters' Mill Fire Hose** (Cotton Rubber Lined). must have to be so highly regarded by the Chicago Underwriters.

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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-Date Review of Conditions in the Allied Trades.

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OF THE CANADIAN PULP AND PAPER ASSOCIATION

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EDITORIAL

HAPPY NEW YEAR!

Happy New Year everybody! The old twelve-month with its disappointments is now in the land of the Yesterdays and the Future seems nearer as we write "January" once more.

Having something new always brings the hope that the new will be better than the old, and so it is with a new year. Nineteen seventeen brought us many opportunities and a large measure of good fortune, but if we were to stop and look back we should note many failures to make the most of the good things that came our way and many times we failed to do our part in making the old year a "Happy New Year."

But let us not look back on the old year with a spirit of regret or remorse, although we may resolve to make fewer mistakes and not repeat those of the past. Let us rather look forward and anticipate making the best possible use of the good things the future has in store for us. Not the least of these good things will be the opportunities, even the obligations, for service that shall come to our hands. The fullness of our happiness will be increased in proportion to the extent to which it is shared and as we seek to work in harmony with our associates.

The new year promises to be a happy one in the relations between the producer and the consumer. The exigencies of war have made possible a better understanding of the problems of each by the other. The situation was a source of considerable dissatisfaction all around during the past year and in wishing all our friends "A Happy New Year," it is in the anticipation that more common sense and generosity of spirit will replace the narrow-mindedness and selfishness that may have existed in the past.

The newsprint situation in the United States gives promise of satisfaction and security to all parties. Differences of opinion and action are now largely to be matters for the individual conscience and the department of justice. In Canada the degree of happiness in store for the paper makers is mostly in the hands of the Paper Controller, and we wish him the happiness of being satisfied with a difficult task well done. The majority of the makers and users of pulp and paper desire that the most cordial relations should exist, as they wisely appreciate the fact that the maximum of effort is only possible where there is the minimum of friction. Mutual understanding is the best lubricant for the wheels of commerce and a deliberate refusal to appreciate the other's point of view is putting so much sand in the bearings.

Then just a personal word. The editor has been on his new job just a year. The kind words and encouragement and co-operation from many friends are appreciated and now at the end of the year the editor feels a good deal of the satisfaction he felt on reaching the diving platform the first time he swam out in deep water. The whole staff of the Pulp and Paper Magazine is grateful for the fine support of the industry and will enter the new year with confidence that in making the most of the opportunities that shall come for serving the industry and the country we shall help to make 1918 a Happy New Year indeed.

TWO SCANDINAVIAN EVENTS.

Norway and Sweden figure very largely in the paper industry of Great Britain and consequently, events in these countries affect the pulp and paper industry of Canada and the United States. One of the recent events would not ordinarily be of much interest on this side of the water, except for the size of the transaction. The Kellner-Partington mills are being sold to a Norwegian syndicate and the deal has aroused considerable discussion in Parliament. The reason for this concern is the question as to whether the control of these mills with their enormous output may pass into German hands, or the product, which would be very welcome in Kaiserland for munition and other purposes may find its way to the Teutons. The Bank of Norway have renewed the assurance and obligations of the former owners that the product will not reach the enemy.

The other event touches us more nearly. It is the stopping by England of licenses to import pulp from Sweden. The exact situation is hard to understand fully. Some time ago England placed an embargo on certain commodities destined to Sweden, which country replied with an embargo on pulp. Last summer the situation seemed to clear somewhat and the Swedish embargo on pulp was lifted. We pointed out at the time that England still required import licenses, but even so, it was expected that English paper makers would find considerable relief from their shortage of raw material.

Now, for some reason, England refuses to grant licenses for Swedish pulp. Coincident with this an-

nouncement there was an increased demand for Norwegian pulp and a stiffening of prices. It might easily be anticipated that the situation would bring on an increased demand for Canadian pulp, which has found much favor, both in quality and price, in the English market. The demand doubtless has increased, but unfortunately the volume of a cubic foot of ocean tonnage has not increased in proportion to the opportunities for Canadian goods on the other side. If there were space available on east-bound ships, the pulp and paper from Newfoundland would never have seen the American market.

There is a feeling in some quarters on the other side that Canadian products have definitely replaced much of the Scandinavian material, especially the Swedish. We feel that our mills must concern themselves with maintaining or improving the quality of their product, so as to hold the foreign trade obtained recently and to base future expansion more nearly on the grounds of ordinary competition. The present opportunity would give us a considerable advantage, IF WE HAD THE SHIPS. In spite of the unfortunate shipping conditions that accompany this trade opportunity, Canadian firms are getting a foothold on much foreign business, and even where they cannot make full deliveries just now, are establishing relations that will in the future place Canadian pulp and paper in nearly every country on the globe.

HOW TO USE THE AD-ITORIAL PAGES.

Thirty-one out of every hundred readers of Pulp and Paper Magazine of Canada subscribe to it mainly for the purpose of reading the advertising pages in order to keep in touch with the latest tendencies in design of equipment and to familiarize themselves with supplies offered and to note those that survive and those that become inactive. Forty-five per cent of the readers say they read both advertising and reading pages, while only 24 per cent state that they expect their "money's worth" from the reading pages alone, and did not make a habit of examining every advertisement closely.

These figures, the result of an actual test extending over six months, indicate the importance of the advertising section and it seems appropriate to add some suggestions as to how the greatest value may be secured from the advertising pages.

Clipping and Classifying Method.

The advertisements are clipped and mounted on ordinary letter sized sheets of paper and placed in an ordinary folder. Each subject—grinders, wet machines, castings, pumps, etc.—having a folder of its own. The margin presents an opportunity for noting any points favorable or otherwise regarding the equipment advertised; mills where it is being used, cost, etc. Some buyers make a habit of noting any points that appeal to them on this sheet after the salesman for that particular line has called on them.

The buyer is in the market, let us say, for a grinder. Before asking for prices he consults his "Grinder File" and has before him all the new wrinkles, adaptions and attachments each grinder possesses. His notes also give him an idea of comparative prices and probably the names of users from whom he can secure opinions as to the relative merits and advantages of different types.

Card Index Method.

A complete file of each year's magazines is kept and the record of advertisements is entered on cards—one card for each subject such as grinders, valves, steam specialties, etc., and the magazine volume and page on which the advertisement appears is also noted on the card. When a boiler is to be purchased the "boiler card" will give the location of advertisements on boilers which appealed to the buyer.

This method, while having the advantage of retaining the issues complete, is more cumbersome and not as handy as the previous method and there is less space provided for private memoranda regarding each line.

No matter how capable a manager you are you cannot know, or be expected to know, everything about each of the leading lines and good careful buyer though you be, you are liable to be influenced by the personality of the salesman rather than by the merits of the machine.

Let us suppose that you wish to buy an important machine. First you consult your file and refresh your memory on the different makes. Then you talk the matter over with your superintendent and the foreman of the department the machine is going into. They have opinions regarding a certain machine and strongly favor it but you too have ideas, selling points and disadvantages, fresh in mind and can discuss the matter with an ease and grasp that will astonish you. If you are a superintendent or foreman you can surprise your manager with the breadth and variety of your "off hand" information if you have consulted your file. Or you could spread all the advertisements on that particular machine in your file on your desk and call in your superintendent or foreman and go over them with him. You can buy more intelligently and to better advantage as a result of this system.

From the manufacturer's point of view it works equally well. The salesman appreciates the buyer who is "posted." His time is saved and the sale consummated much more quickly. Your file will enable you to ask for visits of salesmen from only those firms you consider are best fitted to fulfill your requirements. This again saves time which is an important item in pulp and paper mills, owing to their frequently isolated locations, due to the fact that mills are of necessity located close to supplies of raw material.

We have very often noticed on the resks of presidents and general managers of our largest corporations copies of trade and technical papers underlined,

pencil-marked and full of marginal notations while the clerks in the office say they have "no time" to read trade or technical papers. Is it a wonder many clerks remain clerks while other men become managers and owners?

To the mill manager or buyer in the out-of-the-way places the same information is brought each week in his trade or technical paper as to the office located in the largest cities. "They mirror market conditions for raw materials, often against the will of interests that wish to hold the information for their exclusive use." The trade and technical journals not only tell the buyer where to purchase his equipment and supplies, but they keep him up to the minute in new ideas and methods.

The Pulp and Paper Magazine would be interested in having opinions of either of the methods suggested and of hearing of other methods. The two mentioned are not new and are actually in use by hundreds of men in different industries to-day, but the important point is 76 per cent of the subscribers of this publication read the advertising section of every issue and these men represent many of the keenest, most aggressive and highest paid men in any industry.

WAR SUPPLY CARRIERS DELAYED ONLY "ONE WEEK."

Last week we had occasion to comment on an item in the Financial Post relating to the diversion of ships that are supposed to be carrying supplies to the armies of the Allies.

Mr. A. G. McIntyre, president of the Publishers Paper Co., and a member of the paper committee of the American Newspaper Publishers Association has written a lengthy explanation of the matter to the Financial Post. He says the deal for the Newfoundland paper was handled for Lord Northcliffe by William Scott, that his Lordship did not even see the contracts till they were completed, and that he devoted all his time in America absolutely to England's business. (We are glad to hear that.)

The most important and astonishing statement in the letter is that the boats were not delayed two weeks, as estimated by our contemporary, but **only one week.** Think of it! What a God-send it would have been to Italy to have had the several weeks' use of shipping diverted in this way! Who knows how many brave fellows went beyond the sunset because they to Italy to have had the several weeks' use of the shipping? Is not a soldier's comfort and his life of more value than a colored supplement, and the holding of a battle line than many special editions?

The Chemical Development of Pulp Mills at Berlin, N. H.

By ELLWOOD HENDRICK.

In 1852 the late W. W. Brown established himself in the lumber business with a small sawmill along the Androscoggin River at Berlin, N. H. It was a bleak place, high up in the White Mountains, along the Presidential Range, with a very short annual growing season and no natural resources except water power and some timber. Nearly all the timber except white birch had long ago disappeared from the country to the south. But Mr. Brown was a man of parts and with the aid of his four sons his business grew and prospered. His lumbering operations followed up the Androscoggin River and in time paper mills were added to the plant. In time also a sulfite pulp mill was built on adjoining property under other than Brown management. By the close of the last century Berlin had become an important producing centre of these commodities.

The class of 1897 of the Massachusetts Institute of Technology included Hugh Kelsea Moore, who as a result of his studies upon the production of chlorine and soda by the decomposition of salt, devised an unsubmerged diaphragm cell which was put upon the market in 1898. In 1899 the sulfite mill at Berlin, with a view to getting cheaper bleach, installed the Moore cell in the plant and the inventor went there to put it into operation. When the work was completed he left.

At the end of a very lean financial period, Mr. Moore in 1903 determined to get into chemical work connected with pulp making and bleaching. Through the unfortunate point of view of the superintendent of the sulfite mill at Berlin, he was only able to secure a position in the wood yard at very low wages, but while very unremunerative, the position offer opportunities for observing many serious wastes that were continuously taking place. For example, it was evident that there was unnecessary loss of pulp in the waste water; by wiring the sewers it was proved that the loss amounted approximately 19 tons of pulp per day. This loss was largely eliminated. Again it was noted that the product of the mill was uneven, and further that it was weaker after a humid than after a dry day.

The unusual character of the services rendered by such a laborer in the wood yard led to quite a change in the personnel of the mill force and Moore finally obtained an appointment as an analytical chemist in the mill; the value of a research chemist was not so well recognized then as now.

Counteracting Atmosphere Humidity.

Meanwhile, the weakness of the pulp after a humid day persisted. The trouble was finally traced to the sulfur kilns. In the presence of moisture a greater quantity of sulfuric acid is formed from the burning of the sulfur thereby hydrolyzing a portion of the pulp to sugars. Precautions which eliminated this moisture proved partly responsible for the complete cure of the weakness of the pulp.

The analytical chemist saw innumerable things to improve, but he lacked the time. He had introduced chemical control and that prevented research. Too much bleach was being used, for instance, and caustic soda was going to waste, yet he had no chance to work out the solutions to the problems. The president was a

*From the Journal of Industrial and Engineering Chemistry, August, 1917.

practical man who knew how overhead charges can eat up profits; and the idea of a lot of chemists fuddling away in a laboratory on theoretical problems paid for out of the profits of the mill did not appeal to him, at first. But he was also a good business man who was not ashamed to change his mind, and finally he saw clearly that chemical research is a function of chemical control. The result was that Moore at last secured an assistant for the routine work.

Some time after this the Brown interests bought out the sulfite mill and the duties of chief chemist of all the various enterprises were given to their erstwhile analyst.

Chemical control and the regulation of the sulfur room were but the beginnings of a series of improvements in the art of making sulfite pulp. These were introduced at different times as the result of research by Hugh K. Moore and Robert B. Wolf, who was the superintendent of the mill. The production of a stronger acid made under refrigeration for cooking, and operating under lower temperatures than theretofore, produced a stronger pulp, and as a vast destruction of fibre was avoided, much less wood was required to produce the same quantity of pulp. Ocular demonstration of this was a goodly mountain of wood at the end of a season, whereas the pile, based upon the output of pulp according to previous figures, should have been used up. Detailed figures are not given, but such is the fact.

So significant is this improvement obtained by the use of better acid that in the event now of low water power another mill is shut down at intervals with a view to using the available power for refrigeration rather than to proceed by the former methods of making the weaker acid. So important indeed is refrigeration in this and other processes that the capacity of the apparatus in operation at Berlin is over 2,000 tons of ice per day.

The air around Berlin is clear and the usual odor of a sulfite mill cannot be noticed until one gets almost into the plant, and even there it is very slight, for the spent fumes are recovered, the SO_2 saved, and the offense avoided.

The Bleach Problem.

Another problem was bleach. Excess of bleach is no more desired in pulp than it is in the weekly wash, and it costs money withal. It was observed that the amount of available bleach required increased as its content of chlorate. The plotted lines on graphs show very clearly a tendency toward parallelism between the available bleach required and the chlorate in the bleach. The production of the chlorate was avoided by refrigeration. By complete chemical control of the bleaching process from start to finish the minimum quantity of chlorine is employed, the color control is absolute and the resultant fibre far stronger than that produced by rule-of-thumb methods.

Early in 1907, through an accident in the mill, Mr. Moore lost three fingers of his right hand, and during his convalescence addressed himself to a problem that had been teasing him for a long time, and which seriously affected the appearance and consequently the value of the pulp. The finished product showed no less than 10,000 specks per square foot, and with the aid of his left hand and some helpful assistance, he proceeded to work with its microscope. Bark, rosin, coal, hair, cement and the almost innumerable other things that may and do constitute specks required long and patient classification before they were recognized. Proper precautions in factory practice and devices of remarkable ingenuity overcame everything except the specks consisting of minute particles of bark, and these finally gave way to improvements in cooking in the digesters and to a special bleaching process. Specks were reduced from 10,000 per sq. ft. to 15 or 20 per sq. ft.

The sequel to these improvements is that the entire capacity of the mill is devoted to making bleached pulp of an unusually fine and strong quality.

Caustic Soda Savings.

Another problem at Berlin was the saving of the caustic soda, which theretofore ran down the river. The separation of salt and problems of evaporation, involving higher temperatures as concentration increases, were full of troubles which were finally met by the design of new evaporators in which the liquor is introduced into the last effect and proceeds against the steam instead of with it. These are the patented Moore evaporators, which now work with great success, and give a product which is very pure and even.

The same interests have a great—in fact the largest in existence—sulfate pulp mill at La Tuque, Canada, in which kraft pulp is made for kraft paper; used for wrapping automobiles tires and other objects requiring a sturdy wrapper and also employed for making twine and for use in furniture in the place of cane. The greatest technical trouble in connection with this process lay in the evaporation of the waste pulp liquors from which the soda must be regained. Intense foaming is characteristic of such liquors.

The usual method of evaporation is to employ revolving discs which dip into the liquor and are heated by furnace gases while covered with a film of it. The evaporated liquor, which contains 45 per cent soda and lignin compounds, polymerizes at high temperatures and becomes gummy. This is run through a revolving drum for incineration by means of hot gases from the smelting furnaces. The black ash comes out of lower end of the inclined, revolving incinerator upon the floor. It is then mixed with more sodium sulfate and smelted in the furnace with the formation of the sodium sulfide. During evaporation and charring in the incinerator, the soda from the black liquor is liable to form rings around the inside of it which act as a dam. This holds back the lignin liquor on one side of the dam while on the other is molten soda and black ash. When this ring breaks the mixture of molten alkali and black liquor explodes. If the ring forms near the end, accidents are likely to occur. The cure of the trouble was accomplished only by working out an entirely new method of evaporation through the employment of Stefan's law of radiant heat, which is developed as follows:

B. t. u. per sq. ft. per min. radiated heat

$$= 2.66 \times 10^{-11} (T_2^4 - T_1^4).$$

By the use of radiant heat which is projected without imparting heat to the medium through which it travels and with an entirely original design of apparatus, all under constant control, remarkable results are obtained.

By this method a far greater amount of soda is recovered as Na_2CO_3 and Na_2S, particularly as the sulfide. There are no revolving discs, no accidents and there is no revolving incinerator drum and no black ash. Where formerly large quantities of fuel were required, 1600 available H. P. is obtained from the operation, the labor of many men is saved and the product is increased and improved.

A new application of a certain grade of sulfate pulp was worked out at Berlin by Mr. Parker on the me-

chanical side and Mr. Moore and his associates on the chemical side. This is a very strong, water-tight and machinable pipe made at present chiefly in 4 in. sizes. It is of about the weight of hardwood, takes beautiful threads and withstands 400 lbs. pressure to the sq. in. It forms an ideal conduit for electric wires and the entire output is sold ahead for an indefinite time.

At the La Tuque sulfate pulp mill a saving is also made of large quantities of turpentine obtained from digesters during the process of cooking. This is equal to the best gum turpentine, except for a slight odor.

The Semi-Commercial Plan of Testing New Products.

So far we have been dealing with the pulp and paper industry and incidentally with the cautic soda plant. The beginning of this in 1909 was the beginning of a method of chemical development that is now the practice in the introduction of every new product. The chemical director was ready to produce caustic soda and asked for an appropriation of $100,000 to begin. This was refused, but $5,000 was appropriated for a test plant. This test plant succeeded and then the works were built which have since been greatly enlarged. The method was correct and now every new product is worked out on a semi-commercial scale before a permanent plant is built. The term semi-commercial, however, needs a little explanation. It involves often the expenditure of large sums and it always signifies a more or less improvised layout of sufficient capacity to turn out the material in marketable quantity. Until this is so adjusted that it not only runs smoothly but pays for itself, the process is regarded as not yet complete and general building and construction operations are not begun. In the developments which are recorded below, some are in the commercial stage, some are semi-commercial in its large or completed sense and are in operation while more adequate housing is in preparation, and some are at the inception of the semi-commercial phase.

Utilizing Waste Chlorine.

By 1910 the establishment was apparently well balanced, the caustic soda industry established and everything running full. But a demand arose for sulfite pulp bleached more on the side of yellow than of blue. In the largest sulfite pulp mill in the world (which the Berlin plant is) the amount of chlorine released by such a change in product is very great. The new problem was to utilize it. This was partly solved by leading the hydrogen and the chlorine from a number of electrolytic cells according to the requirement into a small apparatus in which they are combined to form hydrochloric acid.

Still there was chlorine to spare, owing to the growing installations for the increased demand for bleached pulp and the contracts for caustic soda.

We shall note first a great plant in process of construction and past the semi-commercial stage, for making dry bleach by a new continuous process. This is under H. K. Moore's patent and provides an amorphous, dry powder, free from lumps, with the substantial elimination of chlorates and improvement in keeping qualities. The process consists of constant agitation of lime at a temperature below freezing in the presence of chlorine and is duly described in the United States Patent No. 1,155,605, issued October 5, 1915.

One of the early chlorination products was chloroform from acetone and at present it is said that about 60 per cent of that consumed in the United States is made at Berlin. Through the activity of the Berlin Mills staff of chemists, especially of George Richter, further developments have taken place, based upon the utilization of excess chlorine. As typical of these developments the manufacture of carbon disulfide was begun. This product, while sold at such in part, forms also the starting point for the manufacture of carbon tetrachloride and sulfur chloride. Processes for ethylene trichloride and acetylene tetrachloride are past the laboratory stage, as are also those for a number of other chlorinated products.

Features in Course of Development.

A semi-commercial plant is under construction for making liquid SO_2 and this is to be followed by another for liquid chlorine. Another now under way is for the production of glucose from sawdust and bark, available from the original lumber mills which are in active operation: this contains an extension for working the remainder over into oxalic acid. An additional extension to the semi-commercial scale, planned, but not yet erected, is to carry the glucose over into alcohol or to lactic acid.

As soon as labor is available a semi-commercial plant will be erected for the production of synthetic formic acid. Another process that is promising but not yet ready for the semi-commercial tryout is the fixation of nitrogen, of which 400,000 lbs. are daily available from the sulfite mill. A semi-commercial plant is installed for waste liquor recovery from which the concentrate is shipped for core compounds, road binders, to tannin extractors, and small amounts to perfumery manufacturers. A kyanizing plant for ties using mecuric chloride has been in operation for some time and plans are ready to begin with tin tetrachloride as soon as this is feasible.

Effect of Refrigeration on Hydrogenation.

With the frequent use of refrigeration first in the laboratory and later on a large scale in practice, a situation was finally met, in which for purposes of research a lower temperature was needed than was conveniently available. In connection with a problem that Mr. Moore was working out in conjunction with Professor Mulliken of the Massachusetts Institute of Technology, ethane was wanted for refrigeration, but was not to be obtained. Sabatier and Senderens had shown how it might be produced by the catalysis of hydrogen with ethylene or acetylene and by following the French savants closely they obtained exactly the yields prescribed. The yield is far from rich, however, and the method gave little promise of sufficient ethane for the purposes of the investigation. While discussing this, Mr. Moore remarked that ethylene was endothermic, and that it had more heat than the same amount of carbon and hydrogen has. Why, then, add more heat? All the extra heat must go off with the ethane as it is made. Why not cool it instead of heating it? The argument seemed sound enough to neglect the question as to whether Sabatier and Senderens had warmed things up as a result of research or from sheer chemical habit; and they proceeded to refrigerate with salt and ice, which was the only means they had handy. The result was surprising. They increased the yield over 100,000 times that of Sabatier and Senderens and the only reason why they did not obtain more was because the water overflowed the gasometer. There was no trouble about getting all the ethane they needed from that time forth. A thermometer in a test tube inserted while the hydrogenation was taking place showed over 150°C. despite the salt and ice.

Another conclusion reached from this experiment is that some of the poisons of nickel observed by Sabatier

are due to overheating from its own reaction. It is but a short step from the hydrogenation of gases to the hydrogenation of oils, and Mr. Moore addressed himself to the latter problem with signal success. Since all details of the oil-hardening process as developed and carried out at Berlin have lately been brought out in the patent suit now pending, we shall record only a few notes. The process is in effect a filter of nickel oxide reduced to nickel hydride with hydrogen under rigid temperature control. The oil is atomized over the catalyst by a revolving arm so that, for a given moment of time, so much of the catalyst as rests upon the segment of the bed just underneath the arm gives up part of its hydrogen, thus hydrogenating the oil in contact with it. Hydrogen is constantly sweeping through all the rest of the catalyst, which has the effect of revivifying it. As the oil-spraying arm revolves, the sector in which oil is in process of hydrogenation is constantly moving. The same, of course, also holds true as to that part of the catalyst filter bed which is being revivified.

The plant is of a very highly developed semi-commercial nature with a capacity of 30,000 lbs. daily.

Chemical Control in Plants.

The entire works in all departments are under constant chemical control, being intense in the sulfite pulp and chemical works and less observable in the lumber and paper mills which we shall not even undertake to describe. An interesting feature of the sulfite mill is the automatic analysis of the flue gases as worked out by Moore. The apparatus collects the gases from flues and boilers and from mains, cools and compresses to a pre-determined pressure and temperature, measures out a given volume, analyzes it by absorption, remeasures at the same pressure and temperature, records analysis, empties itself and begins again. It can be regulated to any frequency desired. In this mill they average one gas analysis each every 4 or 5 minutes. The apparatus is entirely automatic and the records are very plain and clear. A large number of these in different portions of the plant automatically keep data on the gas from one operation to another.

These automatic analyses constitute a part of the "chemical graphics" of the mill, the purpose of which is to form a picture of the chemical operation which may be understood by the men at work. For instance, the big digesters at the sulfite mill are 54 ft. high and 20 ft. in diameter. They are operated at 75 lbs. pressure at the top. Of course the process may not be watched as in a test tube, but recording thermometers and pressure gauges may be installed, and this is done. Every 15 minutes the temperatures are read and the workman looks up on a chart to determine the corresponding steam pressure. He reads also the gauge pressure and the computed steam pressure substrated from the gauge pressure gives the gas pressure. Now SO_2 is the gas with which they are cooking, and the plotted chart prepared in the laboratory and set as the standard picture or graph of the reaction, shows just where the computed steam pressure and the gas pressure and the computed steam pressure subtracted The workman also plots from his readings and if the picture is right, well and good. But if the picture is wrong; if, for instance, the plotted lines showing the computed steam pressure and the gas pressure cross too soon, then the cooking is incorrectly done, steam is wasted and the quality is inferior. This system enables the man in the mill to know whether the temperature is adequate for the reaction or not and if not to make it so, and it gives him knowledge and control of the process right through the reaction.

Cooking Pulp Scientifically.

Cooking pulp is not a simple operation, and when it was done by rule-of-thumb, six men could close down the great works by going on strike. Now, with predetermined graphs, the personal equation in the cooking has been eliminated. There are production charts, bleach charts, humidity records, etc.; indeed over 1350 graphs are daily recorded in the sulfite mill alone. A considerable force of clerks collect figures and carry them to the office where they are averaged for each variable, calculated, plotted and finally studied. Then every six months they have a "scrap day," on which, after a conference, the useless curves are discarded.

Research Facilities.

The research laboratory of the company now houses nineteen chemists and is about to be enlarged to over twice its present size. It contains a considerable amount of small scale iron apparatus and a few testing devices of too general use to have place in local testing laboratories in the various works. A fleeting impression of the laboratory is of a busy but cheerful place. There is greater indulgence in mathematical habits of thought than some of us are accustomed to, for calculus is used like arithmetic. The chief assistant is George Ritcher, who bids fair to let us hear more of him some day. Another valued assistant who has been of distinguished aid by his clear vision of the mathematics of what happens is W. B. van Arsdel.

Administration of Mills.

The Berlin Mills with its subsidiaries, the Brown Corporation and the Burgess Sulfite Fibre Company, is still a family affair, although the founder, Mr. W. W. Brown, died several years ago. His four sons now in control are Messrs. H. J. Brown, President; O. B. Brown, Vice-President and Treasurer; W. R. Brown, in charge of woods; and D. P. Brown, in charge of the La Tuque mill.

A few notes on the administration of the property may be of interest. The establishment is run on a 3-shift, 8-hr. basis. The highest current wages are paid. On Sundays there is a general shutdown for repairs. A company store is maintained in competition with village stores. A health and accident fund is maintained in which any man working in the mills may join, and which is supplementary to the workingmen's compensation laws. Officers are elected by the men insured. Full wages are thus provided for those who are injured or ill and the surplus is returned annually in dividends. Besides the obligations of superintendents and managers, there is a safety committee appointed from among the men to report all points of danger and need of repair for safety's sake. District nurses are maintained. A large Y. M. C. A. was provided for under the will of the late W. W. Brown. In every mill there is a smoking room where men may gather for rest and recreation. A large baseball field is available and in active use in season for factory and forest workers. Any man that wants to can "see Mr. Brown." In the woods, the company does not "cut clean," except where necessary, so that reforestation is in large part continuous.

Water Power.

There is about 30,000 horse power developed at Berlin Falls of which the Brown interests use the major portion and a large news mill of the International

(Continued on page 1226.)

Factors in the Quality of Groundwood[1]

The production of a maximum amount of a definite uniform quality of groundwood depends upon a correct balance between several factors which influence the amount of pulp produced and its quality. Practically none of these is readily susceptible of close control as we think of it in chemical terms. This paper will deal with some of the variables, their relation to each other, and efforts that have been made to control them.

The factors having a most important bearing upon quality and production are:

1. Power available on any grinder unit.
2. Surface of pulp stone.
3. Pressure of grinding.
4. Speed of pulp stone.
5. Kind and condition of wood.
6. The 'human element.''

Since the majority of grinders are directly connected to water wheels we will confine ourselves to that type of installation.

(1) **''The power available''** on any grinder unit, although a rather fixed factor, will vary with river conditions and also the conditions of gate opening and speed under which the water turbines are operated. In low water periods when there is not sufficient power to operate the installation to capacity, it is customary to reduce the friction loads on the units by withdrawing from operation a certain number of grinders or a certain number of grinder pockets. In this manner there is delivered a more nearly uniform power value throughout the year to such grinders as are operating. In many of the plants a variation in the available power occurs at periods of high water, when the effective head of water on the turbines is reduced below normal, due to the high stage of the tail water. The amount of power available usually determines the grinding conditions.

(2) **''Surface of Stone''**

The surface of the pulp stone has an extremely important effect on both the quality and quantity of pulp produced from any grinder. Radical changes in quality are produced by altering either the natural grit or the surface produced by artificial means. A stone suitable for grinding satisfactory pulp for wall board would not be most suitable for producing pulp for use in light weight catalog paper. This necessitates the selection of a grit best adapted for the particular grade of pulp desired. A stone of coarse grit should be used for coarse pulp, and finer grits for the finer grades of groundwood. It is, however, difficult to secure two stones of identical grit and texture. On the ''softer'' stone the cutting particles wear smooth in a shorter time and more frequent burring is necessary.

Efforts have been made to build up an artificial stone in which the matrix of binding material will wear away at an even rate with the cutting particles and continually expose fresh grit. The difficulty most operators have experienced with this class of stone is that the wear is not uniform, and extreme care must be taken to guard against sudden changes in temperature. Many of the artificial stones becomes badly pitted or spalt out large pieces after continuous use, and the very rough surface resulting produces a very coarse, shivy pulp. Subsequent dressing is one of smoothing rather than of roughening.

The purpose of burring a natural or quarried stone is to present new sharp particles of grit to the wood being ground, and at the same time provide depressions in the stone in which the ground fibres may lie as the stone passes beneath the wood in other pockets of the grinder. The operation is usually performed by contact of a burr or bush roll against the revolving pulp stone. The periphery of the burr may be machined in various ways to produce small pyramids or wedge shaped ridges to mark the stone with a similar pattern. Extensive tests made with many of the ordinary patterns of burrs showed that the type used made no appreciable differences in the pulp produced, providing the grit of the stone was ''raised'' to the same degree with any burrs. It was noted, however, that with certain types or combinations there was less difficulty in maintaining a desired surface of stone. This may be attributed to the personal factor involved, and accounts for the very decided and widely differing prejudices many grindermen have for certain burrs.

That the personal equation is a very important one in maintaining a surface of stone is apparent from the way in which the burr is used. Whether the tool is held at one arm of a lever and fed across the stone ''by hand'', or whether it is held in a form of tool post and feed across the stone by a screw device the pressure of the burr against the stone is entirely a matter of the operator's judgment. Recently a hydraulic device has appeared on the market to maintain this pressure uniform, but due to differences in the hardness of pulp stones, and the degree of sharpness of the burr itself after a single use, the device in itself would not appear wholly to solve the difficulty.

When grinder pressure and speed are held constant the effect of sharpening a pulp stone is to increase the production and produce a pulp of a coarser quality.

(3) **''Pressure of Wood upon the Pulp Stone.''**

The pressure maintained on the grinder cylinders is next to the surface of the pulp stone, the most important variable in the grinding operation. Given a definite condition of stone surface the quality of pulp and the output per grinder may be varied through a considerable range by raising or lowering the cylinder pressure. This range, however, is much narrower than will obtain when surface of stone is varied. With a sharp stone the quality is improved with the lowering of the cylinder pressure at a sacrifice, however, to production. Other variables (except power) remaining unchanged, the production varies directly with the cylinder pressure.

The quality of the pulp is determined by the unit pressure with which the wood is forced against the stone. While it is extremely desirable to maintain this uniform, the imposibility to do so when grinding ordinary pulp wood with the present equipment is readily apparent. In grinding a round stick, 10 inches in diameter, the unit pressure on the stone will be but one-tenth as great when the diameter is reached as

[1]Report of the Committee on Groundwood for the Technical Association, George C. McNaughton, Chairman.

when the stick presented a width of one inch near the beginning of the operation. The ultimate product, therefore, represents a mixture of fibres produced under the continually changing values of unit pressure, the mean value of which is in proportion to the cylinder pressure.

(4) **Speed of Pulp Stone.**

The speed of the pulp stone has a greater influence on the amount of pulp produced than upon its quality. Production increases directly as the peripheral speed of the stone is increased, but as the water wheels are designed for very definite speeds the range through which speed may profitably be varied is very limited.

(5) **Kind and Condition of Wood Used.**

When woods other than spruce are ground, it is usually to advantage to keep them separate from the spruce, as the results are more satisfactory when the surface of stone can be adapted to the particular wood in question. In order to maintain the quality of product, most of these species require a duller stone than ordinarily used for spruce.

The condition of the wood also introduces a variable factor. With freshly cut spruce a sharper stone may be employed and a better product secured than if the wood has been in the yard for a considerable period.

(6) **The Human Element.**

In groundwood production, as in other lines of pulp manufacture, the personal equation or the human element is by no means a negligible factor. There are records of mill tests where a difference in production of as much as 20 per cent has been due to this one item. In cases where a nicety of balance exists between the various factors, a laxness upon the part of an attendant will destroy the entire arrangement. This is especially true in regard to the manner in which the pulpwood filled into the cells of the grinder. If the compartments are not replenished immediately after they are exhausted or if a stick is permitted to wedge between two others, producing a resultant pressure against the perpendicular sides of the pocket instead of transmitting the entire pressure to the stone, factors are introduced which effect either quality or production of both.

Inter-relation of Factors influencing Quality and Production.

Between the power from the waterwheels, condition of stone surface, cylinder pressure, speed of stone, and the human factor there is a very intimate relation. None can be altered without having an effect upon the others.

Although it may be advisable in flood times or when water is being wasted over the spillway to operate the water wheels under conditions of maximum power, it is probable that most of the time the plant desires to operate the wheels at maximum efficiency. When the r.p.m. of the pulp stones rise above the speed for maximum efficiency less power is delivered to the grinder shaft and production suffers. Some of the most frequent causes for a rise in speed are (1) binding of the wood on the sides of the wood compartments (2) withdrawal of pressure from one or more grinder cylinders, (3) not replenishing a pocket immediately after it has become empty of wood, (4) drop in pressure in the pump line, and (5) freshly sharpened stones. It will be observed that many of these causes result directly from the personal equation introduced by the operator.

Within certain limits the quality can be controlled for different degrees of sharpness of stone by manipulating the cylinder pressure and using lower pressures on a sharp stone and higher ones on a dull stone. Powering the cylinder pressure for sharp stones causes the speed to rise and if the gate opening is decreased production suffers excessively. Increasing the pressure with a view to increase production requires in a direct ration an increase in power delivered to the pulp stone in which case all of the installation may not be operated.

Efforts at Grinder Control.

Many of the efforts at grinder control have been founded upon maintaining a constant speed for the water wheels.

Some years ago a grinder was developed with specially adapted pockets to eliminate the binding which is one of the causes of rise in speed and loss in production but apparently this did not meet with any marked success. Where backing off the pressure from one or more grinder pockets caused a temporary drop in line pressure separate pump lines were installed for the purpose. Centrifugal pumps have been belted to grinder shafts in order to increase the cylinder pressure with rise in speed of the stone and in this manner restore the speed to normal. Their action was rather sluggish, beside producing large variations in pressure which did not help the uniformity of the pulp any. Governors attached to the grinder shaft controlled the speed successfully but did not permit the water wheels to operate at maximum capacity since the cause of the decreased load was not removed, and the grinderman could not notice faulty performance as readily. Relief valves at the pressure line at each grinder permitted adjustments of cylinder pressure to keep the turbines properly loaded but to accomplish the desired end required considerable attention.

As a means of controlling the speed between fairly narrow limits the method of using fewer than the total number of pockets on any line of grinders should give good results. By this method the surplus pockets are kept filled with wood to which the pressure is applied when the load is withdrawn from other pockets for purposes of replenishing or rearranging the wood. The period of increased speed ordinarily accompanying these latter operations is eliminated, and at all times a maximum load may be maintained upon the turbines. Very promising results were secured upon an experimental scale and mills employing this means of speed control have confirmed them.

The control over speed should be primarily to maintain production of groundwood pulps, while quality is probably best controlled by the surface of the pulp stone. It has been pointed out that the dressing or burring of the pulp stone involves to a very great extent the human factor, and does not permit an exact duplication of treatment.

There has recently been brought into the market a burr having thin teeth and flat surfaces between the base of teeth, in contrast to the wedge shaped depressions between the teeth hitherto used. The inventors assert that this burr gives a much more exact duplication of previous dressings and consequently a more uniform product.

Examinations of groundwood with a microscope or with a stereopticon gives the observer certain indication of quality, but through difficulties in sampling and classification is not entirely satisfactory for close control. With less routine, and a little practice one can judge a stock as closely by adding a little pulp to

water in a container having a blue glass bottom under which an incandescent lamp is glowing.

The practicability of the sedimentation test* as a control for groundwood pulp production was brought out by Messrs. Fishburn and Weber last September at the meeting of the Technical Association. For a uniform class of wood the results secured by this means have enabled the operators to duplicate the various qualities of groundwood pulp desired and at the same time maintain a maximum production from their grinders. The admirable feature of this test is that it affords a numerical basis upon which to base quality and becomes independent of the observer. The test is made upon the mixtures of pulps from all the grinders and on that account still necessitates judgment of a competent person as to what pulp stones need dressing when the sedimentation value diverges from the established standard. However, it is the opinion of your committee that this test is by far the most satisfactory one yet brought forward for standardizing the quality of mechanical pulp. Various members of the association are now trying it out, and their experiences indicate that the sedimentation test may soon be recommended as another standard method for the Technical Association.

Before such recommendation is made, however, your committee wishes to secure further data on this test, embracing as wide ranges of operating conditions as possible. Experimental data obtained to date is not entirely conclusive as to value of the sedimentation test as a general method for mill control of groundwood pulp quality. We would, therefore, appreciate hearing the experiences and criticisms of mills which have been experimenting with this method.

*See also Pulp and Paper Magazine, Vol. XV, page 217.

PINEAPPLE FIBRE

This fibre, according to the Bulletin of the Imperial Institute, is produced in fairly large quantities on the island of Hainan, South China, and on the Liu-Chow Peninsula on the mainland opposite. It is also produced on a smaller scale in Formosa, Hawaii and the Philippine Islands. In the latter, the fibre is made into fine fabrics known as pina cloth. For fibre production the plants are grown closer together than when fruit only is required in order to induce the formation of long leaves; or they may be grown under trees in partial shade.The preparation of the fibre involves very tedious manual labor, as the machine product is not of such good quality, and this is a serious obstacle to the spread of the industry. In Hainan the leaves may be gathered the first year, but it is more usual to wait till the second year, as better quality is obtained. About twelve leaves are taken from each plant, each leaf then being scraped on both sides to remove the green tissues. The fibres are then alternately macerated in cold water for six hours, then dried in the sun, for several times lasting about three days. In the Philippines, each layer of fibres is removed as it is exposed by the scraping; 50 to 60 lb. of fibre is obtained per ton of green leaves, which is very low considering the amount of labor involved. The combings from pineapple fibre are said to give excellent results for paper-making.

MANAGER THORNE ON RIORDON BOARD.

Another Canadian firm has put a technical man on its board of directors, the Riordon Pulp and Paper Company having recently elected Mr. C. B. Thorne a director. The choice is an admirable one. Mr. Thorne is recognized as one of the most expert pulp makers and a man of keen business and technical insight. He has an enviable record of education and experience in several European countries and has been engineer for



the Riordon Company since 1903, and manager of the big Hawkesbury mill since 1906. Mr. Thorne is a member of a number of scientific and technical societies on both sides of the Atlantic, and has the honor of being a Knight Companion of the Royal Norwegian St. Olav Order. He doesn't want so much publicity, but he deserves it, and the Pulp and Paper Magazine congratulates him, and the company as well, on his election.

HOW ONE DAY ENDED.

Somebody at Iroquois Falls recently had an attack of poesy, viz.:

This is the end of the first week day
The 12 to 8 shift's thru,
And it is not unkind
To cast from your mind
The work you did not do.
The boss wears a frown
As the machines slow down
On account of the blooming pitch;
Then one by one we all go home,
Feeling like an engine ditched.
—All of Us.

Good Price Obtained for Kapuskasing Timber Limit, Spruce Falls, Ont.

The Spruce Falls Pulp and Paper Co., Limited, which was granted an Ontario charter some time ago with a capital stock of $3,500,000, of which has been awarded $500,000 in preferred shares, the right to cut the pulpwood and other timber on the Kapuskasing river limit, the time for receiving tenders expiring on December 17. The bids were opened last week by Hon. G. H. Ferguson, Ontario Minister of Lands, Forests and Mines. The limit consists of 1,740 square miles in the districts of Timiskaming and Algoma, covering two blocks of land north and south of the Transcontinental Railway. Some new features were embodied in tendering for this limit, which is the third pulpwood concession placed on the market by the Ontario Government during the past year, the other two being the Black Sturgeon River in the Thunder Bay district, consisting of one thousand square miles and the Pic River concession, also in the Thunder Bay district, comprising fourteen hundred square miles.

With the Kapuskasing limit, the new policy adopted was calling for at a flat rate on all kinds of pulpwood. Seventy-five cents per cord is the price which will be paid for all pulpwood by the Spruce Falls Co., which includes spruce, balsam, poplar and jack pine while, for the red and white pine, the company will pay fifteen dollars a thousand feet of board measure. The Spruce Falls Pulp and Paper Co. are required to erect a pulp mill which, with the equipment, must cost a million dollars, and have a daily output of not less than one hundred tons of pulp and employ, at least, two hundred hands for ten months in every year; two hundred thousand dollars must be spent the first year, three hundred and fifty thousands the second year, and the remainder during the third year.

The cutting of pulpwood may begin as soon as two hundred thousand dollars has been expended on the erection of the plant. It is estimated that the revenue to the province from the limit will be around five million dollars and the new mill will be located near the returned soldiers settlement at Kapuskasing. This will afford a market for the farm produce which the returned soldiers raise and, in the winter time, they can secure employment in the bush. The site of the new pulp mill will be seventy miles west of Cochrane at a point where the Transcontinental railway crosses the Kapuskasing river, and forty miles from the plant of the Mattagami Pulp and Paper Co., at Smooth Rock Falls. Within a distance of two and a half miles on the Kapuskasing river there is available ten thousand horsepower, there being some three or four falls.

The Spruce Falls Pulp and Paper Co. will have their headquarters at Spruce Falls, and Canadian and American capital is interested in the big proposition. The officers of the company are: S. A. Mundy, Bradford, Pa., President; Vice-Presidents, Elihu Stewart, 84 King street east, Toronto, and Clare Willard, Allegany, N.Y.; Secretary, G. Scott Smith; Treasurer, H. C. Morgan. It is understood that Mr. Mundy will be managing director of the company. He has been prominently identified with timber interests in British Columbia and the oil business in Pennsylvania, and is a former President of the First National Bank, Bradford. Mr. Willard, one of the Vice-Presidents, is a former Member of the New York Legislature, and Mr. Stewart, the other Vice-President is Managing Director of the Canada Timber and Land Co., Toronto. He is well known as the organizer of the timber and forestry departments of the Dominion Government and, for eight years, was superintendent of forestry for Canada, retiring in 1907.

Speaking to the Pulp and Paper Magazine, Mr. Stewart stated that the company would start work in the spring and, after the pulp mill was erected, it was the intention to put up a large newsprint plant. Plans are already under way for the pulp mill. The company possesses the cutting rights of several townships, and has a strong board of directors, who have every confidence that the venture will be a paying one. The enterprise is backed by ample capital. It is interesting to note that, in connection with the Black Sturgeon limit, awarded to Sam Marks of Nipigon, in February last, the Ontario Government received seventy cents per cord, in addition to the usual fees of forty cents per cord for spruce and twenty cents for other pulp woods. J. J. Carrick, of Port Arthur who, in December, 1916, was awarded the Pic River concession, pays fifty cents per cord, and the usual fees. It is understood that Mr. Carrick has obtained an extension of six months on his contract to start construction on a pulp mill, the year in which he was to expend two hundred thousand dollars elapsing this month.

CORRUGATED FIBRE INDUSTRY IN FRANCE.

Under the title "L'Avenir de l'Industrie du Papier dans le Sud-Ouest" (Future of the Paper Industry in the Southwest), the journal La France de Bordeaux et du Sud-Ouest, on June 15, 1917, gave the following facts:

"The paper industry occupies an important place among the evidences of economic activity in the districts between Loire and the Pyrenees. The Southwest is favored by two great centres of the paper industry, Limgoes and Angouleme, and more than 50 establishments are clustered along the banks of the rivers in the districts of Charente and Limoges. The industrial region of Angouleme alone before the war counted 21 manufactories of paper and cardboard, without considering the 22 factories where the board is made into boxes and the 5 plants manufacturing corrugated paper, which is made by the utilization of various products of Angouleme. At the outbreak of hostilities the Department of Haute-Vienne in its bounds possessed 20 paper manufactories, employing more than 1,500 workmen."

The manufacture of paper has long been a leading industry of southwestern France and the Midi, but the present scarcity of labor, raw materials, and the means of producing power are causing concern among the operators.

It appears there is an unusual opportunity for the introduction of modern American-made paper-making machinery, raw materials, and even manufactured products into this territory, and should new tariff arrangements be effected, such as are being contemplated with a view to a more general use of raw materials from the French colonial sources, this market would become of even more interest to American exporters.

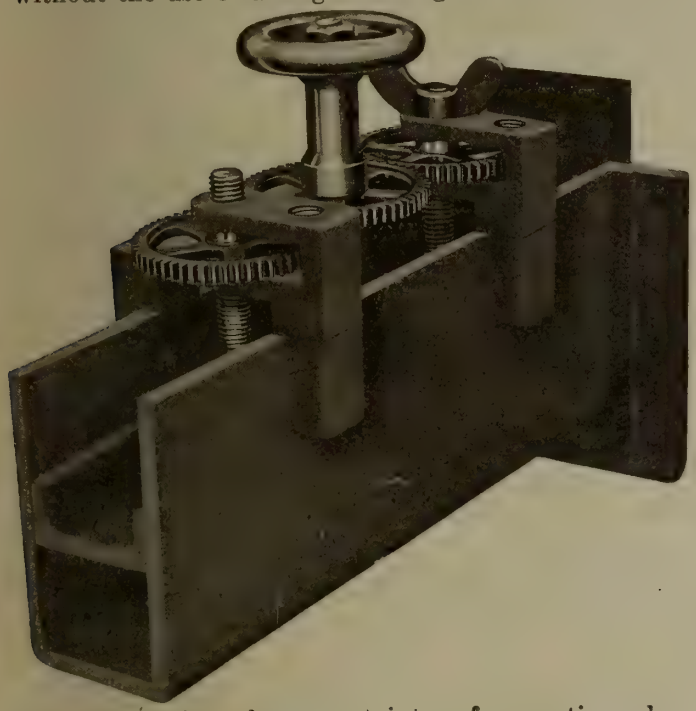
A lady bought a remarkable pair of stockings. Having undone the parcel at home, she dived her hand into the stockings and drew out a paper which set forth that the stockings were not on any account to be washed or even wetter—because they were made of wood pulp.

THE TRIMBEY AUTOMATIC WEIGHT REGULATOR.

A Weight Regulator of a new and exceedingly simple design is being placed upon the market by the Glens Falls Machine Works, the well known manufacturer of Paper Mill Machinery.

There is urgent need of some satisfactory device for controlling the weight of the paper and though a score or more of Patents have been taken out, very few have been successful in practical operation, and most of the paper machines of the country are still dependent upon hand control where each change in the consistency of the stock, coming from the beater room brings a corresponding change in the weight of the paper, unless proper adjustment of the stuff gate is made.

The unique feature of this Weight Regulator is that it automatically compensates for wide variations in the consistency of the stock coming from the Beater Room without the use of a single moving or oscillating part,



thus, eliminating the uncertainty of operation when links, foggles, floats, etc., are employed to operate a moveable stuff gate. In fact, the Regulator is so simple that at first the claims made for it, would seem overdrawn, were it not for the number in successful operation.

Its operation is based upon the fact, that the thicker the stock the more slowly it flows, and vice versa. No one who has spent even one day in a beater room needs to be told that where a beater room is some distance from its chest, the rate of dumping is very slow, when the beater valve is first opened, but that with the addition of even a small amount of sluicing water there is a marked increase in the rate of flow, and the same principle applies to the flow of stock through the spout of the Regulator.

The effective part of this Regulator consists of a brass spout with an adjustable top, and with a hand wheel for raising and lowering this top, to give a means of changing the area of the outlet when changing weights. The length and width of the spout and also the height of the overflow down in the stuff box are so designed with reference to the tonnage of the machine and the average consistency of the stock coming to that machine, that with an increase in consistency, there will be, through added friction, a proportional decrease in velocity sufficient to offset the thicker stock. In the same way, a decrease in consistency means lessened friction and increased rate of flow, so that throughout as wide a range of consistency as will ordinarily occur in practice, a practically constant amount of stock will go to the machine giving at all times a weight within the allowance trade limits of 2½% variation.

These Weight Regulators are made in a number of sizes to fit machines from the smallest to the largest, including the largest sizes of pulp drying and board machines. In each case, spout and stuff box are designed to fit the tonnage of the machine and the kind and consistency of the stock, and the installation is started up under the supervision of the Glens Falls Machine Work's Engineer, so that adjustments can be made if found necessary.

The "Trimbey Automatic Weight Regulator for Paper Machines" is based upon scientific principles, its design is the results of study and experiment, and it has proved satisfactory in practical operation. Patents have been granted in the United States and Canada for which territory the Glens Falls Machine Works have the exclusive rights for manufacture and sale and patent applications have been filed in European countries.

Its inventor has been connected with the industry for a number of years as a Testing and as a Consulting Engineer in American and Canadian mills.

HOW CREPED PAPERS ARE MADE

The creped paper industry has, within the past few years, undergone numerous changes. The demand for such papers is rapidly growing, inasmuch as the paper towel is now a fixture in all public places, and manufacturers are looking about for means of producing a creped product, better than that produced by the old method.

It has long been recognized by the art that to bend wood, dry, expecting the new form to be retained, is but to cause disappointment; and to soak the same in cold water before bending, is but to partially succeed, while to perfectly steam wood or to soak it in hot water is to soften and make pliable its constituent parts so that when fibres are bent under these conditions and thoroughly dried, thereafter, the new form is far better retained for the purposes desired, whether it be for the felly of a wagon wheel or the runner of a sled.

No successful wagonmaker, in his particular trade, would attempt to bend wood otherwise; neither should a paper manufacturer expect to make good creped papers by creping the sheet cold.

Creped toweling and napkin papers, so much in demand and growing in favor, are made largely from wood fibres. To crepe such papers cold is but to follow the primitive,, crude custom. It is a well known fact that groundwood is quite a factor in these papers, and the ease and perfection with which these fibres are bent depend upon the extent to which the resin therein is heated and made plastic; then if immediately dried, as bent, the resin therein becomes set in the new bent form and the creped sheet resulting, not only is lintless and as absorbent as before but stands up better in use. Hence the superiority of modern made creped papers, produced by the process of creping the fibre upon the first or overhanging dryer, while steaming hot, is apparent.

UNITED STATES NOTES

At the regular quarterly meeting of the Waste Paper Division of the National Association of Waste Material Dealers; at the Hotel Astor, last week, the committee appointed to consider the advisability of changing the classifications on waste paper stock and the drawing up of a set of trade customs reported that, after considerable detail investigation of the two matters, it had come to the conclusion that, because of prevailing labor and other conditions, that it would be to the interests of the trade not to revise the classifications on paper stock at this time. The committee's recommendation was abided by and the division voted to postpone action on the matter until such time as conditions were more favorable for the proposed changes.

The Wall Paper Manufacturers' Association has just been admitted to membership in the United States Chamber of Commerce.

J. W. Butler Paper Co., of Chicago, has recently sent out some very attractive sample books, illustrating the effects that can be obtained by using their papers.

The paper making plant of the Colonial Paper Co., near Portsmouth, N.H., which was closed several years ago, has been acquired by the Atlantic Engine and Shipbuilding Co., of New York and Boston. It is announced that ten steel merchant ships for government use will be constructed at the plant, which is located on Freeman's Point, the site many years ago where wooden sailing vessels were built.

A meeting of the Felt Manufacturers' Association was held at the William Penn Hotel, Pittsburgh, late last week, at which the proposed two-cent clause in its trade customs, to which roofing stock dealers take exception, is reported to have been discussed at length. As a result, no definite action was taken.

Accepting the request of the priorities committee of the War Industries Board of the Council of National Defense, F. H Macpherson, president and treasurer of the Detroit Sulphite Pulp and Paper Co., Detroit, Mich., has gone to Washington to direct the work of the division of investigation, in the capacity of chief of the division. In accepting the post, Mr. Macpherson is actuated entirely by patriotic motives; as the position carries no salary.

Zenas Crane, a senior member of the paper manufacturing firms of Crane & Co., and Z. and W. M. Crane, of Dalton, Mass., died last week at his home in that city, aged 77 years. Mr. Crane was a grandson of Zenas Crane, pioneer paper maker of the Berkshires, who established a mill in Dalton in 1840. He was a director of several railroad companies and was one of the most widely known business men in New England.

The paper bag plant of Taggart Bros. Co., at Watertown, N.Y., is now operating at an increased capacity of 25 per cent, as a result of new machinery that was set in motion last week. It is understood that further additions to the equipment of the plant are now being considered and will most likely be acted on by the spring of the coming year.

One of the interesting reports of the week was that from Dayton, Ohio, to the effect that the capital stock of the G. H. Meade Co., had been increased from $100,000 to $500,000.

Tissue men manifested interest in the report that the Stevens & Thompson Paper Co. has just awarded a contract to erect a new three-story mill building for it at Middle Falls, N.Y. The building will be about 65 x 212 feet and will be completed at a cost approximating $75,000. Looks as if better business must be in sight!

Added production of box board is now on the market by reason of the fact that the plant of the Gulf Paper Co., at Crichton, Ala., has started operations this week. The plant is turning out about 12 tons a day.

The high cost of manufacture and a combination of other reasons has caused the Ladies' World, published monthly by the McClure interests, to suspend publication "strictly as a war measure." Inasmuch as the circulation of this magazine was said to have been 1,500,000 recently, this was a matter of considerable interest in various local trade circles.

An increase in capital stock has been reported by the Orono Pulp and Paper Co., of Bangor, Me., from $500,000 to $1,000,000. This concern has gradually been increasing its business, and is now regarded as one of the leaders in its field. S. W. Dunning, at 132 Nassau street, is the local agent for the Orono Pulp and Paper Co.

The Japanese Tissue Mills, of Holyoke, Mass., have acquired land and buildings in that city belonging to the Amherst Wax Paper Co., valued at about $30,000.

Judge Charles F. Moore has found his place and will hereafter be associated with the C. H. Clinton Paper Co., of Philadelphia, in which he has taken an interest. There was some wonder, for a time, as to just what the judge would do after the Bureau of Statistics of the book paper manufacturers had been dissolved, for he was recognized as being one of the best informed men in the industry. There can be no question but that his new associates will gain much from their new acquisition.

The far-sighted in the trade view, with no little concern, the news that half the men at the plants of the Forest Paper Co., Yarmouth, Me., have been told that they would be laid off at the first of the year, due to the fact that there was difficulty in getting wood for the manufacture of pulp and also because of the general unsatisfactory business conditions. For some time, in these columns, we have been suggesting that the possibilities for a very acute situation were greater than many are willing to realize. Some call it pessimism, but those who have considered the subject carefully realize that these are facts that must be considered—that, if the freights are bad and trains cannot be moved, mills can't get pulp, nor can they ship pulp. nor can the paper mill get supplies—and, in short, neither will the consumer get his paper when he wants it.

The Eastern Manufacturing Company, of Bangor, Maine, will open their own Western sales office in Chicago, Ill., on January 1st. This new office will be situated at suite 1223 Conway Building and B. S. Stewart of the New York sales office will be in charge of the Western office. L. H. Nye, formerly connected with the sales department of the American Writing Paper Company, will be the assistant of Mr. Stewart.

PULP AND PAPER NEWS

At a meeting of the Port Arthur Pulp and Paper Co., Port Arthur, Ont., the following were elected to the Board of Directors: J. M. Mackie, Montreal; I. H. Weldon and S. F. Duncan, Toronto; A. B. Connable and S. B. Munroe, Kalamazoo, Mich. I. H. Weldon was elected President of the company and S. F. Duncan, Secretary-Treasurer.

The Toronto Paper Mfg. Co., Cornwall, has sent out to their customers a handsome leather 1918 year book, entitled "Daily Reminder." Besides being a complete diary, memoranda regarding the special war taxes, money orders, parcel post regulations, etc., are contained in the book.

Paul Buss, son of Charles Buss, superintendent of the St. Lawrence mill of the Provincial Paper Mills Co., at Mille Roches, Ont., who, for several months past, has been on the engineering staff of the Port Arthur Pulp and Paper Co, is spending a few weeks at his home previous to leaving for Camp Custer, Mich., having enlisted with the American army for overseas service. Stanley Pounsford, brother of A. G. Pounsford, general manager of the Port Arthur Pulp and Paper Co., and lately a member of the clerical staff of that organization has enlisted with the 136 Ohio Heavy Artillery, Battery "E," and is now at Camp Sheridan, Montgomery, Alabama.

The directors of the F. N. Burt Co., Toronto, have declared a dividend of one and one-half per cent on the common stock.

The premises of the Winnipeg Paper Co., corner of Pacific Avenue and Ellen Street, Winnipeg, were visited by fire recently, the flames breaking out from some unknown cause. Only the walls were left standing and the loss was $10,000.

Flight-Lieut. Joseph Gorman, of Ottawa, died recently at Padua, Italy, having been engaged in aviation work on the Italian front. His death was caused by a fractured skull. He was a newspaper man, widely known in Toronto, Montreal and Victoria, and his father was at one time editor of the Ottawa Free Press.

Several amendments are proposed to the Workmen's Compensation Act in Quebec whereby the indemnity recoverable from total incapacity or for death, will be increased from $2,000 to $2,500. Another amendment will enlarge the class of workmen who may recover damages by increasing the wage schedule from $1,000 to $1,200.

All the employees of the Victoria Paper and Twine Co., Toronto, were given a bonus of ten per cent on their salaries as a Christmas donation.

The management and staff of the John Martin Paper Co., Ltd., Winnipeg and Calgary, sent out a handsomely engraved card to their customers extending the greetings of the season.

I. H. Weldon, President of the Provincial Paper Mills Co., spent the Christmas holidays with his parents, Mr. and Mrs. James Weldon, St. Thomas, Ont. Mr. Weldon, Sr., is ninety-five years of age and is enjoying splendid health.

In the recent elections, Francis N. McCrea, who is President of the Brompton Pulp and Paper Co., the Sherbrooke Lumber Co., and the Devon Lumber Co., and has represented Sherbrooke in the House of Commons since 1911, was returned as the Liberal candidate by a large majority.

Fred Wilcox, who has been for some years on the office staff of the Don Valley Paper Co., Toronto, has enlisted for overseas service.

P. A. Nicholson, sales manager for the Kimberly-Clark Co., Neenah, Wis., spent a few days in Toronto last week, calling upon the paper trade.

Provincial charter have been granted to the Perth Printing and Publishing Co., Limited, with headquarters at Stratford, Ont., and a capital stock of $80,000; to the Petrolia Printing and Publishing Co., Limited, with a capital stock of $25,000, and headquarters in Petrolia, Ont., and to Ontario Hardwoods, Limited, with a capital stock of $40,000, and head offices in Toronto.

Employees at the Interlake Tissue Mills at Merritton, also at the Provincial Paper Mills at Thorold, were agreeably surprised to receive a Christmas bonus consisting of 5 per cent of their earnings for the year.

Mr. Theo. Safford, of the Riordon Pulp and Paper Mills, Merritton, has resigned his position as chemist in order to take up a similar position with the Spanish River Pulp and Paper Mills Co., at Espanola, Ont.

ABITIBI PRODUCTION RECORD AGAIN BROKEN.

On Tuesday, November 27th, the Abitibi Mill set a new high record of production by overstepping the previous best by five tons making a total of 243.36 tons.

This represents an average operating efficiency of 97.7 per cent and a production of seven hundred and thirty five pounds per inch of trim, the blue ribbon going to No. 2 machine with an efficiency of 99.5 per cent. This is surely a record any mill could be justly proud of. None of the machines broke their individual record, although number two came within an ace of doing so.

Mr. Soren Johnsen, of Donnacona, has taken a position here as assistant to Superintendent Buncke of the Groundwood Department.

NEWSPAPER RATES HIGHER IN CANADA.

Of the 130 daily papers in Canada, only 26 are still sold at 1 cent for single copies; 68 are 2 cents and 36 are 5 cents each. West of the lakes, all single copies are 5 cents.

Mail subscriptions are also higher. There is but one "dollar daily" now, a four page evening paper in a Maritime Province, in which region is also published morning and evening papers. Canada has 17 dailies at $2.00 a year, 12 at $2.50, 53 at $3.00, 3 at $3.50, 25 at $4.00, 11 at $5.00, and 1, a morning paper, at $6.00.

Review of Recent Articles of Interest to the Pulp and Paper Industry

Utilization of Sulphite Lye in Sweden. Vice Consul Arthur E. J. Reilly, Stockholm. U.S. Commerce Rpts., No. 281, (1917), p. 843. At the laboratory of the Reymerholm Company (Reymerholms Gamla Spiritforadlings A.B.) experiments have recently been completed with a new method for the utilization of refuse lye in the manufacture of sulphite. The difficulty in using the lye has consisted in concentrating it. By the new method the water is removed by freezing, which eliminates four-fifths of the water. The method is cheaper than that formerly employed and is considered to involve a reduction of the expenses by about 40 per cent. While the older method is based on the use of steam, water power is used for the new. By this method also the organic substances in the lye are obtained in such a form that they can be used in many ways for dyestuffs, agglutinative substances, etc. — O.F.B.

New Sulphite Mill in Sweden. Vice Consul Arthur E. J. Reilly, Stockholm. U.S. Commerce Repts, No. 276, (1917), p. 755. At the Korsnas lumbers mills near Gelfe preparatory work has begun on the erection of a mill to obtain sulphite spirit from sulphite lye. It is calculated that the mill will be completed in about six months. It is constructed for a yearly production of about 1,500,000 liters (about 396,000 U.S. gallons) and will be the biggest of its kind in Sweden. The production will be obtained along the lines of the Ekstrom method.—O.F.B.

Swedish Lumber Industry Producing Lubricating Oils. Vice Consul Arthur E. J. Reilly, Stockholm, U. S. Commerce Repts No. 282 (1917), p. 849. The manufacture of lubricating oils at a number of places within the lumber district where there are sulphite factories has begun. The oil is obtained from liquid rosin. Among the companies that are taking it up on a large scale are Vifsta Varv, Kapporbergs Hofors, and Iggesund.—O.F.B.

Laurentide Power Developed after War's Interruption. Eng. News-Record **79**, No. 21 (1917) pp. 974-8. General description of water power development of Laurentide Company, Limited, Grand Mère, Quebec. Illustrations and detail drawings.—O.F.B.

BRITISH PATENTS.

(From the Paper Maker.)

The Manufacture of Waterproof Paper, Especially for Metallic Pencils, etc.—109,200, September 6, 1917. —The Kimpitsu Seishi Kabushiki Kaisha, Ltd., of No. 15, Yamashiro-cho, Kyobask-ku, Tokyo, and Shingo Kuroki, of No. 30, Tameike-cho, Akasaku, Tokyo, Japan, engineer. This invention relates to a process of manufacturing by machines waterproof paper especially suitable for writing or drawing by metallic pencils or styli, and consists in spraying dilute solution of gum-arabic over a surface or surfaces of any kind of paper, scattering thereover powder of white clay to make it uniformly adhere thereto, and then applying a mixed liquid composed of a mixture of castor oil and a light oil, and mixed therewith also a suitable quantity of vaseline (known by this name as a Registered Trade Mark), this mixed liquid being thus capable of being applied by a suitable machine. The hitherto known process of manufacturing paper such as this has the drawback that the process of applying a mixture of non-dry oil and clay must be necessarily carried out by hand. The object of this invention is to arrange the ingredients in suitable proportions so as to divide the whole process into two steps, whereby the said applying step can be carried out very conveniently by a machine.

Improvements in Pulp-Beating Engines. — 109,558, Sept. 20, 1917. — James Nuttall, of Park View, Walmersley Road, Bury, Lancs. The object of this invention is to provide an improved pulp-beating engine which will cause better mixing, and also better beating, and circulation of the pulp, and consequently a greater output of better pulp than is the case with engines as hitherto made, the improved effect being due to the pulp being very efficiently and more frequently, in a given time, acted upon by the bars, knives, or blades of the roll and bedplate, or rolls and bedplates, as well as being better mixed than hitherto. The inventor states: My invention relates to that type of pulp-beating engine in which the pulp is passed under the beating roll and over a divided backfall so that the pulp passes thereover in two streams which join each other and pass pack to beneath the beating roll, In providing parts so shaped and combined as to constitute an engine in which the pulp is very efficiently subjected to the action of the roll and bedplate, and circulates in such a way that there is practically no impediment to its flow and liability to clogging by the pulp is practically done away with. At the part of an engine in accordance with my invention where the pulp approaches the beating roll and bed-plate (or each roll and bedplate) I provide a raised part, or weir, extending across the whole width of the pulp-circulating channel, the top of the said raised part, or weir, being higher than the top of the bedplate, and I provide also a recess at the bottom, and forward, of the weir in front of the bedplate, the chamber constituted, by this recess, between the weir and the roll, being of such form that the head of pulp, in conjunction with the revolving bars, knives, or blades of the roll, will press the mass being pulped to the lower part of the aforesaid chamber and into the space between the bars, knives or blades of the roll and the bedplate. I may arrange the bedplate immediately beneath the centre of the roll, or, in order to give a longer space, and to have the bars, knives, or blades of the roll in a position more nearly vertical when they nearly reach the bars, knives, or blades of the bedplate, I may arrange the bedplate at an inclination so that it, or its operating portion, is out of the vertical plane in which the centre of the roll is situated and between that plane and the backfall. In order to still further improve the circulation of the pulp and thereby obtain improved mixing thereof, I arrange openings and channels for the passage of the pulp (after it passes from the roll and over the backfall) so curved and directed that the pulp which is divided as it passes over the backfall passes thence through the openings and channels provided for it, and circulates in an easily flowng manner in streams which meet and pass along the return channel back to the bedplate and breaking roll (or to a succeeding bedplate and breaking roll) in the required different, or reversed, relative positions.

Improvements in Apparatus for Washing Pulp. — 109,594, Sept. 20, 1917.—Samuel Milne, of 11A, Grange Road, Edinburgh, engineer. The invention forming the subject matter of this specification relates to the treatment of pulp by traversing the pulp over one side of a perforated bed or drum whilst a water spray is projected on to the side of said bed or drum opposite to that on which the pulp lies. The present invention is more particularly directed to the application of said invention to a Hollander engine or a washing or beating engine, and consists in passing the pulp across the underside of a perforated drum in which is arranged a series of water sprinklers adapted to project a spray on to the portion of the drum surrounded by the pulp provision being made to drain the contaminated fluid from the drum.

Improvements in or Relating to Sizing or Paper.— 109,458, Sept. 13, 1917. — Hy May Wheelwright, of Hardwick Mills, Wheelwright, Mass., U.S.A. and John Traquair, of Feculose Company, of America, Ayer, Mass., U.S.A., chemical engineer. This invention has reference to the sizing of paper in which the coating or impregnation is effected at any point of the paper-making machine after the first wet press and before the web passes into the dryer, and in which the impregnating liquid or solution is applied to one or both surfaces of the web by means of rollers, aprons, spraying or sprinkling devices, or by capillary action from a wick or fabric conveying the liquid or solution. In some instances the liquid for damping, coating or colouring is subjected to a regulation by means of a doctor, in conjunction with adjustable end pieces and nozzles for directing jets of air or other fluid, so as to limit the spreading or for blending the liquid solutions or colours. In effecting the sizing operation at the stage of paper manufacture above referred to, considerable difficulty is experienced owing to the paper who being in a comparatively loose condition, and therefore not available for treatment by immersion in the size solution or to much handling or manipulating. consequently in order to size the stock at this stage of the manufacture, it has been found necessary to employ a sizing compound which will not disrupt the web or stick to the rolls, and which will undergo the drying operation without injury. According to this invention the method of sizing paper in which the sizing is applied to the web before it has been subjected to the usual drying operation following the wet pressing, consists in employing a size composed of soluble starch or soluble starch compounds, converted, hydrolized starch, feculose or the like—all well known substances, having been employed in the usual processes of sizing paper—and applying the same in the form of a film upon both surfaces of the paper web by means of a pair of co-operating press rolls, one of which carries a film or size on to one face of the web; and the other a film of size on to the other face of web; the press rolls being those next preceding the drying drums and acting as smoothing rolls for the web as well as sizing rolls. Both rolls are, as previously proposed, supplied independently with size and the quantity applied to the web being a comparatively loose condition, and tion consists in the provision of a device adapted to apply the web to the cylinder to receive the size, then to withdraw the same from the cylinder and finally to cause the web to pass between the cylinder and another cylinder, the web thus receiving size from both cylinders.

NOTE REGARDING COPIES OF PATENTS.

Printed copies of U.S. Patents can be had from the Commissioner of Patents, Washington, D.C. for 5 cents each. Mention titles, patentee and number when ordering. The Official Gazette, from which many of our abstracts are taken is issued weekly at the subscription rate of $5.00 per year.

Method of Screening Pulp. Anton J. Haug, Nashua, N.H. U.S. Pat. 1,246,815. The method of screening pulp which consists in applying the pulp under centrifugal action and under a head to a screening surface, opposing the flow of the pulp to the tailing outlet by imparting to it a general impulse in the opposite-direction, thereby maintaining the pulp in a fluid mass against the screening surface and keeping the fibres in a state of liquid suspension, agitating the mass to permit the fibres to separate and pass through the screen, adding water to increase the bulk of the mass and hold the tailings in suspension while being agitated and withdrawing the tailings by the movement of the mas under centrifugal action and the head of the pulp toward the tailings outlet.

Water-Marking Device for Paper. Howard Brown, Springfield, Mass., U.S. Pat. 1,248,258, Nov. 27. The moist web is carried by a felt and held forcibly against a roll carrying a "rigid arcnate design plate extending beyond the surface thereof". The design plates are held in position by rings when not in contact with paper.

Apparatus for Making Cylinders of Pulp. Arthur Hodge and Henry B. Ruggles, Pasadena, Cal., U.S. Pat. 1,246,816. Nov. 12. Device consists of a moveable receiving from and two pulp collecting and compressing belts working in succession.

Apparatus for Making Containers of Paper and the Like. Fritz Eugene Neubert, Penig, Germany, U.S. Pat. 1,248,381. Nov. 27. Renewed July 24, 1917). Pervious molds connected to a sucking device are immersed in a tank of pulp water. Means are provided for couching layers of pulp precipitated on the molds.

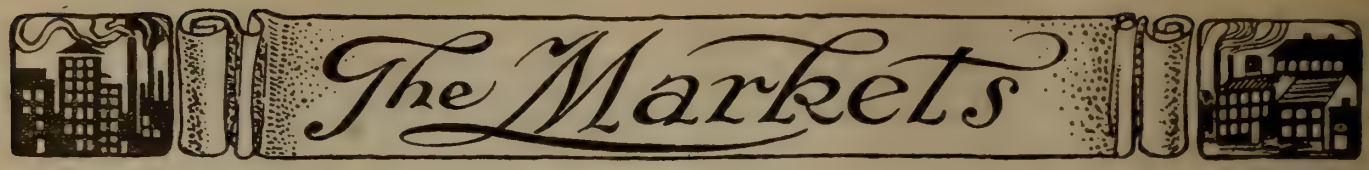
Dye, from Waste Sulfite Liquor. J. Puring, U.S. 1,236,868. Aug. 14. A composition which may be used for dyeing wool or silk black or blue-black is formed by mixing concentrated waste sulfite liquor with a solution of $FeSO_4$, removing the precipitated $CaSO_4$, and reacting on the product with gallic or pyrogallic acid.

Anrydrous Sulfur Dioxide and Nitrogen Obtained With a Sulfur Furnace. L. Descamps, Fr., 481,258, Nov. 16, 1916. The perfect combustion of the S is secured by regulating the quantity of previously heated air for combustion which is conducted with a large surface of S during the combustion.

Acid and Waterproof Cement. C. C. Meigs, U.S., 1,237,078, Aug. 14. A cement which when set is acid-proof and insoluble in H_2O is formed by preparing a dry mixture of finely divided crystaline SiO_2 90, apatite 10 and Na silicate 30 parts. The mixture is prepared for use by moistening and, either before or after it has become set, it is treated with H_2SO_4 to improve its hardness and density.

Waterproofing paper. H. Buffington. U. S., 1,240,934, Sept. 25. Waterproof paper is made by incorporation with an ordinary paper base of a filler formed of ZnO 65, white varnish 30 and wheat flour 5%.

Parchmentized Fibre. J. McIntosh, U. S., 1,236,461. Fibre such as "vulcanized fibre" which has been parchmentized by treatment with $ZnCl_2$ is impregnated with sulfonated oil or emulsified mineral oil to render it flexible and water repellent.



CANADIAN MARKETS.

Toronto, December 26, 1917.—This is an off-week in the paper trade. The Yuletide festivities gave place to business and paper mill plants were shut down on Monday as well as on Tuesday—Christmas Day. The reason was that it would not pay the manufacturers to start up for a twenty-four hour run, close down the following day and start again on Wednesday. A number of firms pay their employees for the two holidays, while others have given all their hands a bonus of five per cent on the amount of wages earned during 1917. Another concern gives the men and women, who have been employed for one year an extra week's wages and those, who have been two years or more in the service, get two weeks' extra pay. The office staff of the various companies were in many instances remembered with bonuses.

There is little change to report in the newsprint situations. G. T. Clarkson, auditor, has completed his revision of costs in connection with the production of newsprint, but when it will be considered is not known. While the two and a half cent price is extended until January 20th, it is rumored that even then Commissioner Pringle may not name the new figure. Various reasons are assigned for this act is probable that action will be taken in conjunction with the Federal Trade Commission at Washington, which does not resume its sittings until January 1st. The Canadian Press Associations appears to be confident that the figure when named will not be higher than the present one. Mill owners, on the other hand, seem equally certain that three cents will be the new rate. The last reports received by the Federal Trade Commission are to the effect that there has been a decline of about four thousand tons in mill stocks and nearly ten thousand in publishers stocks.

In the book paper line it would seem that no adjustment of differences can be reached by the mills and their customers, and the inquiry is likely to go ahead. A meeting of the Trade and Class section was held in Toronto last week, and a resolution passed to the effect that the members were not satisfied with the present prices of book paper demanded by the manufacturers. The resolution stated in part that, "prices are unreasonably high and unsatisfactory and that there has been no uniform decrease in the price of book paper to the members of the section, notwithstanding that sulphite, the main element in the manufacture of book paper, has decreased in price to the extent of nearly fifty per cent since the first of January, 1917."

There will be a resumption of the inquiry by Commissioner Pringle at Ottawa, on January 8 and 9, when G. T. Clarkson, auditor, will likely be instructed to proceed with the work of examining the books of the various companies. Book paper manufacturers declare that they have done their utmost to arrive at a settlement, as suggested by Mr. Pringle, but that some of the publishers are most unreasonable and exacting in their demands. Although concessions of one and a half cents have been made, this being the very best that can be proffered under existing circumstances, it did not satisfy some consumers who evidently are bent and bound on having the inquiry proceed. The manufacturers are quite willing that the people should go on. They are content to abide by the results and have nothing to hide.

The groundwood woodpulp market is unsettled and prices are largely determined by the individual mills, their contracts and stock on hand. It is expected that the demand will pick up after the first of the year. All things being considered, quotations are holding up well. Book sulphite is still selling at seventy dollars per ton, f.o.b. mill, and manufacturers are giving customers the benefit of this figure, for three months, in the way of an agreement if desired. Bleached sulphite is bringing from one hundred and five dollars to one hundred and ten, f.o.b. mill. Manufacturers contend that these figures will hold as prices can not be cut owing to the heavy costs of getting out pulpwood. Sixty and sixty-five dollars is being offered for men which is just triple the amount paid before the war when any number of woodsmen could be secured for twenty to twenty-five dollars a month, and to-day the supply is very limited. And this is not all. Pork is over three times as high as it was in 1913, and beans, another staple, four times as high. Other expenses in connection with the camps have gone up proportionately. There is more difficulty regarding transportation, and only last week the Abitibi Chamber of Commerce wrote the Montreal Board of Trade to enlist the sympathy and support of that body to relieve the congestion. There are twenty thousand cars belonging to Canadian lines that are now over the border, and have not been returned. American roads are suffering from snow storms and the lack of skilled help. In order to improve matters in the Dominion the Canadian Railway Association on National Defence have decided to cut off several passenger trains now running out of Toronto. The trains on branch lines will also be decreased, the change taking effect during the first week in the new year. The action is necessary to meet the coal shortage and to facilitate the movement of freight. One large pulp company has thousands of tons of pulp piled, all of which have been sold, but cars cannot be obtained for transportation.

Several pulp and paper mills are running with only a very limited supply of coal. The paper mills of Canada are also being hard hit by conscription and the tribunals in Ontario have refused to consider the claims of skilled labor for exemption. All this means training new help constantly which impairs the efficiency of the plants.

With the closing of 1917 the paper trade has gone through many vicissitudes but still the rank and file is hopeful of the future. It is expected that business, while not nearly as large as last year at this time, will show a steady improvement from this on. Twelve months ago mills were behind in filling orders from three to five months, and still more orders kept rolling in. To-day the plant that has business ahead for a month is considering itself fortunate. This observa-

tion applies to all branches except newsprint. A change has taken place in the last few days, and things have been picking up quite noticably. If this trend of affairs continues, 1918 should prove a good year and, while prices may not rule as high as they did during the forepart of 1917, the manufacturers will not complain, in view of general war-time conditions.

As there are no changes in market quotations Christmas week, the price lists are omitted in this issue.

NEW YORK MARKETS.

New York, Dec. 24.—The situation in chemical pulp was devoid of what might be called real hopes during the past week. The majority of paper manufacturers are now engaged in taking their year end inventory and are running their machines at a minimum capacity which, of course, seriously curtails the consumption of woodpulp. There was, however, a scattered demand, which is rarely experienced at this time of the year. This is due to the fact that many plants were unable to get their usual commitments of pulp from contract sources because of shipping difficulties and are accordingly seeking supplies elsewhere, placing orders for small tonnages of sulphite wherever they can be assured of prompt deliveries. In a good many instances, consumers were forced to buy imported pulp in sufficient quantities to tide them over, which, of course, helped foreign pulp to some extent. Considerable interest was shown in the figures given out by the Federal Trade Commission which showed a marked increase in imports of unbleached sulphite pulp for November, over the same period of last year. For the first ten months of 1917, a total of 316,225 tons of unbleached sulphite was imported into the United States, which represents a gain of 51,574 tons over the corresponding period of last year, when a total of 264,651 tons imported. Of the total this year, 101,862 tons came from Canada, 114,764 tons came from Sweden and 5,899 tons from Norway. Imports of bleached sulphite, on the other hand, show a steady falling off during the first ten months of this year, a total of 40,802 tons was imported, as against 44,892 tons during the same period of 1916.

Domestic unbleached sulphite is quoted at as low as 2¾ cents a pound in some quarters, but for an average quality, around 3 to 3¼ cents is demanded, while for an extra strong fibre, 3½ cents and even higher is asked. Domestic bleached sulphite is selling to domestic manufacturers at around 5¾ cents, while this grade of pulp packed for export commands 6½ cents and more, depending on the quality and tonnage involved. Imported unbleached sulphite has sold at 5½ cents, ex-dock, although there are some lots of cheaper grades available at 5 cents per pound. A fair call prevails for domestic bleached soda pulp, with sales reported at around 4¼ cents. Scandinavian kraft was sold at 5½ cents ex-dock, while foreign easy bleaching realized 5¾ cents. The railroad congestion is beginning to manifest itself severely and, with it, a tightening of the market is noted in some instances. One of the big factors of the trade, in discussing the matter said: "Just as soon as you hear that numerous sources have had to go out into the open market to buy goods because there was nothing forthcoming on their contracts, you can bet that the situation is beginning to tighten. We have no exact idea of the way in which the country is tied up by the congestion. Embargoes are being announced every day and it is only a matter of time before the country will be in a knot. Those who are wise, are anticipating on their deliveries as much as they can. A man really cannot make too much allowance on delays in transportation in order to figure somewhere near accurately when the goods may arrive."

Reports from Maine are to the effect that such is the demand for pulpwood to supply mills in that state, that cutting operations are being started in woodlots close to the cities where there is a growth of four inches in diameter and upward. Advices from Maine are being received from other pulpwood sections bearing out the contention of grinders that mechanical pulp must rise in value next year, unless some drastic change occurs in manufacturing conditions. Nevertheless, the demand for groundwood continues quiet. Quotations, however, are firm. Consumers are buying solely against direct requirements and with numerous mills on a part time basis, while taking inventories or making repairs, there is no pointed request from any quarter. Eastern grinders still ask between $35 and $37 a ton at the pulp mill, while quotations in the West are reported to be ranging about $2 a ton over this level.

An undercurrent of impending activity is thought to be clearly in evidence in the rag market. Manufacturers, while restricting their buying to rather small quantities, are freely inquiring for supplies and conditions appear to be shaping themselves for a period of brisk business shortly after the New Year. Dealers in towns from the Middle West who attended the meetings of the National Association, report encouraging signs of a revival of interest among paper mills in that section. Local trade factors say that consumers display more willingness to acquire supplies of the better qualities of rags, while dealers in roofing stock are particularly jubilant over the outlook. One prominent dealer stated that he confidently expected an advance of at least $2 a ton in satinets for January delivery. There seems to be no question but that the heavy snow storms of the past fortnight have seriously hampered the collection of mixed rags and roofing material is now offered in far from abundant volume. White rags and thirds and blues tend strongly upward price. A movement toward manufacturers has begun and once this develops into sizable proportions, values seemingly must undergo enhancement as available supplies are limited. The sale of a lot of repacked No. 1 whites to a mill at 4¾ cents delivered was recorded. Repacked thirds and blues readily commanded between 2.30 and 2.40 cents from dealers and brokers. One dealer refused an offer of 4¾ cents for No. 1 whites delivered to the mill, because he felt he would be unable to replace the stock at a suitable margin. Fair business in new rags was reported. Shirt cuttings are firm and in fairly good demand, while a steady call prevails for khaki cuttings, sileasias, flannelettes and similar qualities of bleachable rags. A sale of fancy cuttings was reported to a mill at 6 cents delivered. Sales of washables to a broker were reported at 5.15 cents. No. 1 white shirt cuttings are firmly held and a sale of a lot to a broker was noted at 9¼ cents, which represents a slight advance over previous prices. A middle western dealer reports a strengthening demand for new cuttings in that section. His concern sold 200,000 pounds of denims several days ago at $5.65 net cash, f.o.b. shipping point, which is equivalent to

$6.25 delivered eastern mills. This sale represents an advance of nearly 85 cents per hundred over former sales.

Business in paper stock was on somewhat of a scattered basis. Some dealers and brokers had a few orders and were occasioned great difficulty in locating the stock necessary to fill these commitments. Mills continue to buy in very conservative volume mainly against immediate requirements. Packers on the whole seem to have no heavy accumulations of paper and from this it is gathered that there is a more active movement of supplies into consuming channels than is commonly presumed. A sale of a lot of extra quality No. 1 kraft paper was noted at 2.60 cents delivered mill, and also the sale of a choice lot of No. 1 manilas at $1.00, delivered mill. Flat folded news commands between 55 and 60 cents a hundred, f.o.b. New York from mills, while No. 1 mixed paper is moving around 35 cents New York. Shavings are dull, although the sale of a lot of No. 1 hard whites at 3.40 cents New York was recorded. Books are moving to an extent, while the demand for other qualities is scattered.

Offerings of old manila rope elicit interest from manufacturers at present and trading in the local market is somewhat on a small scale. Quotations are at about 6 cents. In bagging, gunning is holding to about 3 cents and over; bright bagging to 3½ cents and higher; sound bagging to 2¾ cents and higher.

There is no real activity in the paper market at present, nor is any expected until after the first of the year. According to one man, however, if concerns would only use their common sense, instead of simply following their old custom that nothing is to be bought until after inventory was over, they would be looking ahead—ordering and anticipating what they have already ordered.

The feature of the week's reports was the astounding information that, in several of the important mill centres of the country, the coal supplies were so limited that there was danger that some of the plants might have to be closed down at any time. Just what the outcome of this will be, no one knows, but the prospects are thought to be far from bright. In New England, the conditions were reported to be very acute. The navy department had commandeered a number of the barges that were formerly used for carrying coal and this has cut of supplies for the present. Undoubtedly, every effort will be expended to clear the situation away as soon as possible. In the meantime, it would not be surprising if several of the plants were compelled to close down for a short time. As a matter of fact, requests have been issued in various sections of the country asking them to close down mills temporarily to save supplies.

ESTABLISH PULP WOOD CAMP.

The Port Arthur Pulp and Paper Co., Port Arthur, who expect to start operations in their sulphite plant early next month, have established their own pulp wood camp at Sucker Creek, some thirty miles east of Port Arthur. There a hundred and twenty-five men are at work cutting under the direction of C. A. Gardner, who has been appointed woods superintendent of the company. Mr. Gardner was formerly foreman for the firm of Whelan, O'Gorman and O'Brien, and has long experience in operations in the bush. The Port Arthur Pulp and Paper Co. were recently awarded, by the Ontario Government, the right to cut pulp wood and other timber on the Shibley Reserve, which is near Port Arthur and contains several hundred thousand cords of wood. The tender was accepted at 70 cents a cord on spruce, poplar and balsam, with the addition of 40 cents per cord on spruce and twenty cents per cord on poplar and balsam. The price for pine is $7.50 per thousand feet, board measurement. The Shibley Reserve consists of about 80 square miles.

A. G. Pounsford, General Manager of the Port Arthur Pulp and Paper Co., who was in Toronto recently, states that some seventy-five thousand cords of pulp wood will be taken out by the settlers and others in the Port Arthur district during the coming winter, which is about the same amount as last season. The average price paid for the cutting of wood is two dollars and a half per cord.

TECHNICAL ASSOCIATION ANNUAL MEETING.

The Technical Association of the Pulp and Paper Industry will hold its annual meeting at the Waldorf-Astoria Hotel in New York from February 5 to February 7, 1918, under the auspices of the American Paper and Pulp Association. Mr. Henry P. Carruth, manager of the Department of Tests of the American Writing Paper Company will preside.

Members who are interested chiefly in the technology of chemical pulp manufacture will assemble at one session under the direction of Mr. R. B. Wolf, chairman of the Sulphite Pulp Cmmittee for a discussion of the various systems of acid making. A large number of sulphite engineers have indicated their intention to lead in the discussion and the subject may be discussed under different divisions, as for example, (1) Pyrites and Sulphur Burning; (2) Coolers; (3) Absorption Systems; (4) Principles Involved in the Different Processes; while the general topic will include a consideration of Lime Stone and Milk of Lime systems, Acid Testing, Methods and Modifications in Apparatus.

The symposium on Engine Sizing will be directed by Raymond S. Hatch. Among the points which will be presented for discussion and regarding which a number of acceptances have been received from members who have been asked to lead the discussion, are, (1) Chemistry of Size Boiling; (2) The Influence of Alum and Free Rosin; (3) Factors Influencing Retention of Sizing Materials; (4) Effects of Calcium Salts in the Beater; (5) Influence of Starch in Sizing.

It is hoped that members will come prepared to take an active part in the discussions and it is suggested that memoranda be written out in advance in all cases where a special study of the subject has been made.

The annual dinner of the association will be held on Wednesday evening at the Hotel Astor. In order to assure adequate accommodations at the hotel, it is requested that application for seats at the dinner table should be made promptly, accompanied by check or money order payable to the Secretary. Seats at tables will be assigned to suit the convenience of members and they may indicate their preference for table companions in making reservations. The banquet proceedings will be in charge of Judge Charles F. Moore, who will act as toastmaster and introduce the speakers.

"Canada---Who Cares?"

STRANGE as it may seem, this is an attitude — thoughtless perhaps—taken by some firms in Canada when buying goods, which can be obtained in our Country.

We know whereof we speak. Many of our friends have found themselves up against this proposition. There are actually some buyers who will send thousands of dollars out of Canada, if a very small apparent saving can be made.

We all preach, preach, preach, "Conserve resources, save money, save food, save the Country, save the Empire—build up our industries," and yet, do we practise what we preach?

If every Canadian buyer in this broad land would ask himself this question, and find the honest answer, the preaching might do some good. But without the honest answer, it would seem a waste of effort on the part of every well-meaning Patriotic Canadian.

Let us get this home to our people. We surely realize the necessity of keeping a full dinner pail for our workmen. Buying imported goods means working in the very opposite direction, and helping tear down our industries instead of building them up.

Salesmanship

Every man in business is a Salesman, and here is a proposition he should "SELL" to every man he meets.

"Buy Goods Made in Canada."

This Company employs Canadian Capital, Canadian Workmen and uses Canadian Materials. Our proposition has commended itself to thousands of Canadian Employers, who use our recorders to protect their pay-roll. We are one of the firms that do practise what we preach: "Buy at home and keep the home fires burning."

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WAYAGAMACK IN ENGLISH COURT.

In the English Court of Appeal on November 21st composed of Lord Justice Pickford and Mr. Justice Sargant, the case of Messrs. E. S. and A. Robinson, paper merchants, of Bristol v. The Wayagamack Pulp and Paper Co., Ltd., paper manufacturers and sellers, of Quebec, Canada, was argued. The case came before the Court on the appeal of the plaintiffs from an order made by Mr. Justice Rowlatt in Chambers on October 24th, 1917.

The plaintiff company carried on business at Bristol as paper merchants, and bought paper called kraft wrapping paper, and they had brought an action claiming a considerable sum of money from the defendants for damages in regard to contracts for the purchase from the defendant company of this paper. Plaintiffs alleged there had been a breach of contract to deliver, and the defendant company had not delivered because there had been a great rise of price in the paper market, although it had been buying and selling under subsequent contracts. The defendant company excused itself on the ground of shipping difficulties owing to the war. It appeared from the correspondence that the plaintiff company offered to meet that difficulty by taking delivery at Montreal, where there were no shipping difficulties at all.

The question in this case was whether the company had, by virtue of carrying on business in this country, a residence here at which it could be served. The Master held that it had not. Plaintiffs had served their writ upon a Mr. Sherriff, who was a partner in a firm named the Hodge Sherriff Paper Co. It consisted of two persons, a Mr. Sheriff and a Mr. Hodge, and they carried on business at Kingsway, London. According to their letter-paper, said Counsel, they were the sole agents of the defendant company, and the question in this case, he thought, would turn on whether they were agents with authority to enter into binding contracts on behalf of the defendant company. Of course, the question as to whether they did or did not "reside" depended on whether Hodge Sherriff Paper Co. had authority, and it was submitted that this was a clear case where they had such authority, and the order of the Master was wrong.

His Lordship did not think plaintiffs had made out that the defendant company were carrying on business through the Hodge Sherriff Paper Co., and he would go further, and say he thought it was made out that they were not. Therefore, the decisions of the learned Judge and the Master were right, and the appeal must be dismissed, with costs.

WAR TRADE MANUAL FOR SHIPPERS.

Since considerable of the data in the "Rules and Regulations of the War Trade Board," which has been distributed very widely throughout the country, has now been superceded by new rulings and lists, the Division of Information of the Board is preparing a "War Trade Board Manual for Shippers," which will contain only data in force at the time of its publication.

LAURENTIDE DIVIDENDS.

Laurentide Co., Limited, announces the regular quarterly dividend of 2½ per cent, payable December 31 to holders of record December 22.

TECHNICAL SECTION WILL DISCUSS RESOURCES.

The annual meeting of the Technical Section of the Canadian Pulp and Paper Association will be held at the Ritz-Carlton Hotel, January 30 and 31, 1918. The main association meeting will take place the following day.

Plans for an interesting meeting are developing rapidly and cards for registration data will soon be in the hands of members. The program for the first day includes a business session of unusual importance, and will be followed by papers on the Estimation of Cellulose, Coated Papers, and the Manufacture of Fine Papers. In the evening there will be a smoker to give members a chance to get better acquainted.

For the second day the program will consist of a review of the Pulp and Paper Industry in Canada, and a symposium on our natural resources in their relation to the industry. Papers have been promised on Pulpwood, Water Powers and Minerals, with a special paper and discussion on Pyrites. All who attend should be prepared to enter vigorously into the discussion of these important subjects.

Arrangements are being made so that those who can may have luncheons and dinners together. Fuller details will be announced very soon.

THE CHEMICAL DEVELOPMENT OF PULP MILLS AT BERLIN, N. H.*

(Concluded from page 1212.)

Paper Company the rest. This power may be increased by a proposed engineering undertaking that will not disturb existing industries. At La Tuque 110,000 H. P. is already developed which will be increased to 160,000 on completion of a new dam, while further up the river there is still more available to the Brown interests, bringing the total up to about 200,000 H. P.

Conclusion.

In the Berlin Mills we have an example of the birth and growth of an important chemical centre from a sulfite pulp mill, previously operated under rule-of-thumb methods. Aside from water power, mostly needed in the lumber, pulp and paper industries already established, there was nothing to invite chemical development. There was no coal, no limestone, no pyrites, nothing except a great pulp mill that was behaving badly. What happened was that a chemist with the gift of vision and creative genius came there and in the course of time was backed by capital in the hands of genuine administrative ability.

In all the developments there has hardly been a single lucky strike. Every improvement has been based upon natural laws that were at once both known and neglected. The men who did it were awake. How many of us go our ways, sleeping? The whole establishment is the answer made to difficulties by well-trained scientific ability of the first rank coupled with capital in the hands of administrators of the first rank.

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Bleached and Unbleached
WOOD PULP
of every description

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MONTHLY COMPARISON OF MILL ACCIDENTS.

A. P. Costigane, of Toronto, Safety Engineer of the Ontario Pulp and Paper Makers Safety Association, has inaugurated a policy to issue at the end of each month, as soon after each month as possible, a statement of accidents showing the relative position of each operating mill. Under the scheme each mill is given a number, and the position of each mill number on the statement shows the position of each mill in comparison with other mills in the province.

For purposes of comparison the number of full time workers has been arrived at by taking the number of pay roll hours per month and dividing the result by 250. This figure of 250 has been made on the basis of a theoretical employee working ten hours per day for twenty-five days per month, this being the standard adopted by the United States Statistical Committee. "Old accidents" are accidents which have occurred in a former period but with the disability continuing into the period under review.

The relative position of each mill is governed by the time lost per full time worker, which is the only fair basis of comparison. Each mill is urged to make strenuous efforts to retain its position and so help the industry as a whole to relieve itself of the ever increasing burden of compensation.

The following is the form for tabulating accidents for all operating mills in the month, each mill being given, as already explained, a list number:—

Ontario Pulp & Paper Makers' Safety Association.
Accident for All Operating Mills, August, 1917.

List	No. of Accidents.			Time Lost in Days.			Time lost per full time worker in days.			Time lost per Accident.		No. of full time
No.	Old	New.	Total.	Old.	New.	Total.	Old.	New.	Total.	Old.	New.	Workers.
14	0	0	0	0	0	0	0	0	0	0	0	198.3
6	0	0	0	0	0	0	0	0	0	0	0	189.0

OLD MONEY SOLD FOR $25,000.

Uncle Sam is never too busy managing the government to pick up an honest dollar on the side. Part of his income is from rent of a Chinese restaurant, which operates in a government-owned building, and he constantly is doing business with second-hand furniture dealers and buyers of junk.

That the government never gives away anything it lawfully can sell is shown by the fact that it sells the refuse of the money it destroys. Of what use is the pulp of macerated paper money? Of no use whatever. That is what officials of the government said for many years. But that it has value is shown by the books of the Treasury Department, which show that last year Uncle Sam disposed of his stock of macerated money pulp for more than $25,000. There were many bidders for it and was disposed of to a New Yorker.

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FOR FOREST PROTECTION

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